



ICAO USOAP
Continuous Monitoring Approach

SAFETY REPORT

Report on Universal Safety Oversight Audit Programme

Continuous Monitoring Approach Results

1 January 2019 to 31 December 2021



ORGANISATION DE L'AVIATION
CIVILE INTERNATIONALE

INTERNATIONAL CIVIL
AVIATION ORGANIZATION

ICAO · OACI · ИКАО



国际民航组织 · 9



FOREWORD

The Universal Safety Oversight Audit Programme (USOAP) continues to be one of the most visible priority programmes launched by ICAO in more than two decades. The “Eight Critical Elements (CEs)”, the building blocks of a State’s safety oversight system, are now common knowledge in the aviation community and a State’s “Effective Implementation (EI)” is a widely accepted metric when referring to States’ safety oversight systems. USOAP’s Continuous Monitoring Approach (CMA) remains an information-driven, risk-based and result-oriented programme whose objectives include: monitoring States’ safety oversight and aircraft accident and incident investigation capabilities using a web-based platform – the “online framework” (OLF); conducting audits, and validating States’ progress on addressing identified deficiencies through various types of activities. In addition, State Safety Programme Implementation Assessments (SSPIA) was further incorporated in the overall programme.

Shortly after celebrating the 20th anniversary of USOAP in 2019, the world experienced an unprecedented situation with the COVID-19 global pandemic. Facing significant challenges, ICAO, its Member States and the aviation industry adapted their processes rapidly to promote the recovery of civil aviation. ICAO implemented contingency measures, process modifications, and organizational improvements in USOAP to ensure continued operation of its activities. The use of off-site activities was expanded, while virtual options were incorporated for on-site activities, which were suspended from March 2020 to November 2021.

ICAO also spent the time during the modification of its normal operations of USOAP to focus on the programme’s evolution, which was driven by three main streams of work: i) implementation of the Group of Experts for a USOAP CMA Structured Review (GEUSR) recommendations; ii) the outcome of the Ad Hoc USOAP CMA Advisory Group (USOAP-AG); and iii) organizational improvements. By December 2021, 36 of the 37 GEUSR recommendations have been implemented. The USOAP-AG completed its work, resulting in 43 recommendations divided into six categories. It was accompanied by seven workshops in all ICAO regions to familiarize States with the information and consultation with States to obtain their input on the final recommendations. Organizational improvements included running risk reduction strategies to address and mitigate programmatic risks, continued programmatic support through long-term secondments, regular oversight through USOAP’s quality management system, and increased communication and information sharing on USOAP activities within ICAO as well as with the Member States and other external partners.

Throughout the triennium, ICAO has aimed to maintain USOAP’s status as a global aviation monitoring system of ICAO Member States’ capabilities for safety oversight, aircraft accident and incident investigation, and their maturity in implementing State Safety Programmes (SSPs). It continues to strengthen the programme and progress it in line with its evolving safety strategy, leading to increased efficiency with enhanced technology, structure and management systems.

This report, which presents information on USOAP CMA activities and results from January 2019 to December 2021, provides statistical data on the programme’s activities and highlights the challenges States continue to face in ensuring effective safety oversight systems. Increased efforts at national, regional and global levels are necessary to further support their efforts.



Stephen P. Creamer
Director



@ ICAO 2022

Published in English only by the
INTERNATIONAL CIVIL AVIATION ORGANIZATION
999 Robert-Bourassa Boulevard
Montréal, Quebec, Canada H3C 5H7
www.icao.int

DISCLAIMER

This report makes use of information, including air transport and safety-related data statistics, which is furnished to the International Civil Aviation Organization (ICAO) by third parties. All third party content was obtained from sources believed to be reliable and was accurately reproduced in the report at the time of printing. However, ICAO specifically does not make any warranties or representations as to the accuracy, completeness, or timeliness of such information contained in this report and accepts no liability or responsibility arising from reliance upon or use of the same. The views expressed in this report do not necessarily reflect individual or collective opinions or official positions of ICAO Member States.

