Global Aviation Safety Plan

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International Civil Aviation Organization
# Table of Contents

Table of Contents ............................................................................................................. 2  
Foreword .......................................................................................................................... 3  
Chapter 1 - Evolution of Global Safety Initiatives ............................................................. 4  
  Introduction .................................................................................................................... 4  
  A Global Strategy for Aviation Safety ............................................................................. 4  
  ICAO Safety Target for 2008-2011 .............................................................................. 4  
  The Global Aviation Safety Roadmap ........................................................................... 4  
  Relation between the Global Aviation Safety Plan and the Global Aviation Safety Roadmap ... 5  
  Need for Partnership .................................................................................................... 6  
  Planning Process ......................................................................................................... 6  
  Global Safety Initiatives ............................................................................................... 9  
Chapter 2 - A Performance Based System Meeting the User Expectation ..................... 22  
  Safety – A Performance Expectation – Measuring Risk .............................................. 22  
  Keeping the Global Aviation Safety Plan Up to Date ................................................... 22  
  Using the Global Aviation Safety Plan ....................................................................... 22
The air transport industry plays a major role in world economic activity and remains one of the fastest growing sectors of the world economy. One of the key elements to maintaining the vitality of civil aviation is to ensure safe, secure, efficient and environmentally sustainable conditions at the global, regional and national levels.

ICAO’s efforts at addressing the needs of the air transport industry and international civil aviation as described above, are aimed at the coordination of the global planning processes. The Global Aviation Safety Plan serves as a strategic document, providing the planning methodology that will lead to global harmonization in the area of safety.

The Global Aviation Safety Plan follows an approach and philosophy similar to that of the Global Air Navigation Plan (Doc 9750). Both were developed with the close coordination and participation of industry and both provide a common framework to ensure that regional, sub-regional, national and individual initiatives are coordinated to deliver a harmonized, safe and efficient international civil aviation system.
CHAPTER 1 - EVOLUTION OF GLOBAL SAFETY INITIATIVES

Introduction

ICAO introduced the first version of the Global Aviation Safety Plan (GASP) in 1997 by formalizing a series of conclusions and recommendations developed during an informal meeting between the Air Navigation Commission and industry. The plan was used to guide and prioritize the technical work programme of the Organization. It was updated regularly until 2005 to ensure its continuing relevance.

In May 2005, another meeting between the Air Navigation Commission and industry identified a need for a broader plan that would provide a common frame of reference for all stakeholders. Such a plan would allow a more proactive approach to aviation safety and help coordinate and guide safety policies and initiatives worldwide to reduce the accident risk for commercial aviation. It was then decided that industry representatives, the Industry Safety Strategy Group 1 (ISSG), would work together with ICAO to develop a common approach for aviation safety. The Global Aviation Safety Roadmap that was developed by the ISSG provided the foundation upon which the Global Aviation Safety Plan is based. In March 2006, ICAO held the Directors General of Civil Aviation Conference on a Global Strategy for Aviation Safety (DGCA/06), which welcomed the development of the Global Aviation Safety Roadmap and recommended that ICAO develop an integrated approach to safety initiatives based on the Global Aviation Safety Roadmap which would provide a global framework for the coordination of safety policies and initiatives.

A Global Strategy for Aviation Safety

The attainment of a safe system is the highest priority in aviation. However, safety actions are not only driven by facts and data but also by the perception of safety needs by the public. Acceptable safety risk is related to the trust attributed to the aviation safety system, which is undermined every time an accident occurs. Therefore the challenge is to drive an already low accident rate even lower. To guide its work, ICAO has established the following safety target.

ICAO Safety Target for 2008-2011

1. Reduce the number of fatal accidents and fatalities worldwide irrespective of the volume of air traffic.
2. Achieve a significant decrease in accident rates, particularly in regions where these remain high.
3. No single ICAO region shall have an accident rate* more than twice the worldwide rate by the end of 2011.

