



ICAO

SAFETY

# 2014–2016 Global Aviation Safety Plan



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#### **Note:**

The United Nations' definitions of regions are used in the document.

This document focuses primarily on scheduled commercial flights as this type of traffic accounts for more than 60 per cent of the total fatalities.

The scheduled commercial flights data was obtained from the Official Airline Guide (OAG).



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# Executive Summary

## Ensuring safety remains paramount

Continuous improvement in global aviation safety is fundamental to ensuring air transport continues to play a major role in driving sustainable economic and social development around the world. For an industry that directly and indirectly supports the employment of 56.6 million people, contributes over \$2 trillion to global gross domestic product (GDP), and carries over 2.5 billion passengers and \$5.3 trillion worth of cargo annually, safety must be aviation's first and overriding priority.

With air traffic projected to double in the next 15 years, current and emerging safety risks must be addressed proactively to ensure that this significant capacity expansion is carefully managed and supported through strategic regulatory and infrastructure developments. It is therefore imperative that States and regions remain focused on establishing, updating and addressing their safety priorities as they continue to encourage expansion of their air transport sectors.

To ensure that continuous safety improvement and harmonized global air navigation modernization advance hand-in-hand, global, regional and State aviation safety planning is essential. This also facilitates the safe and sustained growth, increased efficiency and responsible environmental stewardship that societies and economies globally expect and demand of Government aviation agencies and industry.

## GASP Strategy

The Global Aviation Safety Plan (GASP) has undergone significant change, driven mainly by its strengthened role as a high-level policy, planning and implementation document guiding complementary and sector-wide air transport progress in conjunction with the ICAO Global Air Navigation Plan (GANP). The Global Plans define the means and targets by which ICAO, States and aviation stakeholders can anticipate and efficiently manage air traffic growth while proactively maintaining or increasing safety. The GASP and its amendments are therefore approved by the Council prior to eventual budget-related developments and endorsement by the Assembly.

The GASP can assist ICAO States and regions in their aviation safety policy, planning and implementation activities in several ways:

-  Firstly, it sets out the global air navigation safety objectives including specific milestones and priorities to be addressed by State and regional aviation safety planners.
-  Secondly, it provides a familiar planning framework to assist States and regions to make improvements in safety through the use of the four Safety Performance Enablers: standardization, collaboration, resources and safety information exchange.
-  Finally, it outlines implementation strategies and best practice guidance material to assist States and regions in their efforts to tailor State and regional solutions to address the global objectives and priorities.

The timetable for the implementation of ICAO's GASP objectives sets out target dates over the next 15 years applicable to the global aviation community as a whole. It is particularly vital that all States put in place over the next decade, effective safety oversight systems (including proper governance arrangements) and fully implement the ICAO State Safety Programme (SSP) framework.

However, one of the strengths of the GASP is that while setting global objectives and priorities, it allows States and regions to plan and establish their own specific approaches towards meeting these objectives and priorities according to each Member State's safety oversight capabilities, SSPs and safety processes necessary to support the air navigation systems of the future.



## GASP objectives

The GASP sets out a continuous improvement strategy for States to implement over the next 15 years through the establishment of core, and then more advanced, aviation safety systems. The target dates and the broad objectives are set out below:

Target Date	Broad Objective
(a) Near-Term (by 2017)	Implementation of an effective safety oversight system
(b) Mid-Term (by 2022)	Full implementation of the ICAO State safety programme framework
(c) Long-Term (by 2027)	Advanced safety oversight system including predictive risk management

The near-, mid- and long-term objectives reflect an evolution of the targets set out in the 2007 edition of the GASP. The current targets and objectives have been developed to provide a detailed path for globally coordinated safety improvements. The previous targets to reduce the number of fatal accidents and fatalities, to significantly decrease the global and regional accident rates and to improve cooperation between regional groups and safety oversight organizations remain inherent to the objectives as set out below.

### Near-term objectives

Implementation of ICAO Standards and Recommended Practices (SARPs) related to the State's approval, authorization, certification and licensing processes is a prerequisite enabler for safe and sustainable air traffic growth. In the near term, Member States lacking these capabilities will ensure that they have the resources as well as the legal, regulatory and organizational structures necessary to fulfill their fundamental safety oversight obligations. Those States having mature safety oversight systems should focus on the continued implementation of safety management in the near term. In addition, safety can be managed at the regional level in the near-term by encouraging States and stakeholders to share safety information with their Regional Aviation Safety Groups (RASGs) and other regional fora.

### Mid-term objective

The mid-term objective calls for all States to achieve full implementation of SSPs and safety management systems (SMS) globally to facilitate the proactive management of safety risks. Through implementation of the SSP framework, States complement fundamental safety oversight functions with risk management and analytic processes that can proactively identify and mitigate safety issues. The mid-term objective requires States to move from a compliance-based oversight

## Global Priorities

approach to one which begins to proactively manage risks globally through the identification and control of existing or emerging safety issues.

### Long-term objective

The focus of the long-term objective is the implementation of predictive systems that will become integral to aviation systems of the future. Sustainable growth of the international aviation system will require the introduction of advanced safety capabilities that increase capacity while maintaining or enhancing operational safety margins and manage existing and emerging risks. The long-term objective is intended to support an operational environment characterized by increased automation and the integration of advanced capabilities on the ground and in the air.

ICAO continues to prioritize action in three areas of aviation safety – improving runway safety, reducing the number of Controlled Flight Into Terrain (CFIT) accidents and reducing the number of loss of control in-flight accidents and incidents. All of these actions will contribute to the overarching priority of the GASP to continually reduce the global accident rate.



## Safety Performance Enablers

Similar to the Global Air Navigation Plan, the GASP objectives are supported through specific safety initiatives that are categorized according to four distinct Safety Performance Enablers. These enablers form the structure for the implementation of the GASP initiatives and related safety objectives established by regions, States or industry.

### Standardization

The uniform implementation of ICAO Standards and Recommended Practices is a fundamental tenet of the Convention on International Civil Aviation (the Chicago Convention) and forms the foundation of a safe global aviation system. Standardization therefore refers to this uniform and consistent implementation of SARPs. Through greater transparency and increased disclosure of auditing processes and results, ICAO strives to improve the overall implementation of SARPs. Efforts to attain greater standardization must nonetheless recognize that ICAO Member States face varying safety issues and have disparate human, technical and financial resources at their disposal to manage safety.

### Collaboration

Achieving the GASP objectives is contingent upon continued engagement of the international community to address multidisciplinary and inter-regional issues. Recognizing the value of collaboration, the GASP outlines the different roles of States, industry, international and regional aviation safety organizations, allowing them to coordinate the implementation of safety policies, oversight activities and the components of State safety programmes and safety management systems.

As an integral part of the GASP structure, Regional Aviation Safety Groups (RASGs) harmonize all activities undertaken to address aviation safety issues on a regional basis. The RASGs build upon the achievements of existing sub-regional safety organizations and facilitate the exchange of best practices, cooperation and collaboration using a top-down approach complementing the bottom-up approach of planning by sub-regions, States and industry.

The activities of the RASGs are aligned to serve the GASP objectives by providing practical assistance to States in their region. In addition, the RASGs provide a formal reporting channel that allows ICAO to monitor the worldwide implementation of the GASP.

### Resources

In addition to the development and implementation of ICAO SARPs, it is essential that there be future investment by States in maintaining, upgrading and replacing aviation infrastructure and investment in technical and human resources to safely accommodate the anticipated growth in air traffic. Such investments include the continued funding of the development of technical and procedural capabilities, as well as the education and training of future aviation professionals. This funding will ensure that professionals have the necessary skills to safely operate the global aviation system as it continues to become more complex and technically advanced; including the increasing use of satellite-based communications, navigation and surveillance systems.

### Safety Information Exchange

The exchange of safety information is a fundamental part of the global plan and is required to achieve its objectives, enabling the detection of emerging safety issues and facilitating effective and timely action. To encourage and support the exchange of safety information, it is imperative to implement safeguards against the improper use of safety information. To this end, ICAO is cooperating with States and industry to develop provisions to ensure appropriate protection of safety information.



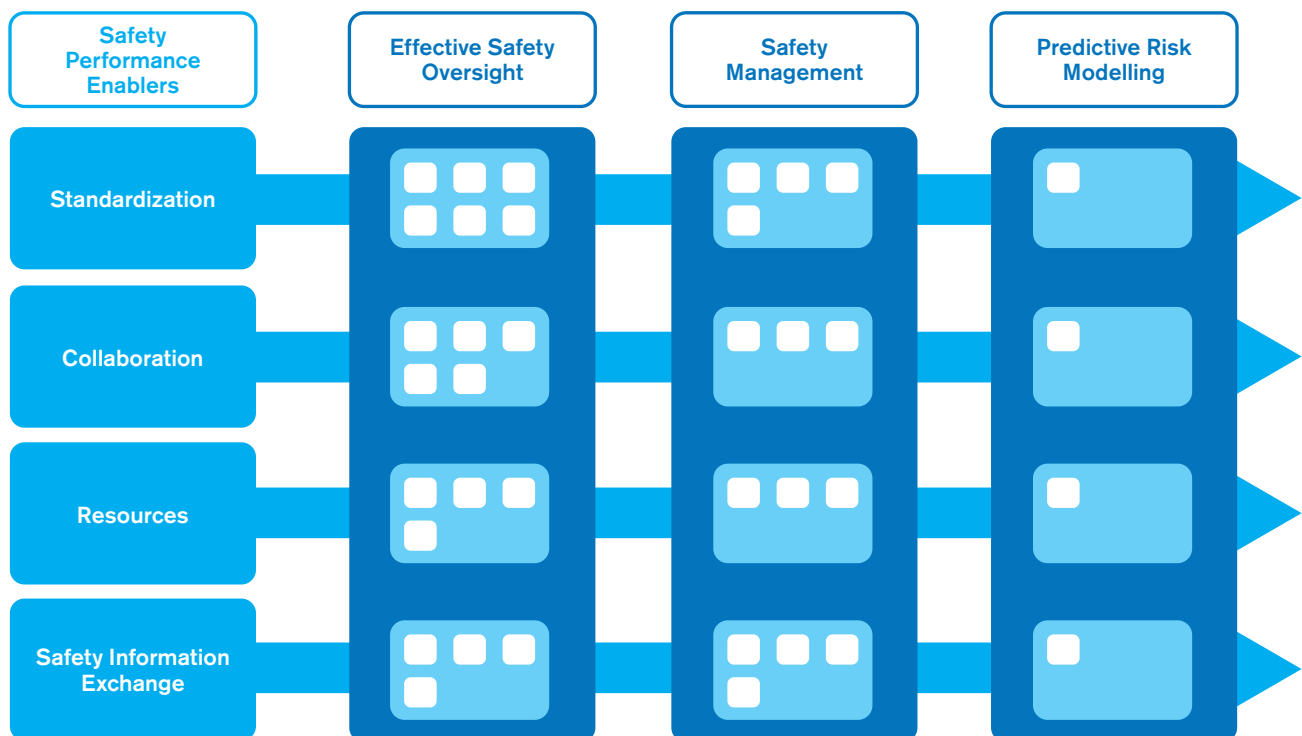
## GASP Framework

The GASP safety initiatives are categorized according to the maturity level and corresponding Safety Performance Enabler. Each square in Figure 1 represents an individual safety initiative.

States seeking to make improvements to any one of the Safety Performance Enablers can look to the initiatives in the corresponding row to prioritize their safety activities.

The implementation of the safety initiatives is progressive. Consequently States are encouraged to continue their development in the next implementation phase as they reach their individual milestones. Meanwhile, once the implementation of a specific initiative is complete, States progressing to the next phase should maintain past initiatives and not lose sight of the importance of the fundamental safety initiatives.

Figure 1: GASP Framework



## Measuring safety outcomes

ICAO and the RASGs publish annual safety reports to provide regular updates on the level of progress achieved with respect to the GASP objectives through measurement of reactive, proactive and predictive safety indicators. Moreover, each annual Safety Report includes analysis of a number of key safety metrics

including statistics on accidents and related fatalities, States' compliance with ICAO requirements as well as information related to global traffic volume and traffic growth. An analysis of multiple safety indicators is essential to assess safety performance globally as well as at the regional levels.



# Introduction | The Global Aviation Safety Plan



The Global Aviation Safety Plan (GASP) has three main purposes to assist ICAO States and regions around the world in their air navigation safety policy, planning and implementation.


Firstly, it sets out the global air navigation safety objectives including specific milestones and priorities to be addressed by State and regional aviation safety planners.


Secondly, it provides a planning framework, timetable and guidance material for States and regions.


Finally, it outlines implementation strategies and best practice guidance material to assist States and regions in their efforts to tailor State and regional solutions to address the global objectives and priorities.


The framework is a familiar one to ICAO States, to make improvements in safety through the use of the four Safety Performance Enablers: standardization, collaboration, resources and safety information exchange.


**The Global Aviation Safety Plan is characterized by the following:**


 Recognizing that States are already obligated by ICAO provisions to develop their safety oversight capabilities and implement State Safety Programmes individually, the GASP provides a strategy to enhance the implementation of these safety initiatives.


 The GASP is an overarching framework that includes key aviation policy principles to assist ICAO regions, sub-regions and States with the preparation of their regional and State aviation safety plans.


 The GASP objectives strive to define and maintain acceptable levels of safety throughout the global aviation system. The GASP also includes strategies for maintaining safety when addressing the other ICAO Strategic Objectives.


 The GASP includes a framework comprised of measurable objectives, supported by Safety Performance Enablers and associated safety initiatives.

 The global objectives and Safety Performance Enablers are designed to be used by the regions, sub-regions and States to address their specific safety risks.

 The GASP will help ICAO regions, sub-regions and States establish their safety priorities over the next 15 years.

 The GASP sets out near-, mid- and long-term targets for the global collective attainment of each objective.

 The GASP continues to prioritize action in three areas of aviation safety – improving runway safety, reducing the number of Controlled Flight Into Terrain (CFIT) accidents and reducing the number of loss of control in-flight accidents and incidents. All of these actions will contribute to the overarching priority of the GASP to continually reduce the global accident rate.

 The GASP outlines ICAO's 10 key aviation safety policy principles guiding global, regional and State safety policy, planning and implementation.





# Chapter 1 | Global Aviation Safety Plan Policy Principles



# ICAO's 10 key aviation safety policy principles

## 01

### Commitment to the implementation of ICAO's Strategic Objectives

ICAO regional and State aviation initiatives will encompass each of ICAO's Strategic Objectives.

## 02

### Aviation safety is the highest priority

In all planning related to ICAO's Strategic Objectives, the Organization, regions and States will give primacy to the safety priorities set out in the GASP.

## 03

### Tiered approach to safety planning

ICAO's Global Aviation Safety Plan will guide and help harmonize the development of regional and individual State safety planning.

The development of regional safety activities, as coordinated by the RASGs, will also guide and harmonize the development of inter-regional and individual State safety activities.

## 04

### State safety programme and safety management systems

Annex 19 on Safety Management and companion documents, including the *Safety Management Manual* (Doc 9859), will provide a sound global basis for global aviation safety.

## 05

### ICAO support of aviation safety priorities

ICAO should further develop provisions, supporting material and provide training aligned with the global priorities for aviation safety as described in the GASP and based on risk assessments.

## 06

### Regional and State aviation safety priorities

ICAO regions, sub-regions and individual States should establish their own aviation safety priorities coordinated through the RASGs to meet their individual needs and circumstances in line with the global safety priorities.

## 07

### GASP objectives and Safety Performance Enablers

The objectives and the Safety Performance Enablers form the fundamental pillars of the GASP, noting that they will continue to evolve as more work is done on refining and updating their content and on subsequent development of related provisions, support material and training.

## 08

### Use of objectives and Safety Performance Enablers

Although the GASP has a global perspective, it is intended that the prioritization of initiatives associated with the Safety Performance Enablers should be established by States and regions to effectively address their safety risks.

Safety initiatives adopted by regions, sub-regions or States should be followed in accordance with the ICAO SARPs and guidance material.

The attainment of GASP safety objectives by all States according to the near-, mid- and long-term targets will be the subject of ICAO implementation dates.

## 09

### Cost benefit and financial issues

The implementation of aviation safety measures, including those identified in the Safety Performance Enablers, can require significant investment of finite resources by ICAO regions, sub-regions, States and the aviation community.

When considering the adoption of Safety Performance Enablers, ICAO regions, sub-regions and States should undertake analyses to ensure that the investments justify the safety benefits and that these are sustainable.

## 10

### Review and evaluation of aviation safety planning

ICAO will review the GASP every three years and, if necessary, all relevant aviation safety planning documents through the established and transparent process, including State and industry consultation. The progress and effectiveness of ICAO regions and States against the priorities set out in their respective aviation safety plans will need to be continuously measured and annually reported, using a consistent reporting format. These will assist regions and States in adjusting their priorities to reflect actual performance and address any emerging aviation safety issues.

This analysis will be aided by the publication of annual safety reports, which will apply various performance metrics to provide an indication of the progress being made. The Air Navigation Commission (ANC) will review progress annually to monitor attainment of the GASP objectives and submit ad-hoc reports to Council on matters requiring their attention.

## A coordinated strategy

The GASP and GANP are complementary documents that provide opportunities for ICAO, Planning and Implementation Regional Groups (PIRGs) and RASGs to coordinate their respective analysis and monitoring efforts as well as to facilitate the implementation of SARPs in each region.

The implementation of an annual reporting process by the PIRGs and RASGs will enable the aviation community to collaboratively identify, address and regularly reassess safety and air navigation objectives at the global, regional and national levels through the respective work programmes.

This process will enable changes to be made that reflect higher-level policy adjustments to the global plans approved by the ICAO Council and endorsed by the Assembly.