All maps rendered in this document are notional, may not reflect actual boundaries agreed by the United Nations and should not be used for navigational purposes.

TABLE OF CONTENTS

CHAPTER 1. INTRODUCTION	5
1.1 Summary	6
1.2 Background	7
CHAPTER 2. FUNDAMENTALS OF USOAP CMA	9
2.1 Critical Elements	10
2.2 Audit areas	11
2.3 Protocol Questions (PQs)	11
2.4 Effective Implementation	14
2.5 State Aviation Activity Questionnaire (SAAQ)	14
2.6 Compliance Checklists (CC)/Electronic Filing of Differences (EFOD) system	14
2.7 State Safety Programme Implementation Assessment (SSPIA)	15
CHAPTER 3. USOAP CMA RESULTS	17
3.1 USOAP Activity Plan	18
3.2 Geographic distribution of activities	18
3.3 Global results by Critical Element	21
3.4 Global results by audit area	22
3.5 Regional results by Critical Element	22
3.6 Regional results by audit area	25
CHAPTER 4. HIGHLIGHTS OF ISSUES IDENTIFIED IN THE EIGHT AUDIT AREAS	29
4.1 Highlights of issues identified in the LEG area	30
4.2 Highlights of issues identified in the ORG area	31
4.3 Highlights of issues identified in the PEL area	32
4.4 Highlights of issues identified in the OPS area	33
4.5 Highlights of issues identified in the AIR area	34
4.6 Highlights of issues identified in the AIG area	35
4.7 Highlights of issues identified in the ANS area	37
4.8 highlights of issues identified in the AGA area	38
CHAPTER 5. STATE ENGAGEMENT IN THE USOAP CMA ONLINE FRAMEWORK	41
5.1 State usage of the Compliance Checklists (CC)/Electronic Filing of Difference (EFOD) system	42
CHAPTER 6. EVOLUTION AND TRANSFORMATION OF THE USOAP CMA	45
6.1 Internal transformation and organizational optimization	46
6.2 Updates to USOAP CMA training	46
6.3 Programmatic changes in response to COVID-19	47
6.4 Implementation of the recommendations of the GEUSR	48
6.5 Ad hoc USOAP Advisory Group	49
6.6 SSPIA progress under the USOAP CMA	49
APPENDIX A. DEFINITIONS AND TERMINOLOGY	54
APPENDIX B. STATISTICAL DATA FOR SUBGROUPS OF EACH AUDIT AREA	56
APPENDIX C. USOAP CMA ACTIVITIES COMPLETED (2019 TO 2021 TRIENNIUM)	61

Chapter 1



INTRODUCTION



ICAO USOAP
Continuous Monitoring Approach

1.1 SUMMARY

1.1.1 This report presents the results and analysis of data from the activities conducted by ICAO under the Universal Safety Oversight Audit Programme (USOAP) Continuous Monitoring Approach (CMA) for the triennium covering 1 January 2019 to 31 December 2021. The data and safety information collected from Member States and other stakeholders through the programme allow ICAO to use a risk-based approach for monitoring and assessing States' safety oversight capabilities through various on-site and off-site monitoring activities.

1.1.2 The reporting of USOAP CMA results supports the goals of the Global Aviation Safety Plan (GASP) for the periods of 2017 to 2019 and 2020 to 2022, particularly the strengthening of States' safety oversight capabilities and their implementation of effective State Safety Programmes (SSP). It also assists States in identifying and focusing on the areas of their safety oversight systems that need improvement.



1.2 BACKGROUND

1.2.1 The 37th session of the Assembly (28 September to 8 October 2010) adopted Resolution A37-5 regarding the evolution of USOAP to a continuous monitoring approach as a mechanism for ICAO to monitor the safety oversight capabilities of Member States on a continuous basis. USOAP CMA was officially launched in January 2013, after a two-year transition in 2011-2012.