* Based on a five-year sliding average

The Global Aviation Safety Roadmap

The Global Aviation Safety Roadmap 2 prepared by the Industry Safety Strategy Group in close cooperation with ICAO is the basis from which the Global Aviation Safety Plan has been developed. The roadmap recognizes that all stakeholders of the aviation system need to be involved and clearly identifies

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1 Members of the ISSG are, Airbus, Boeing, Airports Council International (ACI), Civil Air navigation Services Organization (CANSO), International Air Transport Association (IATA), International Federation of Air Line Pilots’ Associations (IFALPA) and Flight Safety Foundation (FSF).
2 The current version of the Global Aviation Safety Roadmap is available on http://www.icao.int/fsix/safety.cfm
the roles played by the regulatory and industry elements while emphasizing their complementary nature, promotes a proactive approach to safety and provides a means to ensure that safety initiatives throughout the world deliver improved safety by the coordination of effort, thus reducing inconsistency and duplication.

The roadmap is based upon high-level principles that have been accepted by all aviation stakeholders as vital to the enhancement of safety levels within global commercial aviation. It was not developed to replace data-driven regional initiatives such as the United States Commercial Aviation Safety Team (CAST), Europe's ESSI (European Safety Strategy Initiative) or the Pan-American Aviation Safety Team Initiative (PAAST). Rather, it builds on these valuable programmes, highlighting key areas that governments and industry must act on. Above all, it tackles those areas that currently are not effectively addressed.

The Global Aviation Safety Roadmap provides a common frame of reference for all stakeholders including States, regulators, aircraft and airport operators, air traffic service providers, aircraft manufacturers, international organizations and safety organizations. It does so by defining the twelve following focus areas and providing guidance on how to address them:

- **States**
  1. Consistent implementation of international Standards
  2. Consistent regulatory oversight
  3. Effective errors / incidents reporting
  4. Effective incident and accident investigation

- **Regions**
  5. Consistent coordination of regional programmes

- **Industry**
  6. Effective reporting and analysis of errors and incidents
  7. Consistent use of Safety Management Systems
  8. Consistent compliance with regulatory requirements
  9. Consistent adoption of industry best practices
  10. Alignment of global industry safety strategies
  11. Sufficient number of qualified personnel
  12. Effective use of technology to enhance safety

Part 2 of the roadmap provides detailed guidance on the implementation of the twelve focus areas by providing a set of objectives for each focus area that are each supported by a set of best practices and metric and a maturity model. The roadmap also includes a step-by-step process to help develop Safety Enhancement Plans at the regional or sub-regional level.

**Relation between the Global Aviation Safety Plan and the Global Aviation Safety Roadmap**

The Global Aviation Safety Roadmap constitutes the basis on which the Global Aviation Safety Plan is built and is an integral part of it. From a practical point of view, GASP can be seen as the ICAO strategy for States, regions and industry to address the focus areas identified in the roadmap. GASP also establishes a coordination mechanism to ensure that the roadmap and the plan are kept up-to-date in a coordinated way.
Need for Partnership

A proactive approach to aviation safety requires that all concerned stakeholders are involved. The very close relationship between the Global Aviation Safety Plan and the Global Aviation Safety Roadmap is an example of the partnership that shall permeate all safety initiatives. Although both the roadmap and the safety plan identify a primary stakeholder for each focus area, it needs to be emphasized that this grouping is not intended to be exclusive. The roadmap and the safety plan are built on the principle of partnership, and as such, it is essential that all relevant stakeholders are involved in the development and implementation of any activities aimed at improving safety under the focus areas. Their commitment is fundamental for success.

Together with ICAO, the chief shareholders in the civil aviation sector are States, airlines/operator, airports, air navigation service providers, aircraft and equipment manufacturers, maintenance and repair organizations, regional organizations international organizations, and industry representatives. The commitment of all stakeholders is fundamental for success in improving safety.

Planning Process

The objective of the planning process is to collaboratively develop an action plan that defines the specific activities that should take place in order to improve safety. It begins with an analysis of what the situation is today, and then compares it to where the organization would like to be. This “gap analysis” identifies specific steps that can be taken to reach the desired goal. The developers of the plan then decide what specific actions will be taken and in what order — in other words, generating a prioritized action list. From that list, the developers build an action plan, which in addition to identifying the actions to be taken, determines who is responsible for them. The process — and each step — is illustrated in the flow chart below.