The ANC will review the GASP and GANP as part of its annual work programme, reporting to the Council one year in advance of each ICAO Assembly. Following approval by the Council, any amendments to the global plans and supporting documents will then be submitted for endorsement by ICAO Member States at the following ICAO Assembly.

### The ANC report will provide the following:

- a) Review of global progress made;
- b) Consideration of technological, regulatory and other changes which may affect implementation of the Safety Performance Enablers;
- c) Consideration of lessons learned by States and industry;
- d) Proposals relating to adjustments to the objectives of the GASP.







## Chapter 2 | Global Safety Objectives

## GASP Objectives: Continuous Safety System Improvement

The GASP objectives require States, over the next 15 years, to put in place increasingly effective, robust and eventually more sophisticated safety oversight systems. These objectives align with ICAO's endorsement of the increasing use and implementation of State safety programmes accompanied by the establishment of safety management systems by Government aviation safety agencies and industry.

For such objectives, it is paramount to foster the integration of RASGs with Regional Safety Oversight Organizations (RSOOs), which will harmonize all activities undertaken to address aviation safety issues specific to each ICAO region.

Figure 2 provides an overview of the GASP objectives. It is progressive in nature, and recognizes the importance of the establishment and maintenance of fundamental safety oversight systems as a prerequisite to the full implementation of State safety programmes. It is expected that all States will continually, and as a matter of priority, progress implementation of ICAO Standards associated with the GASP safety objectives and priorities.

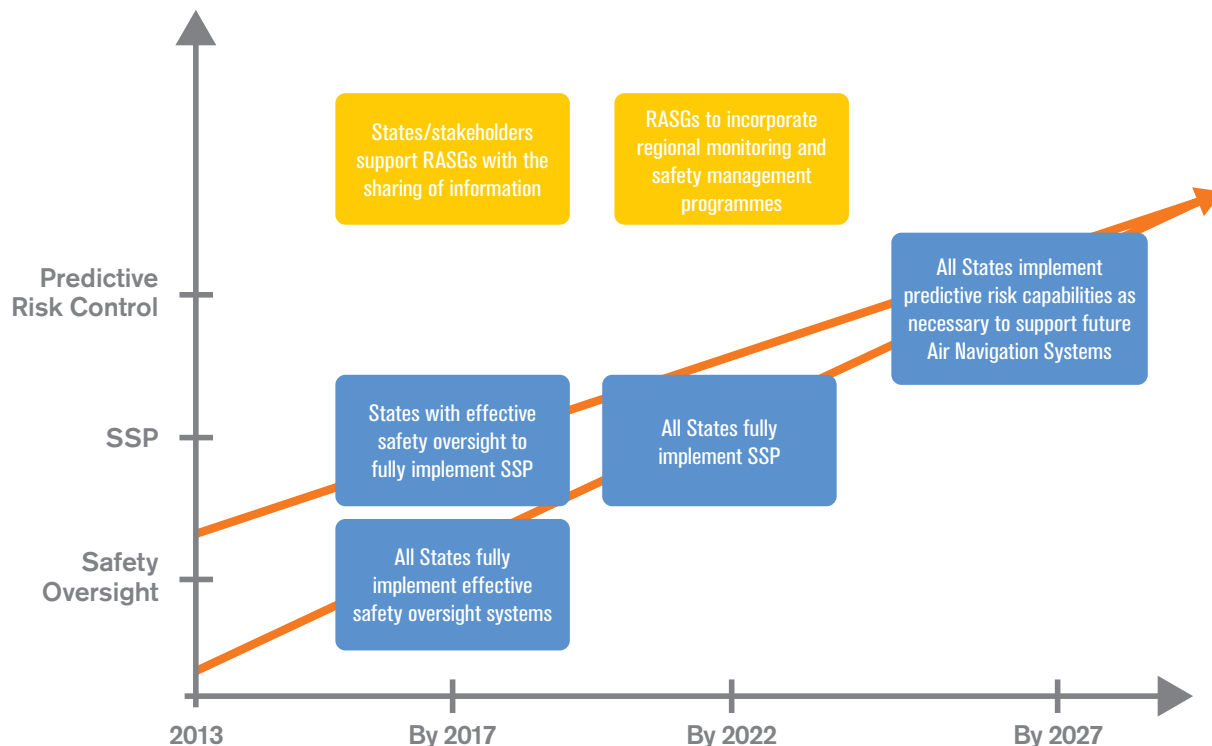
The GASP includes **near-term** objectives to be attained by 2017 which are targeted to reflect current State and regional differences in the level of safety oversight systems; two objectives addressing States' own national safety programmes and one addressing States working

together with stakeholders. The first near-term objective is for States lacking fundamental safety oversight capabilities to achieve an effective implementation rate above the current global average. The second near-term objective is for States currently having EI rates above the global average to achieve full SSP implementation, thereby addressing risks specific to their aviation systems. The ICAO *Safety Management Manual* (Doc 9859) contains guidance for SSP implementation. The third near-term objective addresses safety managed regionally by encouraging all States and stakeholders to put in place mechanisms for the sharing of safety information in RASGs and other regional or sub-regional fora.

The **mid-term** GASP objective is for all States that have not done so, to fully implement the SSP components no later than 2022. Additionally, RASGs should continue to mature with regional monitoring and safety management programmes.

In the **long term**, States will build upon safety management practices within the SSP to develop predictive risk controls necessary to support real-time collaborative decision-making processes that will become integral to future aviation systems. The objectives are sequenced to advance the implementation of SSP and SMS proactive safety management principles as a foundation for the introduction of predictive risk-modelling capabilities necessary to support the aviation systems of the future.

Figure 2: Overview of strategy to achieve GASP objectives



All States are expected to continually progress their implementation of State safety programmes as a matter of priority. As the time required for implementation will vary among States, the near- and mid-term objectives indicated in Figure 2 provide global targets reflecting the collective achievements of all States, which will be coordinated through the RASGs at regional level. Attainment of the long-term objective will depend upon each State's implementation of future air navigation systems.

### Global Aviation Safety Priorities

Three areas of aviation safety continue to be global priorities – improving runway safety performance, reducing Controlled Flight into Terrain (CFIT) accidents and reducing the number of loss of control in-flight accidents and incidents. These priorities should be addressed at a global, regional and State level.

Effective actions against each of these priority areas will contribute to the overarching priority of the GASP to continually reduce the global accident rate.

### Improving Runway Safety Performance

ICAO is coordinating a global effort to improve runway safety performance. This programme has involved substantial collaboration with partner organizations including: the International Air Transport Association; Airports Council International; the Civil Air Navigation Services Organisation; the European Aviation Safety Agency; EUROCONTROL; the U.S. Federal Aviation Administration; the Flight Safety Foundation; the International Business Aviation Council; the International Coordinating Council of Aerospace Industries Associations; the International



Council of Aircraft Owner and Pilot Associations; the International Federation of Airline Pilots' Associations and the International Federation of Air Traffic Controllers' Associations.

Statistical analysis has shown that accidents occurring in the runway environment are the result of contributing factors across multiple aspects of the aviation system. Therefore, the ICAO Runway Safety Programme promotes the establishment of multidisciplinary runway safety teams, requiring collaboration among regulatory authorities as well as stakeholders in air traffic management, aerodromes, operators and the design and manufacturing organizations. The programme involves other innovative approaches being developed by aviation safety experts to continuously reduce risks encountered in the takeoff and landing flight phases as well as during surface movements. The ICAO Runway Safety Toolkit and the ICAO/IATA Runway Excursion Risk Reduction Toolkit are some important examples of the products that are available.

The Global Runway Safety Symposium (GRSS) held at ICAO Headquarters in May 2011 considered risk mitigation measures, including increased standardization, collaboration across all relevant operational disciplines, the sharing of safety information and the implementation of technical solutions. At this symposium, the framework for a series of regional runway safety workshops was identified.

ICAO will continue to focus on this safety issue, with future workshops planned to support the risk assessment and mitigation activities conducted by runway safety teams.

### **Controlled Flight into Terrain**

ICAO introduced a number of amendments to SARPs and related guidance material to reduce the risk of CFIT accidents. ICAO was also an active participant of the Flight Safety Foundation Approach and Landing Accident Reduction (ALAR) Task Force.

Accident data indicates that controlled flight into terrain accounts for just over 12 per cent of all fatal accidents, a disproportionately high percentage given the low proportion of all accidents attributed to this category. While ICAO and other organizations have undertaken a number of initiatives which have met with some success, the data would suggest that additional efforts should be considered.

An awareness campaign has been initiated by the Regional Aviation Safety Groups containing information that air operators may utilize to develop Standard Operating Procedures and training for pilots. These include, inter alia, the use of instrument approaches with vertical guidance, the use of the continuous descent final approach (CDFA) technique when flying approach procedures with lateral guidance only and recurrent training of escape manoeuvres based on Ground Proximity Warning Systems (GPWS) with forward-looking terrain avoidance functions.

### **Loss of control in-flight (LOC-I)**

Reducing the number of LOC-I accidents is an ICAO priority. In the last eight years, this accident category has resulted in more fatalities in scheduled commercial operations than any other type, including runway incursions and excursions, and CFIT.

Through the Loss of Control Avoidance and Recovery Training Group, ICAO is working collaboratively with stakeholders throughout the international aviation community to develop harmonized training requirements and guidance material for flight crews that focus on LOC-I prevention and recovery.

SARPs for on-aircraft training at the commercial pilot and multi-crew pilot level as well as in a flight simulation training device at the commercial air transport pilot and type rating level are being proposed to become applicable in November 2014. Extensive guidance to support these new provisions will be published in the *Aeroplane Upset Prevention and Recovery Manual*.

With the focus on prevention, methods to promote recognition and assess active monitoring by pilots are also being examined, with consideration given to how early decisions and actions by flight crews can effectively control the associated risks. Physiological responses to stress and the impact on the management of unexpected events are also under the microscope. Longer-term efforts are being devoted to integrating such human performance issues within competency-based training and assessment approaches for pilots. To assist in addressing issues surrounding LOC-I, ICAO is planning a Loss of Control Symposium in 2014, showcasing and other work being undertaken throughout the industry.



## Chapter 3 | Global Aviation Safety Performance Enablers

## Safety Performance Enabler 1: Standardization

The Global Aviation Safety Performance Enablers contained in the GASP are common to each of the objectives. Specific initiatives are identified for each Safety Performance Enabler / objective combination. To help guide the implementation of initiatives, best practice guidance material has been developed in support of each Safety Performance Enabler. This material can be found in Appendix 2 and will be updated as further information and advice is received from ICAO States.

Safety Performance Enablers support the implementation of the GASP objectives and other safety objectives that might be established by States or regions. The Safety Performance Enablers are provided to facilitate the planning process and should not be viewed as stand-alone work items, but rather, as interrelated and interdependent elements of the safety system.

The four Safety Performance Enablers are set out in the sections that follow below.

The uniform implementation of ICAO Standards and Recommended Practices is a fundamental tenet of the Convention on International Civil Aviation (the Chicago Convention) and forms the foundation of a safe global aviation system. Standardization therefore refers to this uniform and consistent implementation of SARPs. Through greater transparency and increased disclosure of auditing processes and results, ICAO strives to improve the overall implementation of SARPs. Efforts to attain greater standardization must nonetheless recognize that ICAO Member States face varying safety issues and have disparate human, technical and financial resources at their disposal to manage safety.

Standardization contributes to a sustainable aviation safety strategy. At the highest level, implementation of ICAO provisions enhances safety in aviation operations through the development and implementation of effective and harmonized regulations at the national, regional and global level. Similarly, adherence to industry best practice serves to enhance standardization for activities conducted by service providers.

In the near term, it is essential for all Member States to have the resources, as well as the legal, regulatory and organizational structures, necessary to fulfil their fundamental safety oversight obligations. These are required to ensure the issuance and oversight of approvals, authorizations and certification of aviation service providers, as well as personnel licensing, in accordance with relevant ICAO provisions. States with mature safety oversight systems have the foundations in place to implement provisions associated with SSP.

States are obligated to provide timely notification to ICAO when adopting regulations or practices differing from those established by ICAO SARPs.

### Monitoring standardization

The continuous monitoring of standardization, and the comprehensive sharing and analysis of monitoring results, are essential to assure that global safety objectives are achieved. In 2011, ICAO began its transition

of the USOAP to a Continuous Monitoring Approach (CMA). The CMA aims to provide a continuous report of a State's effective implementation. The CMA represents a long-term, flexible, more cost-effective and sustainable method of identifying safety deficiencies, assessing associated risks, developing assistance strategies and prioritizing improvements.

CMA monitors whether States develop, maintain and apply national regulations in accordance with ICAO SARPs. This includes a State's regulatory and oversight framework, safety processes and systems, as well as technical personnel working together to ensure safe and orderly civil aviation operations and related activities.

Through analysis of USOAP data, CMA will provide a tool for monitoring the rate of effective implementation required to meet the GASP objectives.

Additionally, programmes undertaken by the International Air Transport Association (IATA), the Airports Council International (ACI), the Civil Air Navigation Services Organisation (CANSO) and the International Business Aviation Council (IBAC) provide the means to detect systemic deficiencies common to multiple areas of aviation activity.

ICAO, States and international organizations should ensure that related safety audit activities are, to the extent possible, conducted in a complementary manner to provide a comprehensive assessment of safety performance throughout the aviation system.

ICAO, States and international organizations should continue to ensure that the effective exchange of pertinent information resulting from various auditing or monitoring programmes continues to facilitate the detection of systemic safety deficiencies common to the oversight and provision of aviation services. This need for the sharing of information in monitoring the implementation of SARPs evidences the connectivity between the standardization, collaboration and information exchange initiatives.

Moreover, in the interest of increased transparency and to further emphasize the need to resolve significant safety concerns (SSCs), the ICAO Council has agreed in principle on a way forward for making information regarding State SSCs public as of January 2014. The implementation of this disclosure system is subject to a review of the information posted on the ICAO public site.

## Safety Performance Enabler 2: Collaboration

A proactive approach to aviation safety requires the participation of all concerned stakeholders. Based on the need for a coordinated and transparent approach for aviation safety, ICAO continues to foster collaboration with its Member States and other global aviation stakeholders.

### Working with stakeholders

The GASP provides for expanded and strengthened strategic collaboration with key aviation stakeholders for the enhancement of aviation safety in a coordinated manner.

This strategic partnership approach was strongly supported by the aviation community during a Safety Partnership meeting held at ICAO Headquarters in November 2012. As a means to facilitate this evolutionary approach for the enhancement of safety, ICAO established a Strategic Aviation Safety Partnership (SASP) to prioritize safety initiatives and to coordinate their effective and efficient implementation. The Safety Partnership is expected to continue meeting on an annual basis to align objectives and coordinate initiatives. It is envisioned that this collaborative approach will ensure consistency while maximizing operational benefits and cost-effectiveness resulting from the implementation of safety initiatives.

Achieving the GASP objectives is contingent upon continued engagement of the international community to address multidisciplinary issues. Recognizing the value of collaboration, the GASP outlines the different roles of States, industry, international and regional aviation safety organizations, allowing them to coordinate the implementation of safety policies, oversight activities and the components of State safety programmes and safety management systems.

At the regional level, the GASP assists in the development of more collective solutions to common safety deficiencies by aligning and coordinating activities conducted by ICAO, its Member States, and international and regional organizations. GASP safety objectives guide regional and sub-regional priorities, promoting further coordination of all stakeholder efforts.

Together with ICAO, stakeholders in civil aviation include States, operators, aerodromes, air navigation service providers, manufacturers, maintenance and repair organizations, regional organizations, international organizations and industry representatives. The commitment and participation of all stakeholders is fundamental for success in continually improving safety.



ICAO continues to actively engage with other agencies of the United Nations (e.g. the World Meteorological Organization; the International Atomic Energy Agency, the Universal Postal Union, United Nations Department of Safety and Security, the World Health Organization; the World Food Programme; the UN Department of Field Services; and the International Maritime Organization) in preparing for and responding to natural disasters and other crises that impact global air navigation safety and efficiency.

### Regional Aviation Safety Groups

As an integral part of the GASP, Regional Aviation Safety Groups (RASGs), together with Regional Safety Oversight Organizations (RSOOs) will harmonize all activities undertaken to address aviation safety issues specific to each ICAO region. The RASGs build upon the achievements of existing sub-regional safety organizations and facilitate the exchange of best practices, cooperation and collaboration using a top-down approach—complementing the bottom-up approach of planning by sub-regions, States and industry. The activities of the RASGs are aligned to support the GASP objectives by measuring regional safety indicators, coordinating regional initiatives and providing practical assistance to States in their region. In addition, the RASGs provide a formal reporting channel to enable monitoring of worldwide GASP implementation.

RASGs can serve as the focal point to coordinate all regional efforts and programmes aimed at reducing aviation safety risks. An added objective of the groups is eliminating the duplication of efforts through the establishment of more cooperative regional safety programmes. This type of broad-based and coordinated approach significantly lessens the financial and human resource burden on States, while delivering measurable improvements to benefit local aviation safety performance outcomes. Within the GASP framework, RASGs build on the work already done by States and existing sub-regional organizations.

Furthermore, RASGs drive and monitor progress, coordinate actions among States and stakeholders and make recommendations to ICAO to facilitate the implementation of the GASP. The two main objectives of the RASGs are:

- a) to support the global and regional implementation of the GASP by ensuring that all stakeholders work together in coordination and cooperation; and
- b) the monitoring of progress made in the implementation of the plan by supporting the establishment and operation of a performance-based safety system for each region.

GASP Implementation strategies are pursued by RASG stakeholders to address the identified risk areas. The groups are composed of member States and observers from the Regional Safety Oversight Organizations (RSOOs), Cooperative Development of Operational Safety and Continuing Airworthiness Programmes (COSCAPs), Original Equipment Manufacturers (OEMs), international organizations, air operators and service providers, among others.