1.2.2 In 2019, the 40th session of the Assembly (24 September to 4 October 2019) adopted Resolution 40-13, which, among others, reaffirmed the “successful implementation” of USOAP CMA, called for the continuing evolution of USOAP CMA into “a more evidence-based, risk-informed and result-oriented programme”, and endorsed the recommendations of the GEUSR, as agreed by the Council of ICAO, and of the 13th Air Navigation Conference (AN-Conf/13) (9 to 19 October 2018). It also superseded Resolution A37-5.

1.2.3 Under USOAP CMA, ICAO conducts various activities, including mainly audits, ICAO Coordinated Validation Missions (ICVM) and off-site validation activities.

Note.— In 2020 and 2021, in response to restrictions associated with the COVID-19 global pandemic which halted on-site activities, ICAO conducted USOAP CMA audit and validation activities in a virtual environment (see Chapter 6, 6.1).

1.2.4 A USOAP CMA audit is an activity during which ICAO determines a State’s capability for safety oversight by assessing the State’s effective implementation of the critical elements (CEs) of a safety oversight system (see Chapter 2, 2.1).

1.2.5 An ICVM is a USOAP activity during which an ICAO team of subject matter experts collects and assesses evidence provided by the State demonstrating that the State has implemented corrective actions (or mitigating measures for Significant Safety Concerns (SSCs)) to address previously identified findings. The collected evidence and information are validated at ICAO Headquarters.

1.2.6 During an off-site validation activity, an ICAO team of subject matter experts assesses corrective actions implemented by a State to address certain findings without an on-site visit to the State. ICAO validates the submitted supporting evidence at ICAO Headquarters. This type of activity is limited to Protocol Questions (PQs) that do not require on-site verification, i.e. mainly those related to the establishment of legislation, regulations, policies and procedures.

Note.— Further details about USOAP CMA activities are described in Doc 9735 – Universal Safety Oversight Audit Programme Continuous Monitoring Manual.

1.2.7 This report uses data from the USOAP CMA online framework (<https://icao.int/usoap/>). The online framework is the main tool for collecting, continuous monitoring and reporting of USOAP CMA data. It provides ICAO, Member States and other authorized users with a suite of web-integrated applications that allow access to safety-related information and documentation received during USOAP CMA activities from Member States and international organizations that have an agreement with ICAO allowing the sharing of safety information under the USOAP CMA framework.

A low-angle, close-up photograph of a large commercial airplane on a tarmac. The image shows the underside of the fuselage, the wing structure, and the engine nacelles. The aircraft is parked on an asphalt surface with yellow markings. A blue rectangular overlay is positioned on the right side of the image, containing the text "Chapter 2" in white. The sky is clear and blue.

Chapter 2

FUNDAMENTALS OF USOAP CMA



ICAO USOAP
Continuous Monitoring Approach

2.1 CRITICAL ELEMENTS

2.1.1 Critical Elements (CEs) are a tool of a State's safety oversight system required for the effective implementation of safety-related standards, policy and associated procedures. Each Member State should address all CEs in its effort to establish and implement an effective safety oversight system that reflects the shared responsibility of the State and the aviation community. The CEs of a safety oversight system cover the whole spectrum of civil aviation activities, including personnel licensing, aircraft operations, airworthiness of aircraft, aircraft accident and incident investigation, air navigation services, and aerodromes and ground aids. The level of Effective Implementation (EI) of the CEs is an indication of a State's capability for safety oversight.

2.1.2 The eight CEs of a State's safety oversight system are outlined in Annex 19 – *Safety Management*, Appendix 1, as shown below and elaborated on in Doc 9734 – *Safety Oversight Manual*, Part A – *The Establishment and Management of a State's Safety Oversight System*.

CE-1 Primary aviation legislation

1.1 The State shall promulgate a comprehensive and effective aviation law, consistent with the size and complexity of the State's aviation activity and with the requirements contained in the Convention on International Civil Aviation that enables the State to regulate civil aviation and enforce regulations through the relevant authorities or agencies established for that purpose.

1.2 The aviation law shall provide personnel performing safety oversight functions access to the aircraft, operations, facilities, personnel and associated records, as applicable, of service providers.