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3 airlines, airport operators and air navigation service providers include those that are owned by States or are a State entity.
Planning process steps

**Step 1**  Determine the subject for analysis: A subject may be an ICAO region, one of the regions described in the roadmap, a subset of these regions (e.g. COSCAPs, of similar States within a region), or even an individual State.

**Step 2**  Identify key stakeholders: In order to assure that any plan will be able to instil changes intended to improve aviation safety, it is essential that the perspective of all key stakeholders be considered. Therefore, those stakeholders need to be identified early. A stakeholder can be any party — e.g. Regulatory Authority, operator, or organization — that could be involved in implementing or influencing changes, or which is significantly affected by these changes. These stakeholders will constitute a safety team that will perform the remaining steps.

**Step 3**  Outline the safety strengths and enablers: There is a need to develop an understanding of the general environment of the subject targeted for safety enhancement efforts. Inherent in every subject is a collection of factors that support the safety of aviation within that subject. The identification of these strengths and enablers is critical in order to find ways to build upon this safety foundation.

**Step 4**  Identify the existing and merging risks: The process requires the identification of those risks that can create an environment which will weaken overall aviation safety within that subject, either currently or in the foreseeable future. Accurate and comprehensive listings of these risks are essential in performing a meaningful gap analysis in Step 5.

**Step 5**  Perform a gap analysis: A gap analysis is simply an evaluation that compares the existing situation to the desired one. There are a variety of methods that can
be used to perform a gap analysis. Using data from a number of existing sources (ICAO USOAP, IATA IOSA, safety deficiencies identified by PIRGs or other sources, analysis of available safety data) or from the detailed knowledge derived from a group of knowledgeable experts, the gap analysis will describe the difference between the current situation (utilizing information captured in Steps 3 and 4), and the target, the highly evolved situation in which the global safety initiatives of the GASP have been implemented.

The gap analysis summary should identify the organizations or entities responsible for correcting the deficiency. Multiple gaps will require assessment so that priorities can be established and appropriate implementation plans can be developed.

**Step 6** Develop prioritized recommended actions: By reviewing the gaps and the associated best practices, a list of potential safety enhancement actions can be identified. However, it should be recognized that it is sometimes impractical to implement an action plan that addresses each and every deviation from the mature (highly evolved) level.

Each gap identified in the gap analysis should be reviewed in the following manner:

- **Safety impact** – evaluate the safety enhancement that would result from the elimination of the gap. Ideally, a quantitative approach using various methodologies such as those developed by the United States’ Commercial Aviation Safety Team (CAST) can be used. Where quantitative assessment is difficult, reliance on the knowledge and expertise of the evaluation team will allow ordering the list of potential actions having the greatest impact on safety.

- **Implementation** – although the impact on safety should be the primary method of prioritizing the list of potential actions, the ability to make the changes must also be considered. This evaluation should include the existence of the political will to change and the availability of technology and resources necessary to implement the change. A conclusion that implementation is not practical should be arrived at only as a last resort. If such a conclusion is reached, aviation activities need to be adjusted to remove the impact of the identified safety gap.

**Step 7** Develop an action plan: Once a list of potential prioritized actions has been developed, the implementation action plan must be defined. The plan should include a manageable set of actions that represent those steps necessary to move to the next level of maturity.

Once the plan is finalized, a responsible party or organization must be identified to lead the implementation of each action item. It should be recognized that there are already many regional activities and organizations working around the world that may be able to provide implementation strategies and support. For example, the various ICAO COSCAPs forming in that area could be helpful in defining and coordinating State actions.

**Monitoring** Continuous improvement – what to do next: The work is not complete, even after the plan has been defined and turned over to the organizations or individuals
responsible for leading the implementation. The implementation activities should be continuously monitored to ensure that action is being accomplished, any roadblocks to implementation are removed and the plan accommodates any newly identified gaps.

This safety enhancement process is best accomplished in a step-wise fashion to move to the next level of maturity. Once the initial action plan has been completed, repeat the process in order to identify the next safety enhancement actions to implement.