### Regional Safety Oversight Organizations

The Regional Safety Oversight Organizations can play an important role by supporting the establishment and operation of a performance-based safety system and by analysing safety information and hazards to aviation at regional level and reviewing the action plans developed within the region.

A number of ICAO Member States have difficulties in resolving their safety deficiencies due to an internal lack of financial, technical and/or qualified human resources. ICAO took the initiative to address this issue by facilitating the development of RSOOs, through which groups of States can collaborate and share resources to improve their safety oversight capabilities.

There is a growing number of RSOOs, several of which are already well established and operational in regions around the world, as well as others which are expected to become fully operational over the next few years. Guidance is currently being developed on the classification of RSOOs that will help to further clarify their respective roles and responsibilities.

## Safety Performance Enabler 3: Resources

### Regional Accident and Incident Investigation Organizations

Regional Accident and Incident Investigation Organizations (RAIOs) facilitate implementation of accident and incident investigation systems by allowing States to share the necessary financial and human resources, and enabling them to fulfil their investigation obligations. The principal objectives of an RAIO are:

- a) To provide for the establishment of an adequately funded, professionally trained, and independent regional aircraft accident and incident investigation organization;
- b) To ensure that all aircraft accidents and incidents are investigated in compliance with the provisions of ICAO Annex 13—*Aircraft Accident and Incident Investigation*;
- c) To enhance cooperation, eliminating duplication of effort; and
- d) To enhance information sharing.

Some groups of States have already established a RAIO: the Interstate Aviation Committee, representing Armenia, Azerbaijan, Belarus, Georgia, Kazakhstan, Kyrgyzstan, Republic of Moldova, Russian Federation, Tajikistan, Turkmenistan, Ukraine and Uzbekistan; and the Banjul Accord Group Accident Investigation Agency (BAGAIA) consisting of Cabo Verde, Gambia, Ghana, Guinea, Liberia, Nigeria, and Sierra Leone). Other initiatives are under way in Africa, Central America and the Middle East.

It is essential that there be future investment by States in maintaining, upgrading and replacing aviation infrastructure and investment in technical and human resources to safely accommodate the anticipated growth in air traffic. Such investments include the continued funding of technical capabilities and procedural developments as well as the education and training of future aviation professionals. This is done to ensure they have the necessary skills to operate the global aviation system safely as it continues to become more complex and technically advanced, including the increasing use of satellite-based communications, navigation and surveillance systems.

### Investing in people

Success in achieving the GASP objectives is contingent upon the recruitment and retention of qualified personnel and continued investment in initiatives that develop and enhance the skills of the aviation workforce. This investment will enable advances in both educational and training programmes to ensure that aviation professionals have the skills necessary to operate the international aviation system safely as it undergoes significant growth and change. Examples include the introduction of ICAO provisions that enable more systematic training methodologies, such as competency-based training and evidence-based training.

ICAO is encouraging investment for the sustainability of the aviation workforce through the Next Generation of Aviation Professional (NGAP) programme. The NGAP vision is to have a global aviation community



that has sufficient competent human resources to support a safe, secure and sustainable air transportation system. It seeks to accomplish this vision through the development of strategies, best practices, tools, standards and guidelines as applicable and to facilitate information sharing activities that assist the global aviation community in attracting, training, educating, and retaining the next generation of aviation professionals.

### Investing in aviation infrastructure and technology

Continuous investment in aviation infrastructure and related technologies complements the achievement of GASP objectives. Key system components must be properly maintained, upgraded and replaced as necessary to assure continuous safe operations.

The introduction of new capabilities can also continue to provide safety benefits into the future. The range of technological advances will impact many facets of future aviation systems, including airborne and satellite capabilities as well as ground-based infrastructure. In addition, new systems will be required to support proactive safety management functions, including the collection and analysis and management of multiple types of data.

The use of Performance-based Navigation (PBN) enhances safety by addressing a number of risks, including those associated with Controlled Flight into Terrain, runway excursions and the loss of aircraft separation.



## Safety Performance Enabler 4: Safety information exchange

The exchange of safety information is a fundamental part of the GASP. The scope of information sharing initiatives will progressively increase as the GASP objectives are met.

In the near term, the focus is on the exchange of information collected by ICAO and States on compliance with SARPs. Information exchange initiatives promote global standardization and enhance the monitoring of compliance with national regulations that are based on international requirements, as well as adherence to industry best practices.

The transition to a risk-based approach will increasingly require the exchange of safety information among ICAO, its Member States and partner organizations to facilitate and further enhance the proactive mitigation of safety risks.

In the long term, the exchange of safety information will become a requisite component to enable implementation of fully interoperable air traffic management systems. Therefore, routine sharing of operational data will become the norm, with the exchange of information occurring on a real-time basis to support aviation systems of the future. Progression to a risk-based approach will depend upon the ability to increase the frequency and broaden the scope of safety monitoring activities required to maintain desired levels of safety performance.

### Expanding safety information sharing capabilities

In order to facilitate the exchange of safety information, it is essential to define key safety performance indicators as well as a methodology for safety performance measurement. ICAO, Member States and industry continue to work together to identify harmonized safety metrics, associated data requirements and processes that will enable integrated safety analysis and to ensure consistent development of related safety measures.

The basis for effective identification and measurement of safety risks is directly related to these tasks:

- The development of international safety performance indicators (SPIs)
- The development of safety performance measurement methodologies, including taxonomies required to support and guide the implementation of State Safety Programmes

- The identification of existing safety information sharing systems capabilities and development of high-level technical requirements to assure global harmonization as necessary to enhance information exchange.

### Protection of safety information

To facilitate the exchange of information, ICAO, States and other stakeholders seek to ensure that any information shared is used for the purpose of maintaining and improving aviation safety. The goal is to effectively balance the need to protect safety information, the need to use such information for demonstrably safety-related purposes, and the need to assure the appropriate administration of justice.

Information sharing initiatives should be conducted in a manner consistent with Annex 19 provisions, the ICAO Code of Conduct on the Sharing and Use of Safety Information and taking into account the conclusions and recommendations of the Safety Information Protection Task Force (SIPTF) so as to ensure the integrity of collaborative monitoring efforts. The ICAO Code of Conduct on the Sharing and Use of Safety Information is included as Appendix 3.





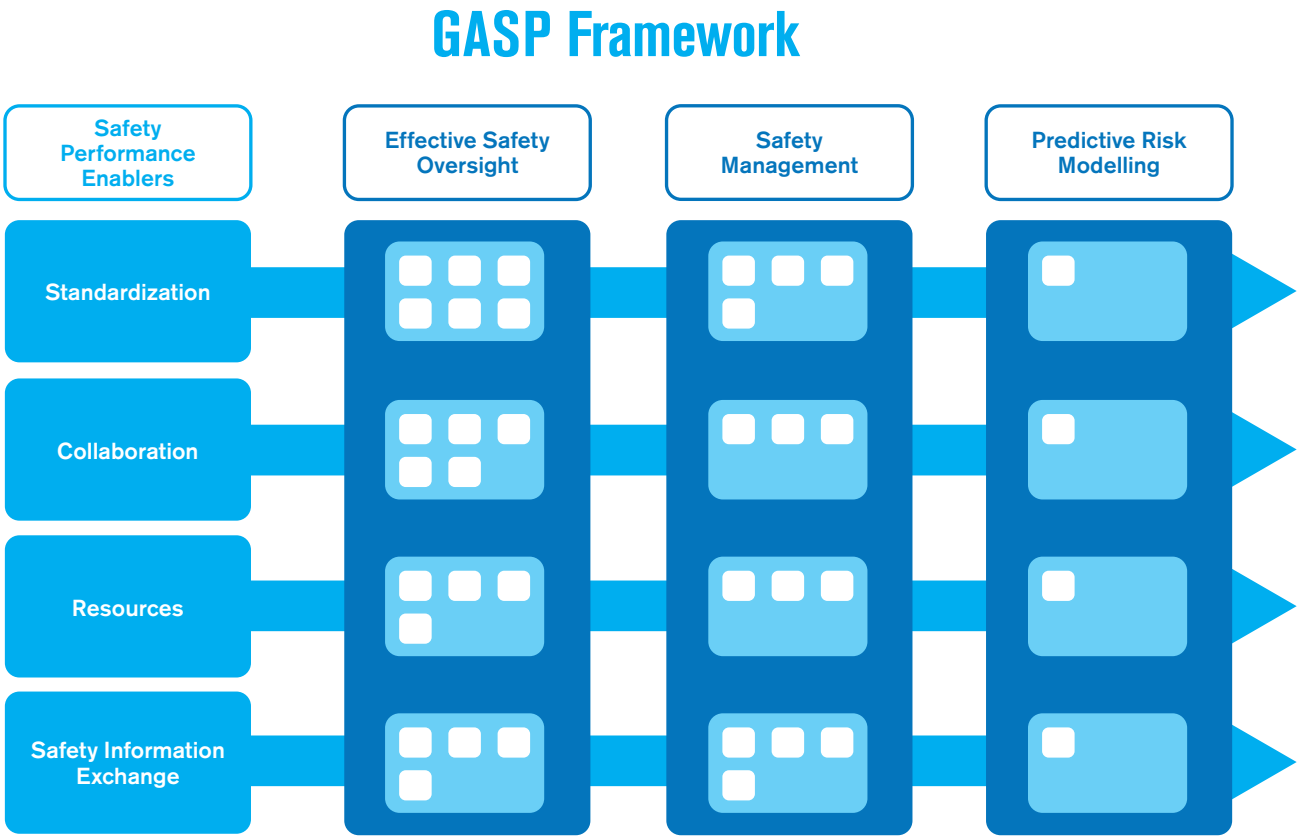
The background of the slide is a photograph of a clear blue sky with some light, wispy clouds. In the lower portion of the image, the white, curved surface of an airplane wing is visible, extending from the bottom left towards the right. A black horizontal bar is positioned across the middle of the image, containing the chapter title in white text.

## Chapter 4 | Global Aviation Safety Planning Framework

The GASP can be mapped using the Safety Strategy diagram as presented in Figure 3. This diagram shows how the four Safety Performance Enablers and the three

major GASP objectives near-term (by 2017), mid-term (by 2022) and long-term (by 2027) come together to form a continuous strategy for improving aviation safety.

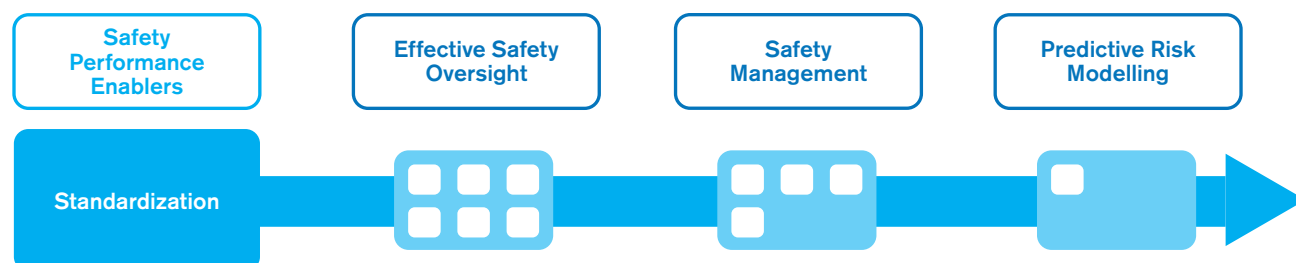
Figure 3: Safety Strategy diagram



In Figure 3 above, the columns show the evolution of the objectives of the plan. Each row represents a performance enabler that creates a common thematic thread in support of the objectives throughout the GASP.

As a State's safety system matures, it progress through the plan by addressing the objectives in prioritized succession. Taking the standardization thread as an example, Figure 4 shows its path throughout the GASP.

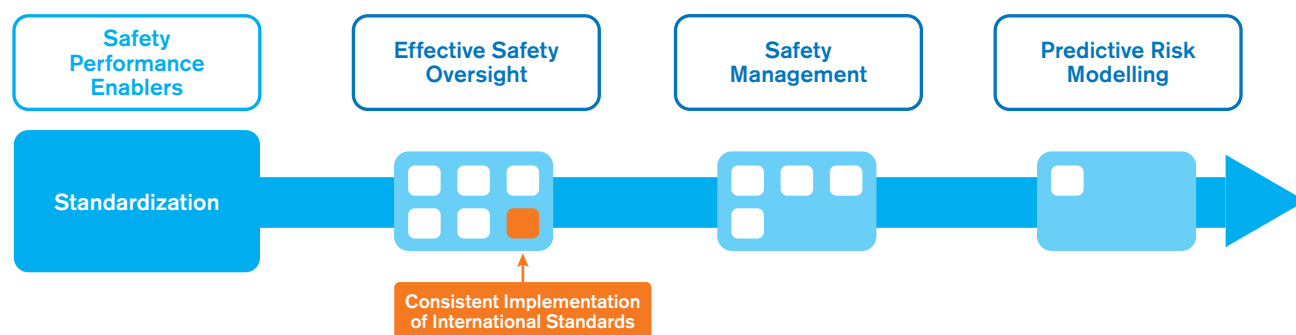
Figure 4: Progress path of the Standardization Safety Performance Enabler



There are one or more safety initiatives at the intersection of each Safety Performance Enabler and objective. These initiatives are represented by the individual boxes that are found at the intersection between the Standardization Safety Performance Enabler and the near-term GASP

objective. For example, the consistent implementation of International Standards is one of six Standardization safety initiatives associated with the implementation of effective safety oversight as indicated by the orange box below.

Figure 5: Safety Initiatives



It is recognized that these processes are not completely linear and sequential, and that there may be parallel work undertaken in near- and mid-term objectives,

thus ensuring a structured and progressive approach to evolving the State's safety system.





## Chapter 5 | Implementation of Global Safety Objectives



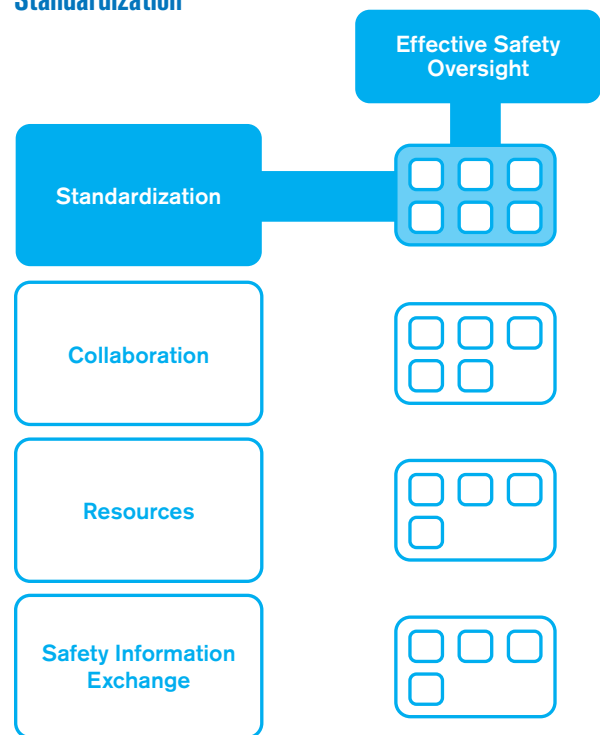
## Near-Term Objective: Establishment of an Effective Safety Oversight System

The GASP calls for all States to have implemented effective safety oversight capabilities by the year 2017. This requires all Member States to have the resources as well as the legal, regulatory and organizational structures necessary to fulfil their fundamental safety oversight obligations. These are required to ensure the issuance and oversight of approvals, authorizations and certification of aviation service providers, as well as personnel licensing, in accordance with relevant ICAO SARPs.

This objective is inspired by the 2012 Ministerial Meeting in Africa, which set a target for all African States to attain 60 per cent effective implementation of ICAO SARPs by 2017. Attainment of this objective will establish a baseline of fundamental safety oversight maturity throughout all Member States, assuring consistency in the certification and ongoing safety surveillance of all aviation service providers. As a result, all States that have not already done so are to achieve effective implementation rates above the current global average of 60 per cent by the year 2017.

States having low levels of effective implementation typically face significant human and financial resources constraints, which challenge the efforts, intended to improve levels of implementation. These States may require assistance in developing and implementing corrective action plans that address specific areas of safety oversight deficiencies.

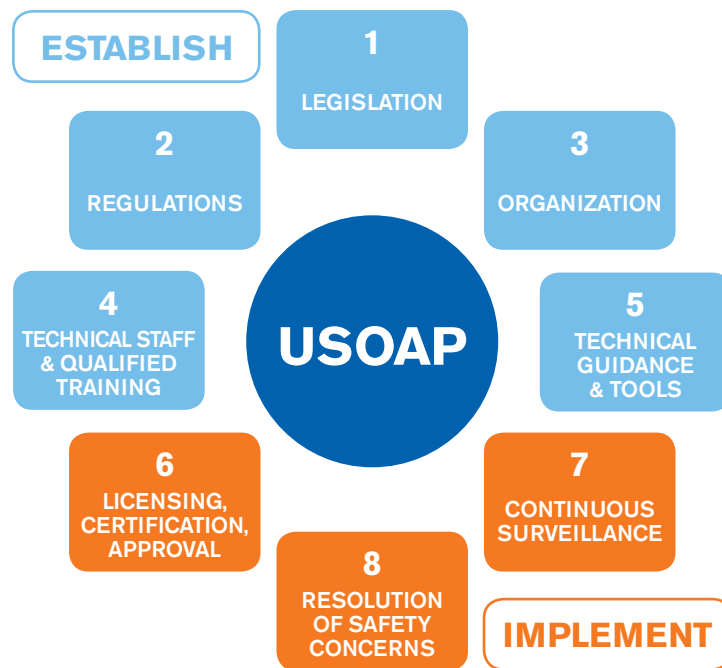
### Standardization



Improvement in the implementation of fundamental State safety oversight requirements, particularly in areas related to the approval, authorization or certification of service providers, as well as personnel licensing, is a near-term GASP objective.