CE-2 Specific operating regulations

The State shall promulgate regulations to address, at a minimum, national requirements emanating from the primary aviation legislation, for standardized operational procedures, products, services, equipment and infrastructures in conformity with the Annexes to the Convention on International Civil Aviation.

Note. – The term “regulations” is used in a generic sense and includes, but is not limited, to instructions, rules, edicts, directives, sets of laws, requirements, policies and orders.

CE-3 State system and functions

3.1 The State shall establish relevant authorities or agencies, as appropriate, supported by sufficient and qualified personnel and provided with adequate financial resources. Each State authority or agency shall have stated safety functions and objectives to fulfil its safety management responsibilities.

3.2 **Recommendation.** – The State should take necessary measures, such as remuneration and conditions of service, to ensure that qualified personnel performing safety oversight functions are recruited and retained.

3.3 The State shall ensure that personnel performing safety oversight functions are provided with guidance that addresses ethics, personal conduct and the avoidance of actual or perceived conflicts of interest in the performance of official duties.

3.4 **Recommendation.** – The State should use a methodology to determine its staffing requirements for personnel performing safety oversight functions, taking into account the size and complexity of the aviation activities in that State.

Note. – In addition, Appendix 5 to Annex 6, Part I, and Appendix 1 to Annex 6, Part III, require the State of the Operator to use such a methodology to determine its inspector staffing requirements. Inspectors are a subset of personnel performing safety oversight functions.

CE-4 Qualified technical personnel

4.1 The State shall establish minimum qualification requirements for the technical personnel performing safety oversight functions and provide for appropriate initial and recurrent training to maintain and enhance their competence at the desired level.

4.2 The State shall implement a system for the maintenance of training records.

CE-5 Technical guidance, tools and provision of safety-critical information

5.1 The State shall provide appropriate facilities, comprehensive and up-to-date technical guidance material and procedures, safety-critical information, tools and equipment, and transportation means, as applicable, to the technical personnel to enable them to perform their safety oversight functions effectively and in accordance with established procedures in a standardized manner.

5.2 The State shall provide technical guidance to the aviation industry on the implementation of relevant regulations.

CE-6 Licensing, certification, authorization and/or approval obligations

The State shall implement documented processes and procedures to ensure that personnel and organizations performing an aviation activity meet the established requirements before they are allowed to exercise the privileges of a licence, certificate, authorization and/or approval to conduct the relevant aviation activity.

CE-7 Surveillance obligations

The State shall implement documented surveillance processes, by defining and planning inspections, audits, and monitoring activities on a continuous basis, to proactively assure that aviation licence, certificate, authorization and/or approval holders continue to meet the established requirements. This includes the surveillance of personnel designated by the Authority to perform safety oversight functions on its behalf.

CE-8 Resolution of safety issues

8.1 The State shall use a documented process to take appropriate corrective actions, up to and including enforcement measures, to resolve identified safety issues.

8.2 The State shall ensure that identified safety issues are resolved in a timely manner through a system which monitors and records progress, including actions taken by service providers in resolving such issues.

2.2 AUDIT AREAS

2.2.1 USOAP audit and validation activities cover the following eight audit areas:

- 1) primary aviation legislation and specific operating regulations (LEG);
- 2) civil aviation organization (ORG);
- 3) personnel licensing and training (PEL);
- 4) aircraft operations (OPS);
- 5) airworthiness of aircraft (AIR);
- 6) aircraft accident and incident investigation (AIG);
- 7) air navigation services (ANS); and
- 8) aerodromes and ground aids (AGA).

2.3 PROTOCOL QUESTIONS (PQS)

2.3.1 Protocol Questions (PQs) are the primary tool for assessing the level of effective implementation of a State's safety oversight system and accident/incident investigation capabilities. They are questions developed based on the Chicago Convention, safety-related Standards and Recommended Practices (SARPs) established in the Annexes to the Convention, Procedures for Air Navigation Services (PANS), ICAO documents and other guidance material. Each PQ contributes to assessing the effective implementation of one of the eight CEs in one of the eight audit areas. PQs are organized by audit area and CE, and are sufficiently flexible to allow the appropriate evaluation of the scope and complexity of the aviation activity in each State.