Global Safety initiatives

Global safety initiatives are designed to support the implementation of the ICAO Safety Strategic Objective and other safety objectives that might be established by regions, States or industry. Planning and implementation should be started in the near-term and progressed in an evolutionary manner. Long-term initiatives necessary to guide the evolution to a safer civil aviation system will be added to the Global Aviation Safety Plan as they are developed and agreed to.

The initiatives described in the following pages are provided to facilitate the planning process and should not be viewed as stand-alone work items, but rather, in many cases, as interrelated. Therefore, initiatives are quite capable of integrating with, and supporting each other. Each GSI identifies the corresponding Focus Areas of the Global Aviation Safety Roadmap and include references to the Roadmap Best Practices as guidance for the development of implementation activities under each GSI.

ICAO will organize its own work programme under the Safety Strategic Objective in line with the GASP and its GSIs to facilitate an effective global implementation.
**Description of strategy**

1. States implement ICAO SARPs and best practices consistently. Compliance with ICAO Standards is considered internationally essential and sound application of ICAO Recommendations and best practices is accepted as the effective way to achieve consistent implementation worldwide: States coordinate their activities to influence those unwilling to comply. Gaps are identified through USOAP and the notification of differences process.

   *Related Roadmap Best Practices and Metrics: BP1a-1 to 4*

2. Perform gap assessment for those States that cannot comply. Establish plans to reach desired compliance, including coordinated international support where necessary to close gaps.

   *Related Roadmap Best Practice and Metrics: BP1b-1*

3. Compliance with international SARPs is assessed on a continuing basis through ICAO USOAP and other equivalent means of assessment. Coordinated international support is being provided where necessary.

   *Related Roadmap Best Practice and Metrics: BP1b-1*
(GSI-2) **CONSISTENT REGULATORY OVERSIGHT**

**Scope:** Each State is in a position to objectively evaluate any given safety critical aviation activity within its jurisdiction and require that the activity adhere to standards designed to ensure an acceptable level of safety.

**Primary stakeholders:** ICAO, States

**Related Global Aviation Safety Roadmap component:** Focus Area 2

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**Description of strategy**

1. States ensure their Regulatory Authority is independent in the conduct of its safety functions, competent and adequately funded.
   
   *Related Roadmap Best Practices and Metrics: BP2a-1 to 4*

2. States establish appropriate systems to ensure continued effectiveness of their regulatory function.
   
   *Related Roadmap Best Practices and Metrics: BP1c/2b-2 to 5, BP2a-6*
**Description of strategy**

1. States introduce legislative changes to support the “just culture”, encourage open reporting systems, and protect data collected solely for the purpose of improving aviation safety.
   
   *Related Roadmap Best Practices and Metrics: BP3a-1 to 4*

2. ICAO implements review of States’ activities to identify gaps in their legislative action to encourage open reporting systems. Develop a plan to address gaps.
   
   *Related Roadmap Best Practices and Metrics: BP3b-1 to 2*

3. Collate regional safety data.
   
   *Related Roadmap Best Practices and Metrics: BP3c-1 to 4*

4. Implement international sharing of data/global data reporting system.
   
   *Related Roadmap Best Practices and Metrics: BP3b-1 to 4*
**Description of strategy**

1. States implement ICAO Annex 13 principles and the introduction of, or access to, an adequately funded, professionally trained, independent and impartial investigative body. Action is taken on safety recommendations.
   
   *Related Roadmap Best Practices and Metrics: BP4a-1 to 9*

2. States institute a legal framework for protection of safety data, with the purpose of accident prevention, not assignment of blame.
   
   *Related Roadmap Best Practices and Metrics: BP4b-1 to 3*

3. Implement international cooperation and information sharing of accidents and incidents.
   
   *Related Roadmap Best Practices and Metrics: BP4c-1 to 4*
Description of strategy

1. Design regional mechanisms and build on existing ones in order to foster consistency.
   
   Related Roadmap Best Practices and Metrics: BP5a-1 to 3

2. Assign priority of action to regions on the basis of risk assessment.
   
   Related Roadmap Best Practices and Metrics: BP5b-1 to 2
Description of strategy

1. Industry commits to a “Just Culture” of reporting all safety-related and potential safety issues without fear of reprimand to involved parties.
   