The efforts to increase adherence to SARPs should be prioritized. States having an effective implementation of less than 60 per cent should increase compliance in areas that resolve deficiencies in the certification of aerodromes, air operators, air navigation service providers and other entities providing aviation services. However, States having significant safety concerns should as a priority address these concerns and then move on to increasing compliance.

Figure 6: Critical Elements of a State Safety Oversight System



The USOAP protocols, used to assess implementation of ICAO provisions are categorized according to eight Critical Elements, as indicated in Figure 6. ICAO's analysis indicates that implementation of Critical Element 6 - Licensing, Certification and Approval of a State's aviation service providers is fundamental to the reduction of accident rates. Furthermore, through a root cause analysis, deficiencies in Critical Element 6 can be traced to protocol questions in critical elements 1 to 5, which establish a safety oversight system. Each deficiency in Critical Element 6 can therefore be associated with a specific action plan for each State's improvement efforts, as defined by the root cause analysis. Effective execution of the action plan provides the basis for prioritized compliance.

The international requirements form a baseline of common expectation throughout the aviation system. Unless otherwise informed, States and aviation stakeholders should

normally expect that this baseline is implemented in any other State. It is therefore essential that any deviation from that baseline associated with operational risks be communicated. The Chicago Convention provides a vehicle through its Article 38 for States to provide immediate notification of differences between their practices and those established by International Standards.

To that end, ICAO has streamlined the guidance on the subject of the filing of differences and has developed a system for the Electronic Filing of Differences. This system serves as a feedback mechanism to determine the need for amendments to SARPs, ensuring their relevance as the international aviation system continues to evolve. The continued commitment to transparency contributes to a safe air transportation system, with the sharing of appropriate information used to ensure a consistent, fact-based and transparent response to safety concerns at the State and at the global levels.



The associated Standardization Safety Performance Enabler is supported by industry service providers' compliance with national regulations and adherence to industry best practices. The following safety initiatives are examples of programmes that monitor compliance and adoption of best practices in various sectors of the aviation system, providing a holistic assessment of safety:

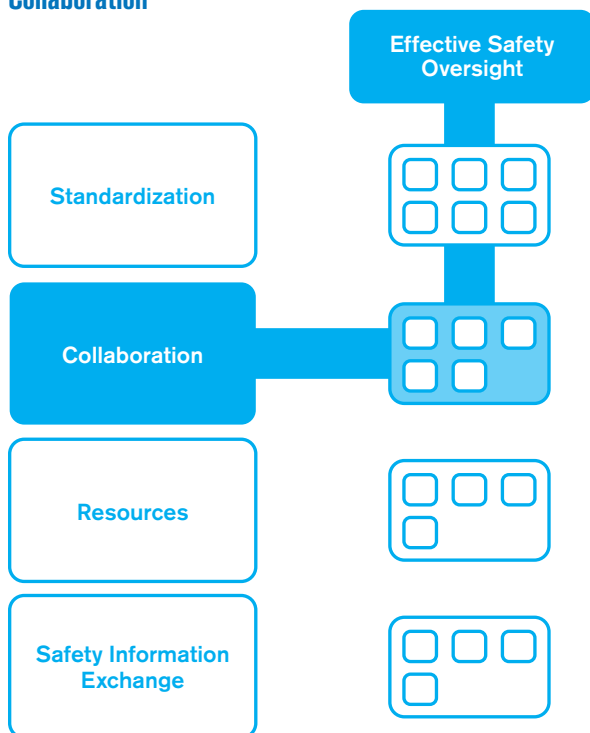
- There are two major IATA safety audit programmes. The IATA Operational Safety Audit (IOSA) programme is an internationally recognized and accepted evaluation system designed to assess the operational management and control systems of an airline. The IATA Safety Audit for Ground Operations (ISAGO) is a global audit programme for ground handlers
- The Airports Council International's Airport Excellence (APEX) in Safety programme provides assistance for ACI members to improve their level of compliance with ICAO SARPs through on-site reviews that identify safety gaps and develop action plans to address any vulnerabilities
- The International Business Aviation Council (IBAC) has introduced the International Standard for Business Aircraft Operations (IS-BAO), a code of best practices designed to help corporate flight departments achieve a high level of safety and professionalism.

ICAO encourages participation in these programmes and is working to facilitate the exchange of aggregated information from these valuable sources of to help identify and address any systemic safety risks.

#### **Safety oversight Standardization initiatives include:**

- a) Consistent implementation of International Standards.**  
States progressively improve their implementation of ICAO SARPs. In particular, implementation of ICAO language provisions and adoption of aviation language testing best practices. Globally, the level of effective implementation of ICAO provisions is continually increased with particular emphasis to reduce the variance in overall implementation achieved by Member States. States coordinate their activities to influence those unwilling to comply;
- b) Application of consistent regulatory oversight.**  
Implementation improvement strategies follow a prioritized process that primarily establishes competence in States' approval, authorization, certification or licensing functions. States having effective implementation rates below the global average focus on resolving deficiencies related to Critical Element 6 – Licensing, Certification and Approval, as well as underlying deficiencies in the critical elements related to establishment of safety oversight systems;
- c) Implementation of effective accident and incident investigation.**  
States implement ICAO Annex 13 principles and the introduction of, or access to, an adequately funded, professionally trained, independent and impartial investigative body;
- d) Identification of differences with ICAO SARPs.**  
States finding it impracticable to comply with adopted SARPs provide timely notification of the differences between their practices and those adopted by ICAO. ICAO monitors the on-going implementation of SARPs through the Continuous Monitoring Approach and the Electronic Filing of Difference system;
- e) Establishment of a process to maintain current and relevant SARPs.**  
ICAO ensures that SARPs are kept current and relevant, and amended according to changes within the aviation system through the use of a continuous feedback loop that monitors and analyses the effective implementation of the critical elements of a safety oversight system. Reports of implementation rates are published on an annual basis;
- f) Compliance with national regulations and adoption of industry best practices.**  
Service providers ensure compliance with national regulations and adoption of best practices.

## Collaboration



Partnerships can serve to promote increased implementation of SARPs by States and encourage service providers' compliance to national regulations and adoption of industry best practice. Through collaborative efforts, the baseline for compliance can increase, particularly in those regions where States face challenges due to a lack of human, financial or technical resources. Collaboration may involve the establishment of organizations that provide synergistic safety solutions in regions having resource constraints. RSOOs comprise groups of States that collaborate and share resources to improve their safety oversight capabilities. In addition, RAIOS can facilitate implementation of accident and incident investigation systems by providing economies of scale through the sharing of the necessary financial, human and other resources, enabling States to fulfil their investigation obligations in order to secure a safer international aviation system.

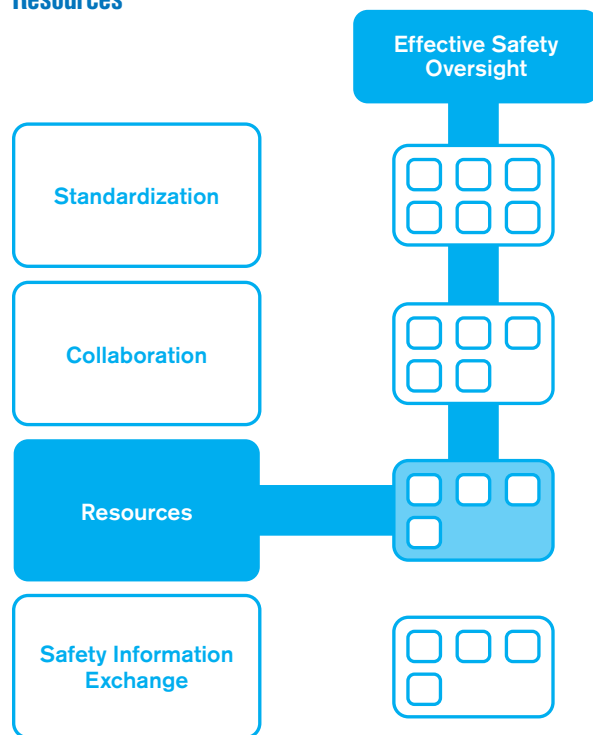
Collaboration may result in the targeted assistance projects that can act as a catalyst for safety improvements. Such efforts are delivered in a coordinated manner to those States or regions that have a demonstrated need for assistance as well as the political will to convert community support into sustainable safety improvements. Alternatively, an appropriate community response may be necessary where States consciously and repeatedly act in

non-compliance with ICAO Standards. In such cases, collaborative efforts will be undertaken to identify such States and provide timely and appropriate notification to the international community regarding any deliberate and repeated acts of non-compliance, as this presents a risk to aviation safety globally.

### Safety oversight collaboration initiatives include:

- a) **Support for and coordination of regional organizations and programmes.**  
ICAO, States and industry provide the necessary support to RASGs, RSOOs and other regional safety entities to ensure continuity in their work programmes. RASGs and RSOOs, which are monitored by ICAO to assure development and implementation of corrective actions to ensure timely and comprehensive resolution;
- b) **Coordination of assistance programmes.**  
ICAO and other partners coordinate delivery of assistance programmes to facilitate implementation of SARPs and to assure the transparency and accountability of such programmes. Criteria are developed to measure their impact. Assistance programmes, delivered according to tailored plans of action that consider the specific safety risks in each State, are implemented where there is suitable justification for non-compliance;
- c) **Providing an effective community response.**  
When necessary, other forms of targeted action to address compliance issues where they continue to exist;
- d) **Implementation of Regional Accident and Incident Investigation Organizations.**  
States finding it impractical to establish an adequately funded, professionally trained and independent accident and incident investigation organization consider establishing or joining a regional accident and incident investigation organization;
- e) **Sharing of best practices.**  
Organizations commit to share, implement and further develop best practices, which are adopted by all relevant entities when considered appropriate to improve safety performance. ICAO and industry organizations monitor the use of best practices and allocate the necessary resources to encourage adherence by States, industry and regional safety entities.

## Resources

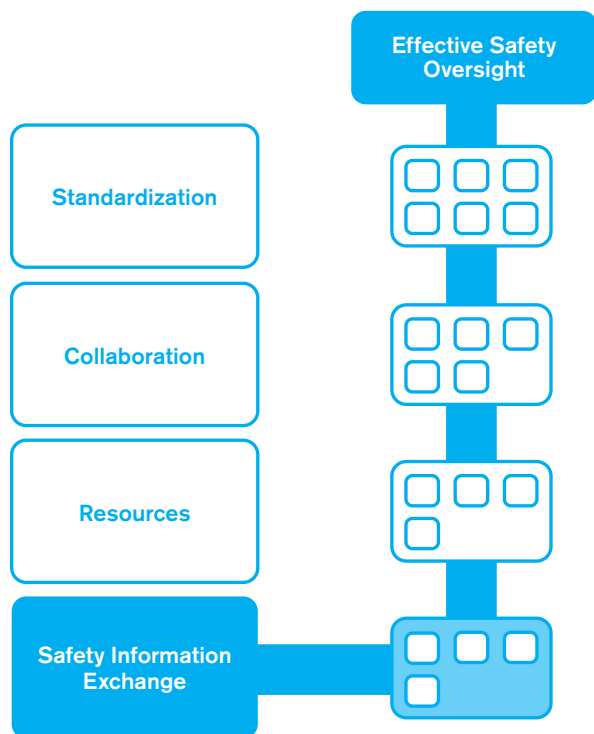


Effective safety oversight requires investment in human, technical and financial resources to realize the safety targets outlined above, and to continuously monitor achievements. In some cases, States rely on assistance provided by ICAO and its partner organizations to ensure that safety initiatives yield the intended benefit. Additionally, investment in initiatives such as the USOAP Continuous Monitoring Approach and other safety assessment initiatives are required.

### Safety oversight resource initiatives include:

- a) **Identification of resource requirements.**  
States secure the necessary financial, human and technical resources to establish and implement safety oversight systems. Resource requirements consider the effectiveness and efficiency of organizational workflow processes and identify potential areas for improvement;
- b) **Establishment of human resource audit processes.**  
States establish audit processes to evaluate whether human resource plans are adequate to deliver and retain the appropriate number of qualified staff;
- c) **Implementation of training and educational programmes.**  
States implement comprehensive training and educational programmes for their technical staff. Initiatives including the ICAO Trainair PLUS provide the means to deliver high-quality training to the current and future generations of aviation professionals in a cost-effective manner;
- d) **Establishment of transparent funding mechanisms.**  
States develop policies to ensure that the collection and management of user fees and similar funding mechanisms are made transparent to assure that such funds are allocated appropriately to support State and regional aviation systems.

## Safety Information Exchange



In the context of safety oversight, the focus of information sharing efforts is to create a holistic assessment of global safety performance by facilitating the voluntary exchange of information collected through various audit, inspection or monitoring programmes. Recognizing that global aviation comprises multiple interrelated systems, there are significant benefits in the sharing of information across aviation domains to identify systemic safety deficiencies, develop effective corrective actions and to appropriately allocate limited resources.

The Safety Information Exchange initiatives serve to facilitate the process through agreements that can enable the sharing and constructive use of sensitive information to improve safety and include:

### a) Use of shared information for aviation safety purposes.

ICAO, States and other stakeholders ensure that safety information is used and shared exclusively for the purpose of maintaining and

improving aviation safety. ICAO, its Member States and international organizations work together to determine appropriate protective principles applied internationally, consistent with the ICAO Code of Conduct on the Sharing and Use of Safety Information and taking into account the conclusions and recommendations of the SIPTF;

### b) Maintaining and sharing of accident and incident database.

As part of their fundamental safety oversight obligations, States establish and maintain an accident and incident database to facilitate the exchange of information of associated Final Reports, as well as the identification of undesirable safety trends related to accident and incident rates. ICAO and States encourage and facilitate international cooperation and sharing of information related to accidents and incidents in order to assist in the identification of systemic deficiencies within the aviation system;

### c) Establishment of mechanisms for proper protection.

States introduce legislative and regulatory amendments necessary to protect data and the sources of data, whether collected through routine operational monitoring processes or through safety reporting systems. Protective provisions assure the availability and shared use of safety information while respecting provisions relating to the States' administration of justice.

### d) Implementation of international safety information sharing systems.

International information-sharing initiatives allow for the exchange of data sources such as accidents and incidents to support ongoing collaborative safety analysis activities. ICAO and relevant partners develop metrics and analysis methods to enable harmonized analysis of accident and traffic data.



## Mid-Term Objective: Full Implementation of State Safety Programme Framework

The GASP calls for those States having mature safety oversight systems to progress toward full implementation of State safety programmes. In the near term States that have achieved effective implementation levels over 60 per cent are to fully implement SSP by 2017, with SSP fully implemented in all Member States by the year 2022.

As described in the previous chapter, States implement effective safety oversight systems as a prerequisite to attainment of the safety management implementation objective. Those States then immediately begin to implement safety management principles to identify and address known or emerging safety risks. Safety systems become risk and performance-based rather than solely based on prescriptive requirements.

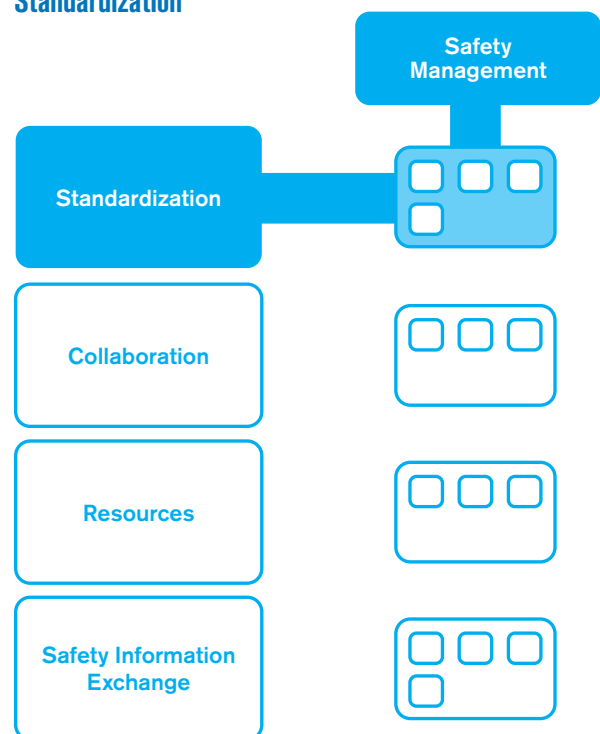
These principles are also implemented in the SMS of each applicable entity. SMS implementation has progressed in many sectors of the aviation system and is considered an essential mechanism for improving global aviation safety performance for the following organizations:

- Air navigation service providers
- Approved training organizations
- Approved maintenance organizations providing services to operators of aeroplanes or helicopters authorized to conduct international commercial aviation
- International general aviation operators of large or turbojet aeroplanes
- Operators of aeroplanes or helicopters certified to conduct international commercial aviation
- Operators of certified aerodromes
- Organizations responsible for the type design or manufacture of aircraft.

Whereas SMS provides pertinent risk-management practices for industry, the SSP has been designed for use by State Civil Aviation Authorities (CAAs), accident investigation authorities and other agencies with related safety functions. The key safety stakeholders within the global aviation system are States, approved training organizations, aerodrome operators, air navigation service providers, air operators, as well as design and manufacturing organizations.

Globally, implementation of ICAO SARPs will continually improve as the implementation of State safety programmes progress. As a State's safety programmes matures, its compliance with safety management requirements and its ability to develop risk-based processes to enhance oversight of its service providers increases. Therefore, greater maturity in a State's safety programme can lead to increased safety.

### Standardization



States build upon fundamental safety oversight systems to implement SSPs. Included in the SSP is the requirement for implementation of SMS by the service providers under the responsibility of each State.

Safety management provides a proactive approach to manage residual risks that can exist in a fundamentally compliant aviation system through employment of risk management practices contained in the SSP and SMS frameworks.

The SSP and SMS provisions require the establishment of processes and procedures to identify hazards and manage related risks. Therefore, the Standardization initiatives associated with SSP call for the implementation of a risk-based approach that achieves an acceptable level of safety performance. In this context, the role of the State evolves to include the establishment and achievement of State safety performance targets as well as effective oversight of their service providers' SMS.

**Safety management Standardization initiatives include:**

**a) Consistent implementation of State safety programmes.**

States implement the SSP in accordance with ICAO provisions and related guidance material to achieve acceptable levels of safety performance. This includes the application of risk management principles by establishing indicators and targets to determine acceptable levels of safety performance within their aviation systems;

**b) Consistent implementation of safety management systems.**

States require that service providers and general aviation operators under their jurisdiction implement SMS in accordance with ICAO Standards. Relevant service providers and general aviation operators comply with applicable SMS regulations, as defined in their national regulations;

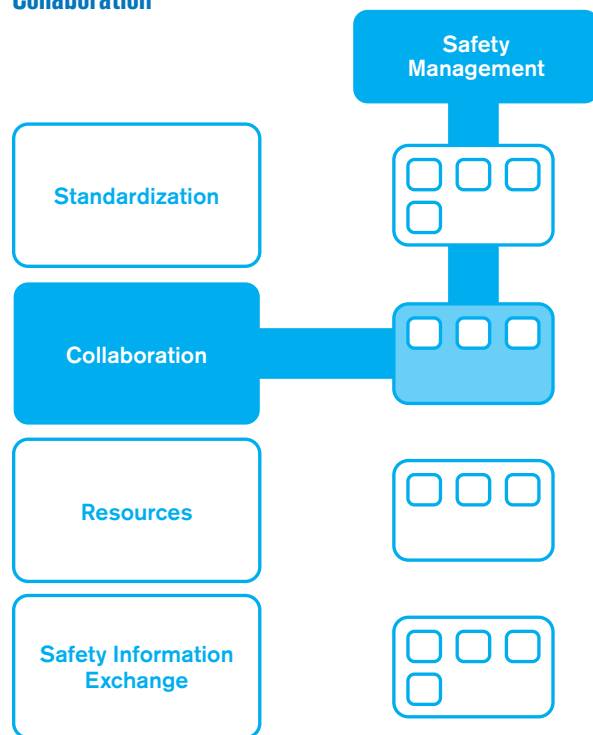
**c) Effective reporting of errors and incidents.**

Data collection and analysis allows for the proactive monitoring of known and emerging safety risks. States and industry introduce policies, processes and procedures that support an open and effective reporting culture. The use of voluntary reporting systems by operational personnel is required to facilitate analysis of actual or potential safety deficiencies, determine preventive actions and to monitor their effectiveness. This is a key component of the establishment of a safety culture that actively seeks improvements, identifies hazards, manages risk, and utilizes systems and tools for continuous monitoring, analysis, and investigation;

**d) Implementation of risk-based standardization initiatives.**

ICAO, its Member States and international organizations establish mechanisms to effectively monitor safety risks throughout all sectors of the aviation system. Monitoring programmes assess the impact of implementation of ICAO SARPs, compliance with national or regional regulations as well as the adherence to industry best practices. Risk assessments contribute to the amendment of existing SARPs as well as the adoption of new provisions, including the introduction of performance-based regulations.

## Collaboration



The transition to a risk-based approach requires increased collaboration across operational domains to identify hazards and manage risks. ICAO, its Member States and international organizations work together to analyse various forms of safety data and to develop effective mitigation strategies specific to each State or region.

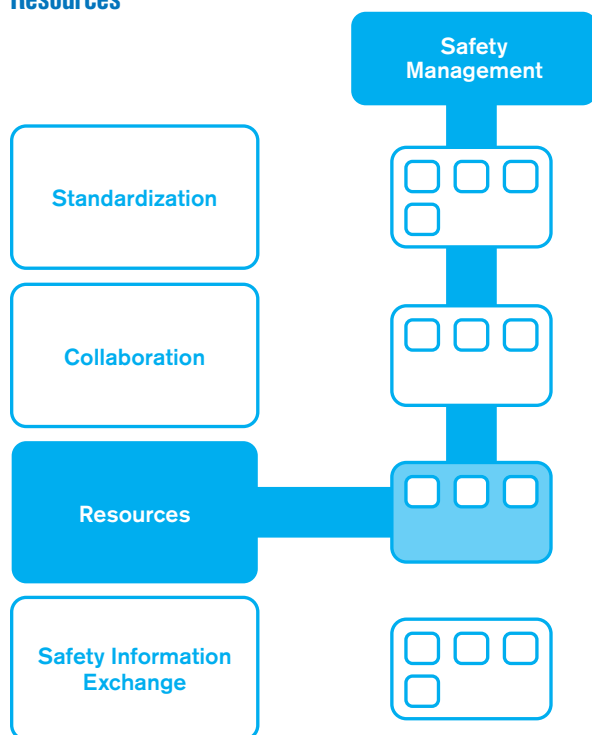
The implementation of safety management principles requires partnerships capable of developing systematic risk mitigation strategies. For individual organizations, partnerships between management and operational staff are essential to the establishment of an effective safety culture that can allow for the reporting of hazards and errors in a non-punitive environment.

In addition, collaborative efforts between organizations, including service providers and regulatory authorities are key to the attainment of safety targets established through a State's SSP or service providers' SMS.

### Safety management collaboration initiatives include:

- Coordination of regional safety management implementation programmes.**  
ICAO, States and industry support and promote collaborative initiatives intended to promote implementation of SSP and SMS including the development of safety policies as well as safety risk management, safety assurance and safety promotion activities;
- Promotion of a multi-disciplinary risk management approach.**  
ICAO, States and industry support and promote collaborative initiatives intended to address specific operational risks related to runway safety, controlled flight into terrain (CFIT) and loss of control in-flight events. Improvements achieved through such initiatives are assessed through appropriate metrics and recognized as benefits derived by working through a coordinated and cooperative approach;
- Measurement of safety performance.**  
ICAO and aviation stakeholder organizations adopt a systemic approach to measuring a State's overall achievements in establishing a safe aviation system by developing safety intelligence that monitors key activity and performance indicators from the primary components of an aviation system.

## Resources



Implementation of SSP and SMS may involve policy, regulatory and organizational changes that require a certain degree of resources. The amount of resources required to achieve the transition to a risk-based approach will depend upon the degree to which each of the SSP and SMS elements have been implemented by States and their aviation service providers. Resources also support the collection, analysis and management of information required to develop and maintain a risk-based decision making process.

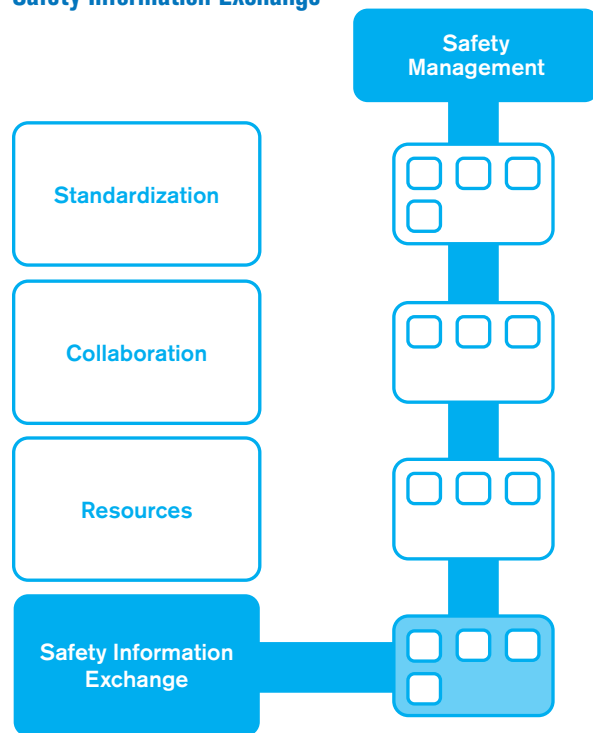
In addition, technical capabilities must be developed to collect and analyse data, identify safety trends and to disseminate results to stakeholders. Safety management requires investment in the technical systems that enable these analytic processes, as well as the knowledge and skills needed by the safety professionals required to support this environment including managing and overseeing SSPs and SMSs.

### Safety management resources initiatives include:

- a) **Investments in aviation infrastructure and technology.**  
States identify and ensure that service providers under their authority use risk management processes to identify areas where infrastructure and technology will provide significant safety benefits. Such benefits are assessed according to operational and organizational risk factors looking at existing and forecasted data including traffic volume, traffic growth and other changes to the system. Such investment will also require the development of associated procedures, training and certification requirements;
- b) **Funding for aviation research and development.**  
States and relevant organizations commit to ensure that funding for research and development in aviation at appropriate levels commensurate with existing and anticipated requirements;
- c) **Human Resources.**  
States and industry educate aviation personnel regarding safety management processes, including the benefits of effectively reporting errors and incidents. Due consideration is given to the implications related to a more mobile workforce, which creates a cultural dynamic having the potential to affect the voluntary reporting of errors or other operational events.



## Safety Information Exchange



Through partnerships with key stakeholders, safety data is analysed to support performance indicators related to the major components of the aviation system. Agreements with partners identify appropriate indicators, determine common classification schemes and establish analysis methodologies that facilitate the sharing of safety information.

### Safety information exchange initiatives at the safety management level include:

- a) **Support of safety management implementation.**  
ICAO, States and industry support initiatives that propagate programmes to share information regarding proactive safety measures, best practices and lessons learned so as to facilitate and further enhance SSP and SMS implementation;
- b) **Consistent assessment of safety performance.**  
ICAO, States and industry share information generated by safety management activities in order to provide a comprehensive assessment of safety performance as well as the detection of systemic safety deficiencies. Agreements between ICAO and its partner organizations, including the International Air Transport Association (IATA), Airports Council International (ACI), the Civil Air Navigation Services Organisation (CANSO) and the Flight Safety Foundation (FSF), provide the means to establish aligned monitoring programmes required to detect systemic deficiencies common to multiple areas of aviation activity;
- c) **Appropriate use of shared information.**  
ICAO, States and industry ensure that the exchange of information resulting from various auditing or monitoring programmes is conducted in a manner consistent to the ICAO Code of Conduct on the Sharing and Use of Safety Information and taking into account the conclusions and recommendations of the SIPTF, so as to ensure the integrity of collaborative monitoring efforts;
- d) **Establishment of mechanisms for safety information protection.**  
States introduce legislative and regulatory amendments necessary to protect data and the sources of data, whether collected through routine operational monitoring processes or through safety reporting systems. Protective provisions assure the availability and shared use of safety information while respecting States' administration of justice. The implementation of safety information sharing initiatives should be conducted in a manner consistent with the ICAO Code of Conduct on the Sharing and Use of Safety Information and taking into account the conclusions and recommendations of the SIPTF, so as to ensure the integrity of the information sharing mechanism.

## Long-Term Objective: Advanced Safety Oversight System – Predictive Risk Modelling

The focus of the long-term objective is the implementation of predictive risk modelling systems by the year 2027 that assure safety in a real-time, collaborative decision-making environment. In the long term, sustainable growth of the international aviation system will require the introduction of advanced safety capabilities that increase capacity while maintain or enhancing operational safety margins.

The long-term objective is intended to support a collaborative decision-making environment characterized by increased automation and the integration of advanced capabilities on the ground and in the air, as contained in ICAO GANP strategy.

The establishment of State safety management functions is needed to support the highly automated air traffic management concepts of the future. The evolution to this dynamic and integrated environment will require the continuous exchange of information on a real-time basis. As a result, coordination of safety management activities between States as well as across all operational domains will become a prerequisite for implementation of the Block Upgrades, requiring achievement of targets in all of the GASP Safety Performance Enablers.

The Block Upgrades strategy will result in a modernized aviation system which will include: integrated arrival, departure and surface management, full flight and flow information for a collaborative environment (FF-ICE), traffic complexity management, and full 4D trajectory based-operations (TBO). All of these new concepts can result in gains in terms of safety, capacity and operational efficiency.

The integration of remotely piloted aircraft into non-segregated airspace will be a reality in the aviation system of the future and safety considerations need to be taken into account, such as detect and avoid technology. Human performance aspects play a key role in the successful implementation of all these new concepts and these considerations need to be part of future research.

The Safety Performances Enablers which will be included in the long-term objective have yet to be developed. They will focus on maintaining or enhancing safety while new capabilities and procedures are implemented. Training and regulatory approval processes will be needed to ensure a safe and efficient transition into the future aviation system. As previously mentioned, the GASP will be updated on a triennial basis. This will provide an opportunity for updating the long-term strategy, as the near- and mid term objectives are gradually achieved.







## Chapter 6 | Supporting Implementation





The implementation activities are supported by a number of programmes, including those set out in the following sections.

### **The Next Generation of Aviation Professionals (NGAP)**

ICAO, its Member States and industry have joined efforts to develop policies to promote training and workforce retention while ensuring that sufficient competent personnel are available to manage and maintain the future global aviation system. ICAO launched several of its Next Generation of Aviation Professionals (NGAP) initiatives in 2010, including an NGAP Symposium conducted in Montreal in the early part of 2010.

In 2010, the ICAO High-level Safety Conference (HLSC 2010) and the 37th Session of the ICAO Assembly both recommended that States support the objectives of ICAO's NGAP initiatives. The 2010 NGAP Symposium proposed specific actions in two areas: the updating and modification of the regulatory environment in order to improve the effectiveness and efficiency of training and education; and the mobilization of the aviation community toward a common effort to "revitalize" the image of aviation professions. One of the main tasks of the NGAP initiatives is to reach out to States, regions and the broader aviation community to seek input and consensus on the complex solutions to the present personnel challenges. The NGAP aims to assist States in the planning of their anticipated human-resource needs and to support the implementation of competency-based methodologies for the frameworks that are in development.

An NGAP Symposium that will help States and the aviation community plan resource needs and meet the challenges of attracting and retaining the next generation of aviation professionals is planned for 2014. In addition, a number of regional symposia are to be conducted in

all ICAO Regions and will include the development of a report with information from best practices shared at the symposia, the workshops on next-generation learning styles as well as experiences with latest simulation technologies.

More information about NGAP can be found at:  
<http://www.icao.int/safety/ngap>

### **Safety data analysis - the Integrated Safety Trend Analysis and Reporting System (iSTARS)**

The activities described in the previous sections illustrate ICAO's continued commitment to the development and implementation of new safety initiatives in response to concerning trends in safety data.

Looking ahead, the future aviation system will become increasingly automated, far more complex and the role of aviation professionals may change. Safety oversight under these circumstances will require the use of proactive and predictive risk modelling capabilities. This approach will allow the aviation community to effectively monitor the health of the aviation system, virtually in real-time, and make necessary adjustments to maintain the desired levels of safety.

ICAO has begun to put in place significantly improved and expanded online access to real-time safety information through its iSTARS (Integrated Safety Trend Analysis and Reporting System) initiative, as well as a range of additional aviation data, to support the implementation of the evolving approach to safety management.

iSTARS information can be accessed at:  
<http://www2.icao.int/en/ism/istars>

### Safety Collaborative Assistance Network

The Safety Collaborative Assistance Network (SCAN) serves as a facilitator and coordinator for the exchange of safety-related information regarding financial and technical assistance projects and activities. SCAN provides a new communication channel for discussions amongst donors and assistance providers regarding ongoing projects and planning needs for future assistance endeavours. It assists with matching donors to worthwhile projects and enables potential donors to analyse where assistance is needed. This allows donors and assistance providers to avoid costly and time-consuming duplication of efforts. The result is a more effective and efficient funding of safety projects.

SCAN is compiling a list of existing assistance programmes and proposed assistance projects in need of funding, based upon an analysis of safety-related data from a variety of sources. SCAN participants include focal points from governmental agencies, regional groups, manufacturers, financial institutions and aviation organizations that provide financial and/or technical assistance pertaining to civil aviation. ICAO is working with States to develop tailored plans of action to address safety oversight deficiencies through risk-based analysis. The results of these analyses and information on assistance opportunities are shared through SCAN.

More information about SCAN can be found at: <http://www2.icao.int/en/SCAN>

### SAFE: Aviation Safety Fund

During the past decade, ICAO's aviation safety implementation initiatives have experienced significant growth and refocusing. Accordingly, ICAO created the SAFE Fund to allow for the collection and use of voluntary contributions from States and other donors in a responsible, consistent, transparent, efficient and timely manner, while minimizing administrative costs. Three types of projects can be funded through the SAFE:

- a) safety-related projects for which States cannot otherwise provide or obtain the necessary financial resources. The principal area of application of assistance shall be to remedy or mitigate safety-related deficiencies identified through the ICAO Universal Safety Oversight Audit Programme as an element of the GASP;
- b) projects identified through existing mechanisms used at the global level (e.g. the Monitoring and Assistance Review Board (MARB), Global Aviation Safety Plan, Global Air Navigation Plan or Business Plan) and at the regional level (e.g. planning and implementation regional groups (PIRGs) and regional aviation safety groups); and
- c) safety-related projects in the Business Plan which are currently unfunded.

In order to mobilize resources for the replenishment of the SAFE Fund, ICAO has developed a strategy which seeks to solicit contributions from donor States, the private sector, as well as members of civil society.