   Related Roadmap Best Practices and Metrics: BP6a-1 to 5

2. Identify and implement common metrics and descriptors of precursor events needed to enable adoption of a proactive approach to managing risk.

   Related Roadmap Best Practices and Metrics: BP6b-1 to 4

3. Establish and integrate across the industry shared incident/error databases. Demonstrate and disseminate the benefits of open reporting.

   Related Roadmap Best Practices and Metrics: BP6c-1 to 4
Description of strategy

1. SMS is mandated across all sectors and disciplines of the industry.
   *Related Roadmap Best Practice and Metric: BP7a-1*

2. Develop a plan for incorporation of SMS into audit processes.
   *Related Roadmap Best Practice and Metric: BP7b-1*

3. Develop audit processes to assess operation of SMS function.
   *Related Roadmap Best Practice and Metric: BP7b-1*

4. Implement review of SMS during audits.
   *Related Roadmap Best Practice and Metric: BP7b-1*

5. Define interface points between industry focus areas and develop a plan for SMS programme integration across all interfaces.
   *Related Roadmap Best Practices and Metrics: BP7e-1 to 4*
**Description of strategy**

1. With full management support, execute independent assessment and gap analysis within the industry of regulatory compliance to address areas of non-compliance.  
   
   Related Roadmap Best Practices and Metrics: BPa-1 to 5

2. Perform regular independent audits of operational safety to assess ongoing compliance across the industry.  

   Related Roadmap Best Practices and Metrics: BP8b-1 to 2
(GSI-9) CONSISTENT ADOPTION OF INDUSTRY BEST PRACTICES

Scope: Best practices, which represent the application of lessons learned globally by industry, are adopted by individual organizations in a timely manner.

Primary stakeholder: Industry

Related Global Aviation Safety Roadmap component: Focus Area 9

Description of strategy

1. Improve the structures (through management commitment) for maintaining knowledge of best practices and identify future developments in best practices.
   
   Related Roadmap Best Practices and Metrics: BP9a-1 to 5

2. With industry openly sharing information regarding the benefits of best practices, implement performance benchmarking of dissemination consistency.

   Related Roadmap Best Practice and Metrics: BP9b-1
Description of strategy

1. Design a mechanism for coordination and sharing of safety strategies.
   Related Roadmap Best Practices and Metrics: BP10a-1 to 3

2. Coordinate and share safety strategies, seeking to achieve alignment and minimize duplication.
   Related Roadmap Best Practices and Metrics: BP10b-1 to 5
(GSI-11) SUFFICIENT NUMBER OF QUALIFIED PERSONNEL

Scope: Industry and the regulatory authorities have access to a sufficient number of qualified staff to support their activity.

Primary stakeholder: Industry

Related Global Aviation Safety Roadmap component: Focus Area 11

Description of strategy

1. Identify requirements for sustaining aviation safety against projected growth of commercial aviation.
   
   Related Roadmap Best Practice and Metric: BP11a-1

2. Implement resource plans to deliver appropriate numbers of qualified people.
   
   Related Roadmap Best Practices and Metrics: BP11b-1 to 2

3. Establish audit processes to confirm that people resource plans will deliver the appropriate numbers.
   
   Related Roadmap Best Practice and Metric: BP11c-1
**Description of strategy**

1. Define proven technology gaps. Industry works together to identify areas where technology might provide significant safety benefits.
   
   *Related Roadmap Best Practices and Metrics: BP12a-1 to 3*

2. Deploy proven technologies that have been developed to enhance safety.
   
   *Related Roadmap Best Practices and Metrics: BP12b-1 to 3*

3. Integrate measures to close technology gap.
   
   *Related Roadmap Best Practices and Metrics: BP12c-1 to 2*
CHAPTER 2 - A PERFORMANCE BASED SYSTEM MEETING THE USER EXPECTATION

Safety – A Performance Expectation – Measuring Risk

Safety is a “performance expectation”. With air travel already being the safest form of transportation, the challenge to industry and regulatory agencies is to make an already safe system safer. In the context of GASP, the aviation stakeholders expected to deliver “a reduction in the global accident risk in commercial aviation”. This raises the issue of the best way to measure this risk, together with any associated changes that are realized as a result of effective implementation of GASP and the roadmap.