## Chapter 7 | GASP Reporting and Monitoring Global Progress

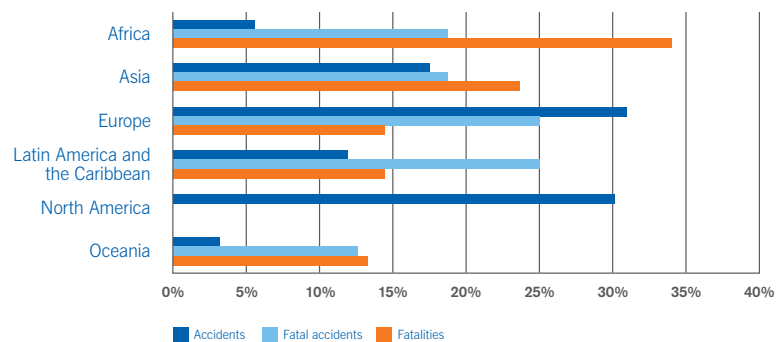




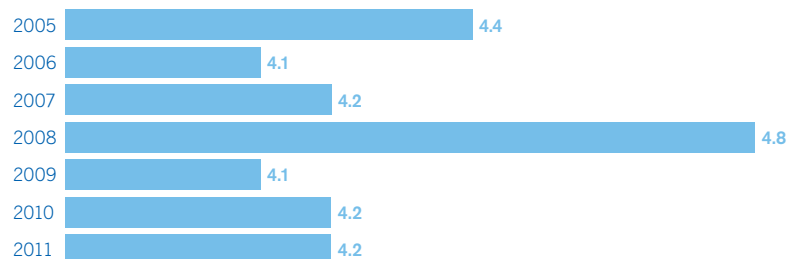
The GASP defines the framework for standardization, monitoring and safety performance management of the aviation system.



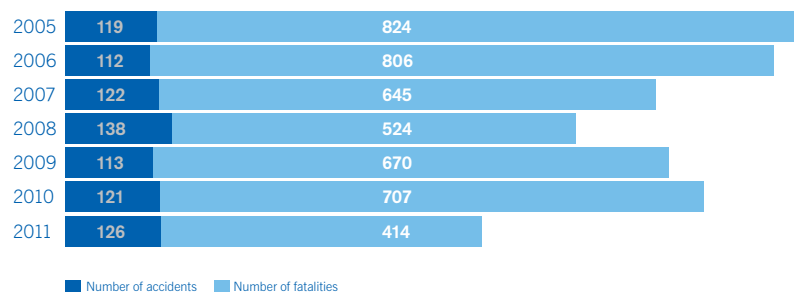
Accidents by Region of Occurrence: 2011



Global Accident Rate  
Accidents per million departures



Accident Records: 2005–2011 *Scheduled commercial flights*



## Reporting Safety Achievements at the global and regional levels

The timely and accurate reporting of safety information at the global, regional and State levels is critical to monitoring the implementation of the GASP initiatives and the achievement of the GASP objectives. ICAO, the RASGs and partner organizations publish various reports on safety performance as part of their commitment to monitoring progress in achieving their safety objectives. Combined, these reports provide perspectives that are both global in nature as well as specific to individual aviation areas.

As part of ICAO's global safety strategy (as contained in this plan), the organization publishes an annual Safety Report providing updates on reactive, proactive and predictive safety indicators. Each annual Safety Report includes analysis of a number of key safety metrics, including statistics on accidents and related fatalities, States' compliance with ICAO requirements as well as information related to global traffic volume and traffic growth. Recognizing that aviation is a complex industry, an analysis of multiple safety indicators is essential to assess safety performance globally.

The global accident rate provides an overall indicator of safety performance. While this rate is relatively low, it has remained stable over the past five years. ICAO remains committed to achieving further reductions in the accident rate. To reach this objective, the ICAO reports focus on trends in those accident categories that have historically accounted for a significant number of events and fatalities.

Alignment of safety reporting methods is essential to facilitate a harmonized approach to addressing global safety issues. Through its involvement in the Global Safety Information Exchange (GSIE), ICAO is working in collaboration with the European Union (EU), the United States Department of Transport (USDOT) and IATA to develop a harmonized accident rate based on common criteria. The harmonized rate is the result of joint analysis of accidents conducted annually by ICAO and IATA and provides an overall benchmark to identify trends in global accident statistics.

### The key components of the Safety Report are:

- a) the harmonized accident rate;
- b) detailed measurements of global and regional safety priorities;
- c) analysis on emerging issues; and
- d) summary of activities and achievements within each Safety Performance Enabler.

ICAO's annual Safety Reports are supplemented with State of Global Aviation Safety Reports published on a triennial basis, prior to each ICAO General Assembly. The State of Global Aviation Safety Reports include updated safety analyses as well as a comprehensive account of achievements in various safety initiatives undertaken by ICAO, Contracting States and partner organizations.

In order to report on safety performance on a global basis, ICAO utilizes a standard dataset for each indicator. As global datasets and performance indicators go hand in hand, ICAO reports only on indicators for which global and reliable data exists.

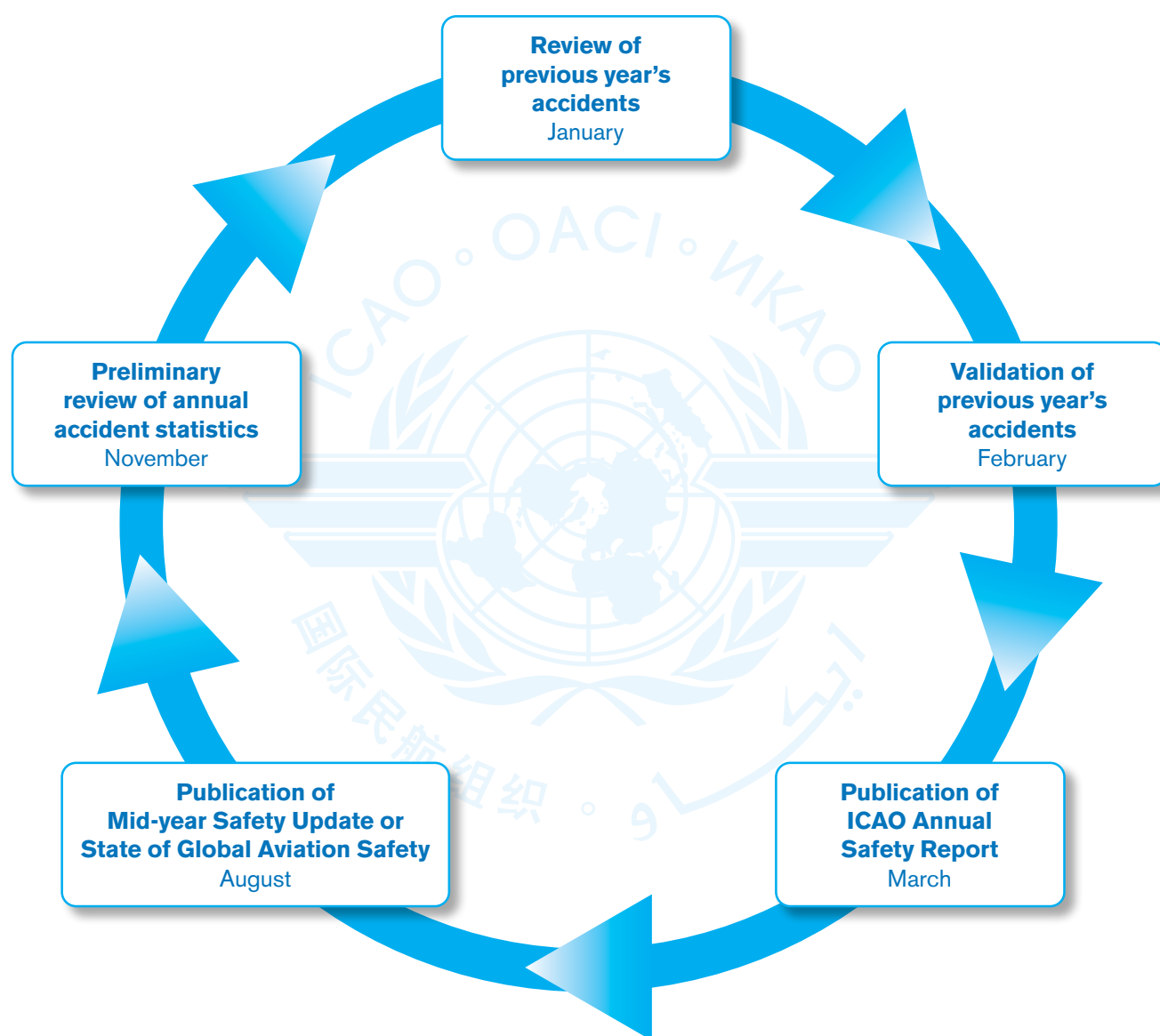


**The Regional Aviation Safety Group - Pan America issued its first annual safety report in 2010. Beginning in 2014, all RASGs will report progress in addressing regional safety priorities on an annual basis. The information in these reports will be reflected in the ICAO annual reports.**

ICAO collects data to feed those indicators on a continuing basis. An ICAO group of experts determines relevant safety indicators and reviews data biannually to be included in ICAO's Safety Reports and related publications. While the safety performance indicators remain stable between State of Global Aviation Safety

reports, published triennially, the evolution of data collection and analysis methods will result in the periodic introduction of new predictive safety indicators to measure known and emerging risks. The annual accident data review cycle is illustrated in Figure 7.

**Figure 7: Annual accident-data reporting cycle**





## Appendix 1: Global Aviation Safety Plan Evolution & Governance

This document is intended help guide safety planning and investment by States and industry in all ICAO States and regions over the next 15 years.

It also provides the travelling public and the world community with a clear affirmation of the priority of safety in aviation.

States and regions should use this document to help develop or update their own planning documents which are tailored to specific State and regional safety solutions consistent with the global objectives and priorities outlined in the GASP.

It is acknowledged that the objectives and priorities set out in this document are challenging to many ICAO Member States.

However it is vital that all Member States work towards achieving these attainable objectives in accordance with the timetable established in the GASP. The global priorities should also be addressed at a global, regional and State levels.

The GASP provides guidance to States on how to go about implementing the global aviation safety objectives including best practice guidance material. States and regions should also continue to benefit from the increased availability and sharing of safety information.

Aviation is an ever-changing and challenging industry and the GASP will continue to be reviewed and updated at the next ICAO Assembly. The ICAO Council, Air Navigation Commission and Regional Aviation Safety Groups will also continue to identify emerging risks requiring a proactive or predictive response.

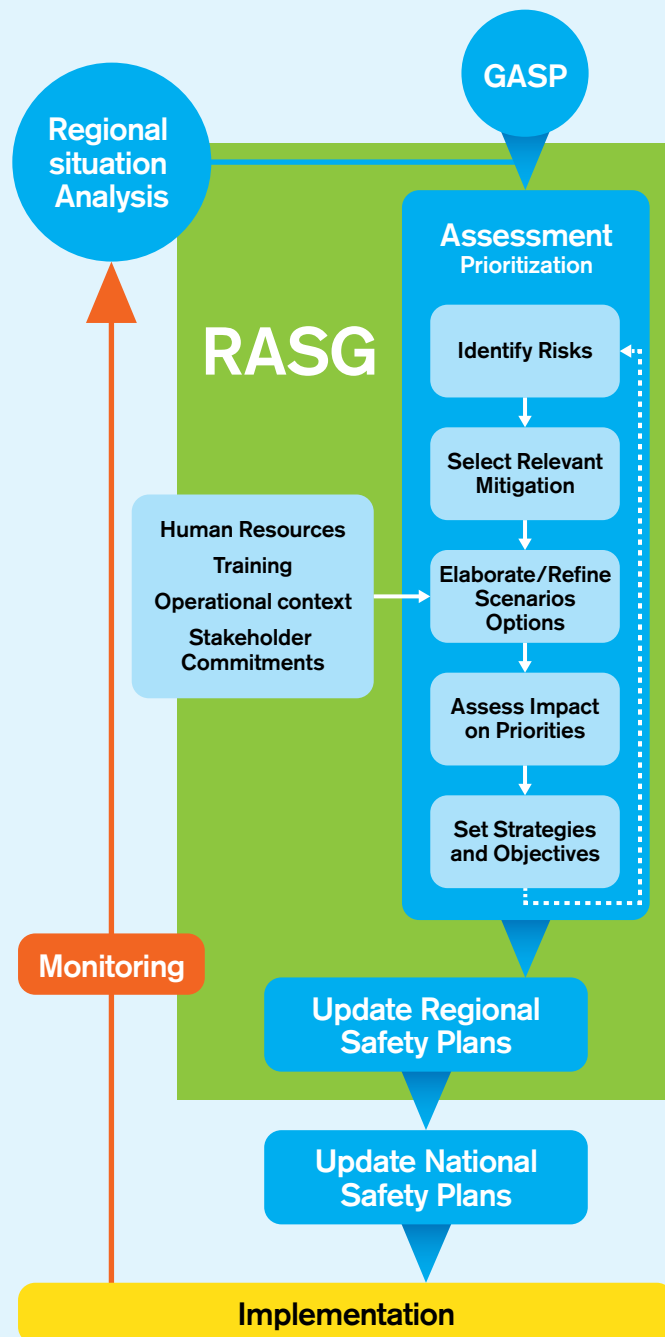


### From the GASP to Safety Regional Planning

Although the GASP has a global perspective, it is not intended that all situations require the same actions in order to improve safety. The development of regional and national safety policies should be adapted to the situation of States concerned. Nevertheless, coordination of safety plans and actions by the different stakeholders, within a State, and within or across regions is expected to reinforce spreading of best practices and harmonious implementation of safety management principles. Furthermore, an overall compilation of operational issues and associated safety risks will support regions and States to enhance aviation in their area of responsibility.

Guided by the GASP, the regional planning process as well as National planning should be aligned and used to identify safety initiatives which best provide solutions to the operational needs identified and help mitigate the safety risks identified. Depending on implementation parameters such as the operating environment, the constraints and the resources available, regional implementation plans will be developed in alignment with the GASP.

Accordingly, deployments on a global, regional and sub-regional basis and ultimately at State level should be considered as an integral part of the global and regional planning process through the regional aviation safety groups (RASGs).



## GASP Update Process

The Global Aviation Safety Plan has undergone significant change, driven mainly by its new role as a high-level policy document guiding complementary and sector-wide air transport progress to support Aviation Safety.

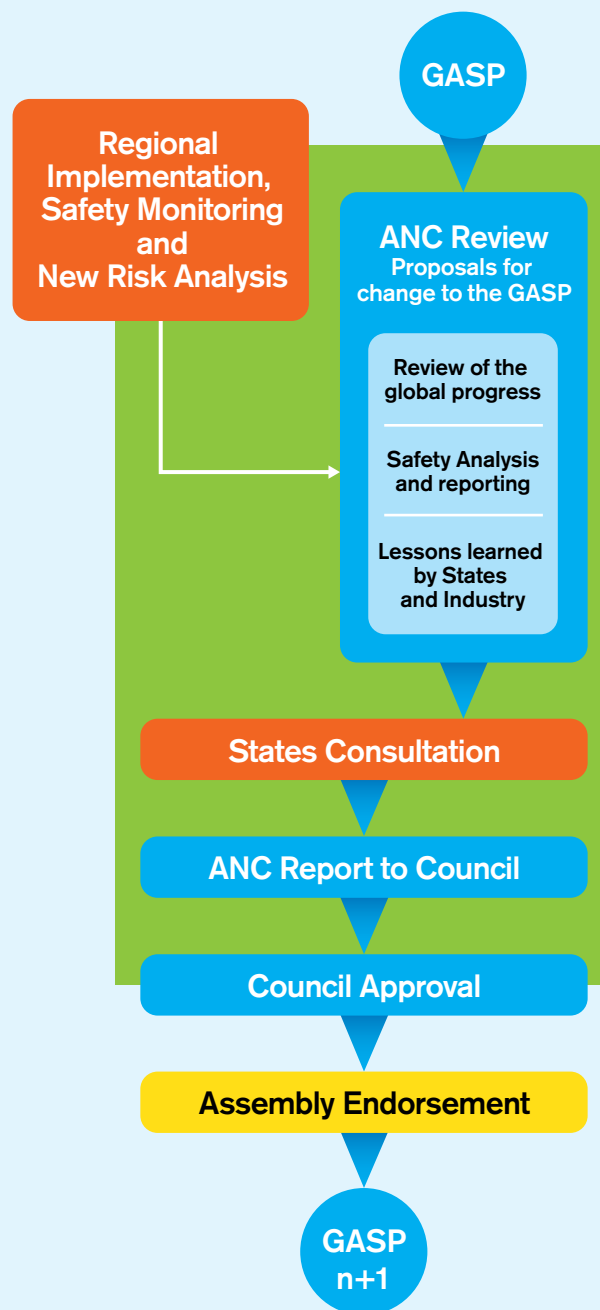
The Safety and Air Navigation Global Plans define the means and targets by which ICAO, States and aviation stakeholders can anticipate and efficiently manage air traffic growth while proactively maintaining or increasing safety outcomes. These objectives have been developed through extensive consultation with stakeholders and constitute the basis for harmonized action at the global, regional and national levels.

The need to ensure consistency between the GASP and the Strategic Objectives of ICAO necessitates placing this high-level policy document under the authority of the ICAO Council. The GASP and its amendments are therefore approved by the Council prior to eventual budget related developments and endorsement by the Assembly.

ICAO should review the GASP every three years and if necessary, all relevant Aviation Safety Planning documents through the established and transparent process.

The ICAO Air Navigation Commission will review the GASP as part of the annual work programme, reporting to the Council one year in advance of each ICAO Assembly. The ANC report will provide the following based on operational considerations:

- ✈ Review global progress made in improving aviation safety performance and in the implementation of Safety Management total approach as well as risk mitigation;
- ✈ Consider recommendations by RASGs;
- ✈ Consider lessons learned by States and industry;
- ✈ Consider possible changes in future aviation needs, regulatory context and other influencing factors;
- ✈ Consider results of research, development and validation on operational and technological matters which may affect the Safety Aviation Roadmaps;



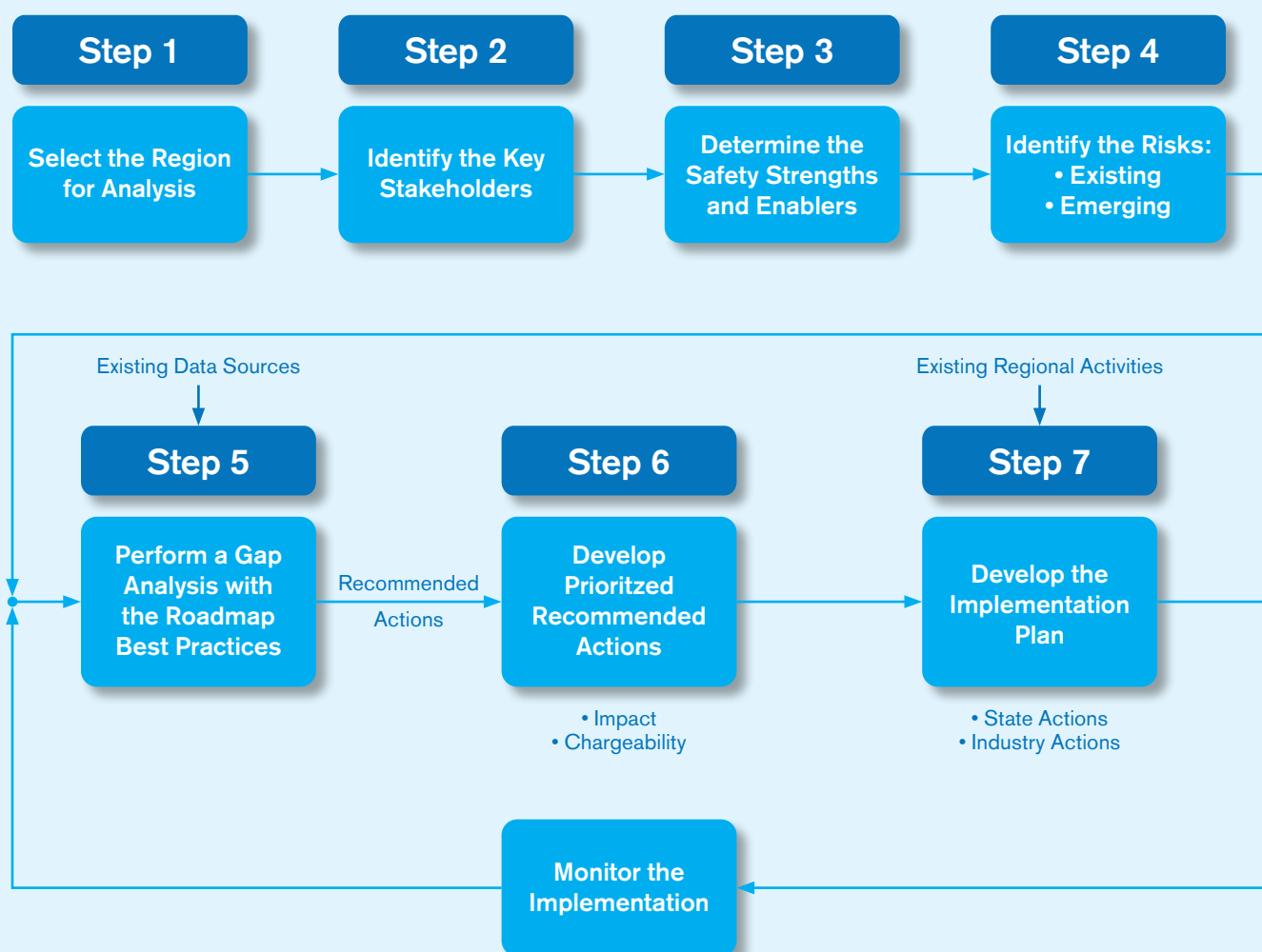
- ✈ Propose adjustments to the components of the GASP.
- ✈ Following approval by the Council, any amendments to the GASP and its specified supporting documents will then be submitted for endorsement by ICAO Member States at the following ICAO Assembly.

## Appendix 2: Best Practices

This Appendix comprises best practices that support the initiatives as contained in each of the GASP Safety Performance Enablers. The incorporation of best practices is a long-term process requiring

proper planning. The Regional Safety Enhancement Plan Development Process supports the strategic implementation of best practices to most effectively address safety risks.

### Regional Safety Enhancement Plan Development Process



## General Best Practices for ICAO, States and Industry

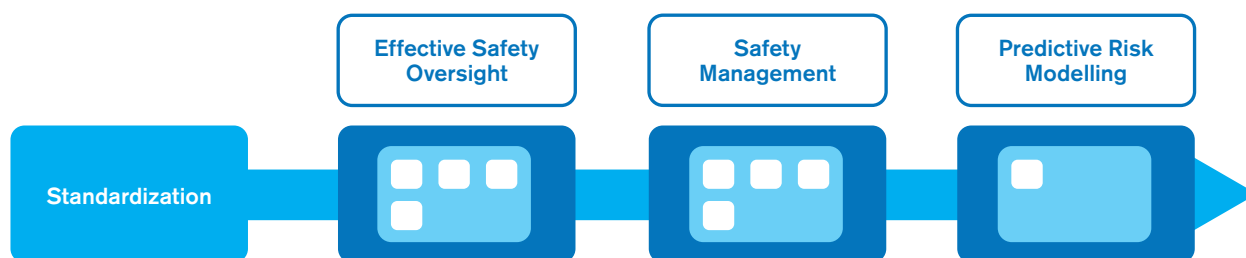
<b>BP-GEN-1</b>	<p>ICAO, States and industry facilitate adoption of best practice.</p> <ol style="list-style-type: none"> <li>The organization designates a specific individual with responsibility for researching and disseminating existing best practices relating to each unit's activities. That individual recommends specific points for adoption and has follow-up responsibilities to ensure implementation of safety-critical items.</li> <li>The organization ensures that implementation of best practices is appropriate to the individual organization. The organization encourages an open dialog across all levels of the management structure to optimize information flow.</li> <li>The organization vests in line managers the ability to take action to implement safety best practices.</li> <li>The use of best practice is consistent with organizational cultural. Where cultural issues are presented, steps are taken to resolve them consistent with international best practice.</li> </ol>
<b>BP-GEN-2</b>	<p>The sources of present and future best practice information are identified:</p> <ol style="list-style-type: none"> <li>Sources of agreed best practices include: <ul style="list-style-type: none"> <li>ICAO SARPs and supporting documentation</li> <li>State Regulations and supporting documentation</li> <li>Flight Safety Foundation (FSF) materials</li> <li>Manufacturers information</li> <li>Newsletters, bulletins and alerts from various industry groups (IATA; ACI; IFALPA; IFATCA etc.)</li> </ul> <p>Note: All of the above are available electronically. IOSA audit debrief materials are used by an individual operator.</p> </li> <li>Safety best practice is identified through investigation of accidents and incidents; flight data programmes; voluntary reporting systems; continuous improvement processes of industry; input of operating personnel; continuous dialog within the industry.</li> </ol> <p>Note: Comparison of the various sources when distributing an industry wide product such as, for example, information on runway incursions. The substance of the information provided should be functionally identical in all important particulars.</p>
<b>BP-GEN-3</b>	<p>An organization incorporates best practice in its business case.</p> <ol style="list-style-type: none"> <li>There is a formal and active commitment by the organization to a policy that designates safety and quality as a fundamental priority throughout the organization.</li> </ol>

## General Best Practices for ICAO, States and Industry (continued)

<b>BP-GEN-4</b>	<p>ICAO, States and industry identify areas where best practice implementation is problematic.</p> <ul style="list-style-type: none"> <li>a) Regulatory Authorities and each sector of the industry use audit and other safety information available to identify areas where best practices are not followed uniformly.</li> <li>b) Coordination exists between regulatory authorities and industry stakeholders to implement best practices.</li> </ul>
<b>BP-GEN-5</b>	<p>Stakeholders establish internal and independent audit processes for their organizations and all subcontractors of safety related operations to ensure best practice compliance.</p> <ul style="list-style-type: none"> <li>a) Internal audits are conducted as an integral part of the organization's strategic planning review process.</li> <li>b) External independent auditing is conducted through the use of recognized and accepted audit processes such as USOAP and IOSA.</li> <li>c) Audits include IOSA, LOSA, Regulatory Authorities' audits and internal audits. They also include the output of self-disclosure reporting programmes and flight data acquisition programmes. They additionally include reviews of comparable audits of any external organization, which performs a safety related function as a sub-contractor of the organization, such as an independent maintenance and repair organization.</li> <li>d) Deficiencies in best practice implementation are corrected. An organization seeks appropriate assistance in correcting any such deficiencies if necessary.</li> </ul>
<b>BP-GEN-6</b>	<p>Audits conducted by the industry include the operational interfaces.</p> <ul style="list-style-type: none"> <li>a) The audit process of each stakeholder addresses the operational interface with the other stakeholders.</li> <li>b) A process is in place to compare the results of audits covering common areas.</li> <li>c) Formalized coordination takes place among meteorological, airport, air traffic services, operators and aeronautical information services.</li> <li>d) Collaborative decision-making takes place.</li> </ul>



## Best Practices – Standardization



## Standardization: States

<b>BP-STD-S-1</b>	<p>The Regulatory Authority acts where safety issues are implicated in its actions.</p> <ul style="list-style-type: none"> <li>a) The individuals responsible for such action must be given appropriate authority to exercise their responsibilities.</li> <li>b) Accountability for the exercise of regulatory authority must be in accordance with the principles contained in the SSP Framework.</li> </ul>
<b>BP-STD-S-2</b>	<p>Each aviation professional who has an impact on safety has a clear understanding of what constitutes acceptable and unacceptable behavior.</p>
<b>BP-STD-S-3</b>	<p>States issuing or receiving safety recommendations.</p> <ul style="list-style-type: none"> <li>a) As appropriate, at any stage of an investigation or following an investigation, States issue adequate safety recommendations and have established procedures to follow-up on the implementation of such recommendations.</li> <li>b) The recipients of safety recommendations have established procedures to monitor the progress of actions taken to address the recommendations.</li> <li>c) The recipient of a safety recommendation informs the proposing State, within ninety days of the corrective action taken or under consideration or the reasons why no action is taken.</li> <li>d) Safety recommendations addressed to ICAO, because ICAO documents are involved, are accompanied by a letter outlining the specific action proposed.</li> <li>e) Safety recommendations of global concern issued, as well as responses to them, are sent to the attention of ICAO as early as practicable.</li> <li>f) Safety recommendations and action taken thereon are publicly available.</li> </ul>

## Standardization: States *(continued)*

<b>BP-STD-S-4</b>	<p>State accident investigation authority is independent.</p> <ul style="list-style-type: none"> <li>a) The State's accident investigation authority is totally impartial and perceived to be so, being functionally independent from its Civil Aviation Authority (CAA).</li> <li>b) Investigations are conducted in such a way that it can withstand political or other interference or pressure.</li> </ul>
<b>BP-STD-S-5</b>	<p>States have access to trained accident investigators.</p> <ul style="list-style-type: none"> <li>a) States have access to a set of adequately trained accident investigators, either internal investigators or from a regional accident an incident investigation organization or international/global source.</li> <li>b) As applicable, procedures have been established for delegation of accident investigations to other States or a regional accident an incident investigation organization bodies.</li> </ul>
<b>BP-STD-S-6</b>	<p>States have implemented clear guidance on what to investigate.</p> <ul style="list-style-type: none"> <li>a) States have implemented clear guidance defining what to investigate and who it is to be notified – both internal to the State and internationally.</li> <li>b) The State investigates all accidents and serious incidents that occur in its territory and outside the territory of any State (e.g. over the high seas) as the State of Registry.</li> </ul>
<b>BP-STD-S-7</b>	<p>States have a defined process for allowing other involved States to participate in an investigation.</p>
<b>BP-STD-S-8</b>	<p>States have defined rigorous and complete processes for conducting an accident/incident investigation, for which sole objective is the prevention of accidents and incidents and not the apportionment of blame or liability. Investigations are separate from any judicial or administrative proceedings to apportion blame or liability.</p>
<b>BP-STD-S-9</b>	<p>States conduct investigations and provide required reports in a timely manner.</p> <ul style="list-style-type: none"> <li>a) States make Final Reports publicly available as soon as possible and, if possible, within twelve months.</li> <li>b) If the Final Report cannot be made publicly available within twelve months, States make an interim statement publicly available on each anniversary of the occurrence, detailing the progress of the investigation and any safety issues raised.</li> </ul>

## Standardization: States *(continued)*

<b>BP-STD-S-10</b>	States have enacted appropriate legislation and regulations for the investigation of accidents and incidents.
<b>BP-STD-S-11</b>	Non-compliance issues are addressed in a timely manner.
<b>BP-STD-S-12</b>	<p>States apply the principles of risk management to its safety related activities.</p> <ul style="list-style-type: none"> <li>a) Hazards and risks are assessed and prioritized on a regular basis.</li> <li>b) Risk mitigation strategies are developed and implemented.</li> <li>c) Results are assessed and corrective action taken as needed.</li> </ul>
<b>BP-STD-S-13</b>	<p>Regional safety groups use qualitative and quantitative risk assessment techniques to determine levels of risk.</p> <p>Risk assessments and development and prioritization of safety enhancements to address those risks developed by national and regional groups such as CAST, ESSI, and COSCAPs North Asia (NA), South Asia (SA), and Southeast Asia (SEA) are shared worldwide.</p>
<b>BP-STD-S-14</b>	<p>States encourage voluntary reporting.</p> <ul style="list-style-type: none"> <li>a) Regulatory framework exists.</li> <li>b) An effective reporting culture exists.</li> <li>c) Data from reports are used in a timely and effective manner.</li> </ul>
<b>BP-STD-S-15</b>	<p>The implementation of open reporting systems is assessed by the following:</p> <ul style="list-style-type: none"> <li>a) USOAP Audits.</li> <li>b) Assessments during visit to State by ICAO Officials.</li> <li>c) Regular questionnaires sent by ICAO.</li> <li>d) Other sources of information (IATA, IFALPA, FSF, CANSO, ACI).</li> </ul>

## Standardization: States *(continued)*

<b>BP-STD-S-16</b>	<p>States understand the need for open reporting systems and takes appropriate measures to implement them.</p> <ul style="list-style-type: none"> <li>a) ICAO and industry actively promote open reporting systems.</li> <li>b) Regulatory Authorities and industry understand the safety benefits.</li> <li>c) Public awareness/education programmes are provided.</li> </ul>
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## Standardization: Industry

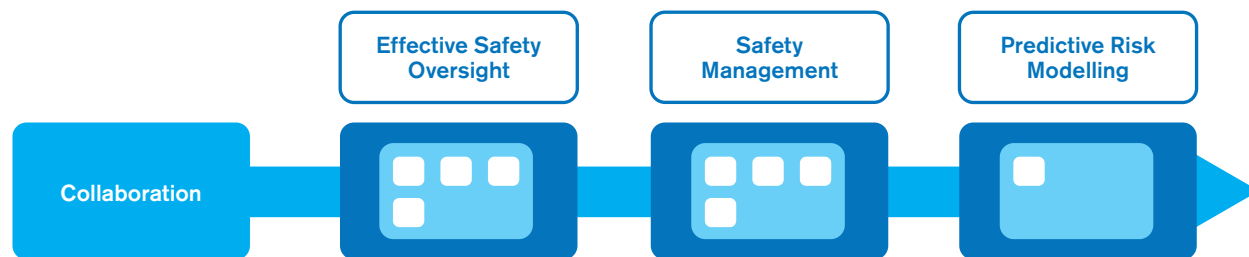
<b>BP-STD-I-1</b>	<p>Aviation organizations have implemented an effective safety culture within their organizations.</p> <ul style="list-style-type: none"> <li>a) Aviation organizations that have not yet implemented an effective safety culture develop implementation strategies to do so.</li> <li>b) Corporate senior management demonstrates personal and organizational commitment to an effective safety culture.</li> </ul>
<b>BP-STD-I-2</b>	<p>Each organization has implemented an education and training programme which addresses an effective safety culture, acceptable behavior and reporting protections.</p> <ul style="list-style-type: none"> <li>a) Organizations have an education process within the workforce to explain the idea of an effective safety culture.</li> <li>b) Acceptable and non-acceptable behavior is clearly defined.</li> <li>c) Everyone is expected to report safety-related incidents without fear of reprisal.</li> </ul>
<b>BP-STD-I-3</b>	<p>Audit processes drive consistency in use of SMS both within and across industry sectors and disciplines.</p> <ul style="list-style-type: none"> <li>a) The ICAO USOAP audits implementation and application of SMS requirements to drive consistency in application among States.</li> <li>b) The IOSA audits implementation and application of SMS to drive consistency within and across industry sectors and regions.</li> <li>c) Other recognized audit programmes audit implementation and application of SMS and drive consistency in their use.</li> </ul>



## Standardization: Industry (continued)

<b>BP-STD-I-4</b>	<p>Gap Analyses are conducted on a regular basis to assess regulatory compliance.</p> <ul style="list-style-type: none"> <li>a) Gap analyses are an integral part of the standing management process.</li> <li>b) Gap analyses are integrated within the Safety Management System.</li> <li>c) Gap analyses are conducted by appropriately qualified and authorized personnel.</li> <li>d) Non-compliance identified during gap analyses are addressed in a timely manner.</li> <li>e) Methodology used for gap assessment is reviewed and amended as required to ensure continuing compliance.</li> </ul>
<b>BP-STD-I-5</b>	<p>An organization's SMS recognizes external interfaces and contains the necessary procedures to manage them effectively.</p> <ul style="list-style-type: none"> <li>a) Processes should be established within the SMS to ensure that regular communications take place between the different sectors and disciplines to address safety issues across the interface.</li> <li>b) Procedures should be established within the SMS to ensure that risk assessment of change takes place in an integrated manner.</li> </ul>