Accident rate data represents a reliable source for measuring safety performance. There are several excellent sources of accident rates which are maintained throughout the aviation industry and should be considered a vital component to any risk measurement effort.

An example of this readily available data is the ICAO Council reports. These reports include tracking the fatal accident rate of aircraft employed on public air transport operations in scheduled operations. ICAO measures the worldwide safety performance in terms of a range of aviation safety statistics.

A most effective quantitative risk management programme would be one in which information sharing is the norm. Currently, as a result of a memorandum of cooperation between ICAO and IATA, data collected from IOSA and USOAP programmes, along with other forms of safety intelligence, can now be shared between these international organizations as appropriate. ICAO has entered similar cooperation and sharing agreements with the European Civil Aviation Conference (ECAC), the European Aviation Safety Agency (EASA) and EUROCONTROL.

Currently, certain entities in industry are striving to take a more prognostic or predictive approach to risk assessment. This requires more innovative safety-related data collection and analysis approaches. An example is the formulation of safety strategies with the use of some existing programmes such as Flight Data Analysis (FDA) – Flight Data Monitoring (FDM) – Flight Operations Quality Assurance (FOQA) programmes. Other examples include those from auditing programmes such as the ICAO Universal Safety Oversight Audit Programme (USOAP) and the IATA Operational Safety Audit (IOSA).

Keeping the Global Aviation Safety Plan Up to Date

Although the Global Aviation Safety Plan establishes high level objectives which should remain stable in the mid-term, the effective implementation of the global plan and the associated roadmap rely on best practices, metrics, processes and methodologies that will evolve and change over time. To ensure its continuing relevance, ICAO is committed to maintaining the Global Aviation Safety Plan up to date in close cooperation and coordination with all stakeholders. In doing so, it will use the information and feedback that it receives through its Safety Oversight Audit Programme, its field missions, its safety databases, its planning and implementation groups, its groups of experts, and more generally, with its regular contact and exchange of safety data with States and industry.

It also continues to participate actively in the work of the Industry Safety Strategy Group that is maintaining the Global Aviation Safety Roadmap with the objective of maintaining the synchronization and complementary nature of the two documents.

Using the Global Aviation Safety Plan

At the highest level, the Global Aviation Safety Plan provides the methodology and the focus that is required to implement the ICAO Strategic Objective on safety that is to “enhance global civil aviation safety”.

The global safety initiatives identify the areas on which the safety efforts should be focussed to best achieve improvement in safety. The associated best practices and metrics provide the tools to develop action and to measure progress. For ICAO, the GSIs are used to assess whether proposed new safety tasks should be included in the work programme and once in the work programme, to measure progress. In conjunction with the planning process described in Chapter 1, they provide the framework for the development of regional and national activities undertaken by ICAO through its Unified Strategy Programme, its Technical Assistance Programme and other means.

**Documents in support of a safe global aviation system**

| **ICAO Strategic Objective A. - Safety – Enhance global civil aviation safety** |
|------------------------|------------------|-----------------|-------------------|
| **Title**               | **Role**         | **Description**                                         | **Supporting Document** |
| Global Aviation Safety Plan | Strategy        | General methodology for harmonization and prioritization of safety efforts in support of the ICAO Strategic Objective on safety. | • Industry Global Aviation Safety Roadmap, Part I |
| Global Safety Initiatives | Tactics         | A set of implementation methodologies derived from current operational best practices and available guidance materials. | • Industry Global Aviation Safety Roadmap, Part II |
| Regional and National Safety Plans | Action     | Regional work programmes including the planning, implementation and monitoring of the detailed activities and their timelines | • Safety Implementation Plans (e.g. AFI Implementation Plan) |

— END —