## Best Practices – Collaboration



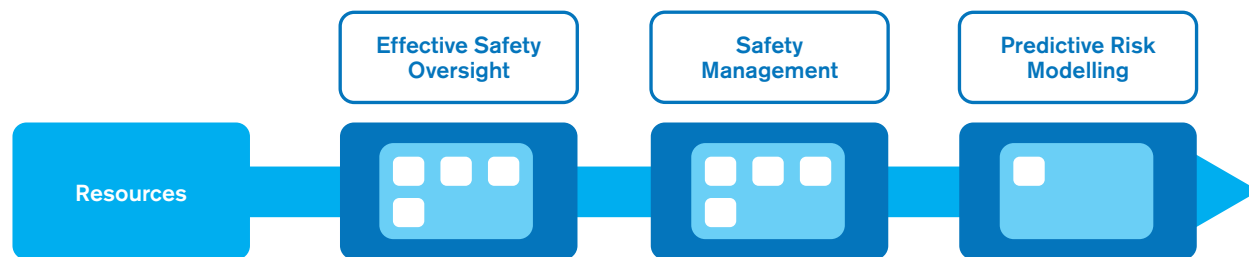
## Collaboration: States

<b>BP-COL-S-1</b>	<p>Regional safety organizations or alternative mechanisms are in place to perform those functions that cannot be performed by the State acting on its own.</p> <ul style="list-style-type: none"> <li>a) States may also decide to use Regional oversight organizations as a matter of convenience (e.g. Agencia Centroamericana de Seguridad Aeronáutica (ACSA)).</li> <li>b) Outsourcing of technical and administrative tasks associated with oversight to another Regulatory Authority or to a private contractor provide alternative mechanisms to regional safety organizations.</li> </ul>
<b>BP-COL-S-2</b>	<p>States and regional organizations establish Incident Review Meetings (IRM).</p>
<b>BP-COL-S-3</b>	<p>COSCAPS encourage implementation of best practices consistent with GASP objectives, safety performance areas and safety initiatives for their region.</p>
<b>BP-COL-S-4</b>	<p>The more advanced regions assist the less advanced regions in acquiring the necessary knowledge and experience.</p> <ul style="list-style-type: none"> <li>a) Support and assistance group.</li> <li>b) State to State programmes are established when indicated.</li> <li>c) Exchange of Staff.</li> </ul>

## Collaboration: Industry

<b>BP-COL-I-1</b>	<p>Regional industry, government, regulatory, and safety associations coordinate their safety-related efforts through the RASGs to reduce duplication and improve alignment in the region. Additional regional associations formed as needed.</p> <ul style="list-style-type: none"> <li>a) Existing groups (e.g. ASET, AAPA, IHST, ESSI, and FAST) identify safety issues and mitigating enhancements, and are coordinating safety efforts.</li> <li>b) Industry supports the RASGs, and encourages the formation of joint industry-government associations within the States of a region to coordinate and implement safety-related efforts.</li> <li>c) Regions, with the assistance of the RASGs, develop their own safety risk metrics and rationale, preferably based upon those already developed by regions with more mature programmes.</li> </ul>
<b>BP-COL-I-2</b>	<p>Appropriate industry initiatives are utilized, and unnecessary duplication is avoided (i.e. IOSA type audits, manufacturer audits, ground handling audits).</p>

## Best Practices – Resources



### Resources: States

<b>BP-INV-S-1</b>	States provide a mechanism for sufficient funding of safety oversight activities.
<b>BP-INV-S-2</b>	States provide funding for accident and incident investigations.
<b>BP-INV-S-3</b>	<p>Stakeholders, collectively and individually, assess human resource requirements for the recruitment and training of personnel that includes growth projections, target levels and training standards.</p> <ul style="list-style-type: none"> <li>a) The assessment projects the needs, expected shortfalls and required training based on:               <ul style="list-style-type: none"> <li>i. Sound market-based assessment of operational projections across all operators;</li> <li>ii. Expected development of aviation activities and related support requirements for all sectors;</li> <li>iii. Anticipated retirements and replacements.</li> </ul> </li> </ul>
<b>BP-INV-S-4</b>	<p>Stakeholders identify potential sources of appropriately qualified personnel and actively encourage a sufficient number of candidates to enter accredited training institutions.</p> <ul style="list-style-type: none"> <li>a) Promotion of the acceptance of licenses and qualifications issued by other regulatory authorities/civil aviation authorities.</li> <li>b) Development of incentives to attract potential candidates into the industry.</li> <li>c) Development of incentives to reduce the migration of professional staff.</li> </ul>



## Resources: States (continued)

<b>BP-INV-S-5</b>	<p>Organizations develop and implement a rolling multi-year human resource plan that is regularly reviewed and updated.</p> <ul style="list-style-type: none"> <li>a) A flexible human resource plan is implemented as an integral part of the organization's business plan.</li> <li>b) The plan provides a basis upon which to make adjustments to reflect unanticipated changes in the industry and includes specific strategies for the retention of qualified staff.</li> </ul>
<b>BP-INV-S-6</b>	<p>All stakeholders identify and understand the safety benefits of available technologies that can address threats.</p> <ul style="list-style-type: none"> <li>a) Develop and continually update a listing of such technologies, for example:             <ul style="list-style-type: none"> <li>i. Retrofittable and installed aircraft technologies</li> <li>ii. ATM technologies</li> <li>iii. Airport technologies</li> <li>iv. Operations related technologies (maintenance, flight, ground, etc.)</li> <li>v. Safety data technologies</li> </ul> </li> </ul>
<b>BP-INV-S-7</b>	<p>Stakeholders share their action plan for the development, evaluation, and deployment of new safety enhancing technologies. Regulatory Authorities are involved in the deployment of new technologies.</p>

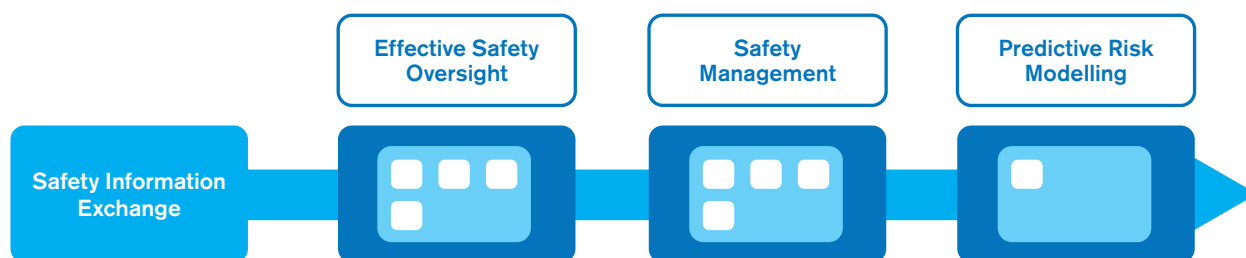
## Resources: Industry

<b>BP-INV-I-1</b>	<p>The organization facilitates the ability to acquire technology.</p> <ul style="list-style-type: none"> <li>a) Develop a safety business case for new technologies (i.e., identify the economic benefit of safety technology).</li> <li>b) Explore non-traditional methods for acquiring resources (i.e., outside aviation-specific industry).</li> <li>c) Identify deployment-enabling steps.</li> <li>d) Seek/develop innovative approaches to allow wide access to safety-enhancing technologies.</li> <li>e) Identify existing funding mechanisms for the acquisition of new technologies (e.g. Cape Town Convention/Treaty and the Abuja Resolutions).</li> </ul>
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## Resources: Industry (continued)

<b>BP-INV-I-2</b>	<p>The organization identifies the obstacles/barriers to the deployment of such technologies (e.g., owned vs. leased aircraft, infrastructure environment, etc.).</p> <ul style="list-style-type: none"> <li>a) Identify prerequisites for deployment of new safety enhancing technologies.</li> <li>b) Understand how to address and overcome the potentially significant barriers.</li> <li>c) Build measures into the deployment plan that address unique regional issues.</li> </ul>
<b>BP-INV-I-3</b>	<p>The organization develops and implements a detailed plan to deploy proven technologies.</p> <ul style="list-style-type: none"> <li>a) Identify successful implementation paths and methods.</li> <li>b) Develop reasonable milestones that address issues related to corporate approval, finance, installation, certification, and training as well as those barriers that must be overcome.</li> <li>c) Implement plans are managed as part of overall business plans, including specific safety metrics that should be affected (both for the current fleet and new acquisitions).</li> </ul>
<b>BP-INV-I-4</b>	<p>Industry and government use the risk assessment process to prioritize, guide and coordinate the allocation of resources among and within regions.</p> <ul style="list-style-type: none"> <li>a) Allocation takes into account blockers and enablers that will affect the potential success of the safety enhancing activities.</li> </ul>
<b>BP-INV-I-5</b>	<p>The organization conducts analysis to match integrated technology solutions to threats in most efficient, system-oriented manner.</p> <ul style="list-style-type: none"> <li>a) Identify specific regional requirements and needs to maximize safety benefits.</li> <li>b) Avoid piecemeal “solutions” that do not address system.</li> <li>c) Consult industry to build consensus for the best technology to be deployed.</li> <li>d) Determine the safety benefits of technological solutions vs. other solutions such as training, procedure modifications and/or safety awareness information, considering costs and other implementation issues.</li> </ul>

## Best Practices – Safety Information Exchange



## Safety Information Exchange: States

<b>BP-SIE-S-1</b>	The State has a legislative framework that protects safety data. The State legislation must include provisions which protect privacy, prevent self-incrimination and properly apportion criminal liability for actions. Without these basic features, full disclosure of safety related information will be extremely difficult.
<b>BP-SIE-S-2</b>	<p>RASGs act as the focal point for collating safety data in each region.</p> <ul style="list-style-type: none"> <li>a) Use existing safety groups to collect, integrate and analyse safety data on a regional basis.</li> <li>b) Coordinate with other regional groups, such as the Planning and Implementation Regional Groups (PIRGs), to identify safety issues.</li> <li>c) Common methodologies for collection of safety data are utilized.</li> <li>d) RASGs provide a central location for dissemination of all safety initiatives and activities that a region could utilize to improve its efforts to meet safety goals and objectives.</li> </ul>
<b>BP-SIE-S-3</b>	States in the region contribute safety data.
<b>BP-SIE-S-4</b>	Safety data is analysed and action is taken at the regional and State level to correct deficiencies.
<b>BP-SIE-S-5</b>	Safety data are categorized on the ICAO based common taxonomy.
<b>BP-SIE-S-6</b>	<p>Analysis systems are designed to de-identify data in such way to facilitate the sharing data.</p> <p>Note: De-identified data is data that has had differentiating parameters removed.</p>

### Safety Information Exchange: States *(continued)*

<b>BP-SIE-S-7</b>	Safety data are analysed in an objective and scientifically sound manner, independent of any non-safety considerations, and the result is shared with all stakeholders.
<b>BP-SIE-S-8</b>	States have defined an interface between normal operations reporting and accident/incident reporting & investigation.
<b>BP-SIE-S-9</b>	States share their accident and serious incident reports globally.
<b>BP-SIE-S-10</b>	States encourage sharing of best practices in investigation techniques, processes and technology.

### Safety Information Exchange: Industry

<b>BP-SIE-I-1</b>	<p>The organization has a system to protect proprietary information.</p> <ul style="list-style-type: none"> <li>a) Confidentiality and the protection of proprietary information are ensured to allow the sharing of safety data.</li> </ul>
<b>BP-SIE-I-2</b>	<p>Each organization is using jointly agreed upon common taxonomies.</p> <p>Note: Examples of common taxonomies include the STEADES incident descriptor system [developed by British Airways (BASIS) and IATA], the ground accident prevention data collection taxonomy [developed by a Flight Safety Foundation global task force], and the CAST/ICAO common taxonomy for accidents and incidents. Taxonomies for incident / accident Causal Factor Analysis include the Human Error Reduction in ATM (HERA) tool as well as the Janus model.</p>
<b>BP-SIE-I-3</b>	<p>Each entity shares aviation safety data with relevant parties.</p> <ul style="list-style-type: none"> <li>a) A mechanism exists to share information/data among the membership of airline associations, between regional airlines, alliance partners, and other interested aviation organizations at local, regional and global levels.</li> <li>b) Data may be collected and shared locally, regionally or globally.</li> </ul> <p>Note: The establishment of RASGs can greatly facilitate the establishment of common collection schemes and taxonomies. They can also function as a second level of protection against the undesired release of proprietary information. At this level, such organizations as AEA, ASET, ATA, and AAPA as well as the IATA Regional Offices assist their members in protecting data.</p>

## Safety Information Exchange: Industry (continued)

<b>BP-SIE-I-4</b>	The industry uses information obtained during gap analyses and operational experience to recommend improvements to the regulatory framework.
<b>BP-SIE-I-5</b>	Integration of industry audits/assessments results.

Notes



## Appendix 3: Code of Conduct on the Sharing and Use of Safety Information

### 1. INTRODUCTION

- 1.1 The High-level Safety Conference 2010 (HLSC 2010) recognized that mutual trust between States, as well as public confidence in the safety of air transportation is contingent upon access to adequate information regarding the implementation of international Standards and Recommended Practices (SARPs). Transparency and the sharing of safety information are, therefore, fundamental tenets of a safe air transportation system and one of the objectives of sharing information is to ensure a consistent, fact-based and transparent response to safety concerns at the State and global levels.
- 1.2 The HLSC 2010 highlighted that the use of safety information for other than safety-related purposes might inhibit the future sharing of such information, with an adverse effect on aviation safety. Consequently, the HLSC 2010 recognized the need to develop principles of confidentiality and transparency to ensure that safety information is used in an appropriate, fair and consistent manner, solely to improve aviation safety and not for inappropriate purposes, including for the purpose of gaining economic advantage.
- 1.3 The HLSC 2010 recommended that the principles of confidentiality and transparency mentioned above be included in a code of conduct which would guide Member States, regional safety oversight organizations (RSOOs), Regional Aviation Safety Groups (RASGs), the aviation industry and other international and regional aviation organizations on the sharing and use of safety information.
- 1.4 The 37th Session of the Assembly of ICAO expressed unanimous support for the development of a code of conduct on the sharing and use of safety information. The Code of Conduct Multidisciplinary Task Force (MTF) was established in November 2010 to assist the Secretariat in developing the code of conduct.
- 1.5 In preparing this code of conduct, the Secretariat and the MTF have considered the working papers and discussions on the subject from the HLSC 2010 and the 37th Session of the ICAO Assembly. Specifically, this code of conduct has been largely based on a set of high-level principles included in Resolution A37-1. These principles were designed to facilitate the transparency and exchange of various types of safety-related information while ensuring that such information is used solely to improve safety.

### 2. NATURE AND SCOPE

- 2.1 This code of conduct is an ICAO policy that States are encouraged to follow. This code of conduct is without prejudice to matters already covered under international law and/or provisions that have been given binding effect by means of other obligatory legal instruments.
- 2.2 This code of conduct includes principles and standards applicable to the sharing and use of aviation safety-related information. It is global in scope and is directed toward ICAO Member States, RSOOs, RASGs, the aviation industry and other international and regional aviation organizations.

### 3. OBJECTIVES

#### 3.1 The objectives of this code of conduct are to:

- a) establish principles governing the collection, sharing and use of information related to the safety of civil aviation;
- b) provide a reference to assist States, RSOOs and RASGs establish or improve their legal and institutional framework governing the use of safety information;
- c) provide guidance which may be used where appropriate in the formulation and implementation of international agreements and other legal instruments, both binding and voluntary;
- d) facilitate and promote the sharing of aviation safety information by providing reassurance regarding how this information will be used; and
- e) provide standards of conduct for all persons and organizations in receipt of information relating to the safety of international civil aviation.

### 4. PRINCIPLES

#### 4.1 The code of conduct is based on the following principles:

- a) transparency – the sharing and use of relevant and appropriate safety information with a view to ensuring: 1) the effective discharge of individual and collective responsibilities for the safety of international civil aviation, and 2) public confidence in the safety of air transportation;
- b) compliance with the *Convention on International Civil Aviation* (Chicago Convention) and its Annexes: safety information is used to assist in ensuring that international civil aviation is conducted in full compliance with applicable SARPs and other regulations; and
- c) appropriate use: shared safety information shall be used in an appropriate, fair and consistent manner, solely to improve aviation safety.

### 5. STANDARDS OF CONDUCT

#### 5.1 ICAO, its Member States, RSOOs, RASGs, the aviation industry and other international and regional aviation organizations will:

- a) collect and exchange relevant and appropriate safety information in a transparent way to ensure that they can effectively discharge their individual and collective responsibilities for the safety of international civil aviation;

- b) ensure that shared safety information is used in an appropriate, fair and consistent manner, solely to improve aviation safety and not for inappropriate purposes, including for the purpose of gaining economic advantage;
- c) utilize safety information to ensure that operations under their oversight are conducted in full compliance with the Chicago Convention and all applicable ICAO SARPs;
- d) use caution in disclosing information, keeping in mind equally the need for transparency, ensuring the effectiveness of the exercise of safety oversight and the possibility that disclosure may inhibit the future provision of such information;
- e) provide levels of confidentiality and uphold principles for disclosure equivalent to those provided by the State, RSOO or RASG generating the information; and
- f) ensure that the release of any safety information to the public or media is carried out in accordance with this code of conduct and in compliance with the laws and regulations applicable to the release of such information.

## 6. OTHER PROVISIONS

- 6.1 Any changes to this code of conduct require approval by the Council of ICAO.





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