2.3.2 The use of standardized PQs ensures transparency, quality, consistency, reliability and fairness in the conduct of USOAP CMA activities.

2.3.3 Any change in the status of a PQ for a State will lead to an update of the Effective Implementation (EI) value.

2.3.4 When ICAO cannot obtain sufficient evidence indicating compliance, a deficiency is identified and a finding is issued when:

- a) there is a lack of compliance of the State's safety oversight system with the Convention;
- b) there is a lack of implementation of ICAO SARPs and PANS; and/or
- c) there is a lack of application of ICAO documents, guidance material and relevant safety-related practices in general use in the aviation industry to support the implementation of the ICAO SARPs and PANS.

2.3.5 Issuing a finding changes the status of the associated PQ to "Not Satisfactory" and decreases the State's EI value. Each finding is based on one PQ.

2.3.6 If a PQ is not applicable to the State's safety oversight system (e.g. PQs related to design and manufacturing of aircraft), the status of the associated PQ is considered "Not Applicable" until the State's situation changes and the PQ becomes applicable.

2.3.7 In order for ICAO to close a finding, the State must address the associated PQ by resolving all the deficiencies detailed in the finding, and ICAO must verify the evidence in order to change the PQ status.

2.3.8 From January 2019 to December 2021, the 2017 edition of the PQs (totalling 943) was used for USOAP audit and validation activities.

2.3.9 In December 2020, ICAO published the 2020 edition of the USOAP CMA PQs (Electronic Bulletin 2021/3, 15 January 2021 refers). In addition to updates based on amendments to ICAO provisions (Annexes to the Chicago Convention, PANS, and guidance material), the 2020 PQs also adopted the recommendations and observations of the Group of Experts for the USOAP CMA Structured Review (GEUSR) as well as State and stakeholder feedback. Notable features of the 2020 PQs were the reduction of the total number of PQs from 943 to 790 and the identification of a subset of Priority PQs.

2.3.10 Due to delays in publication of the French, Spanish, and Russian versions, the 2020 PQs became applicable for USOAP CMA activities starting after 1 January 2022.

2.3.11 Figures 2-1 and 2-2 below show a comparison of the total number of PQs of the 2017 and 2020 editions, by CE and by audit area, respectively.

Figure 2-1. Total number of PQs, by CEs: 2017 PQs versus 2020 PQs.

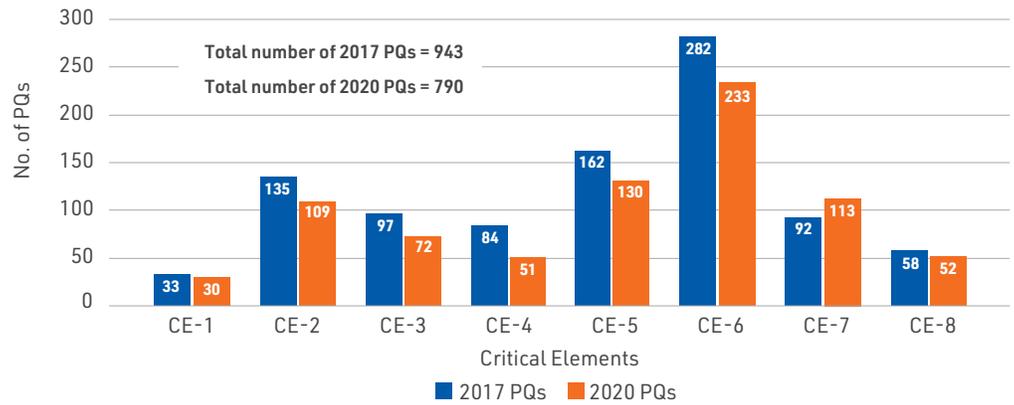


Figure 2-2. Total number of PQs by audit area: 2017 PQs versus 2020 PQs.

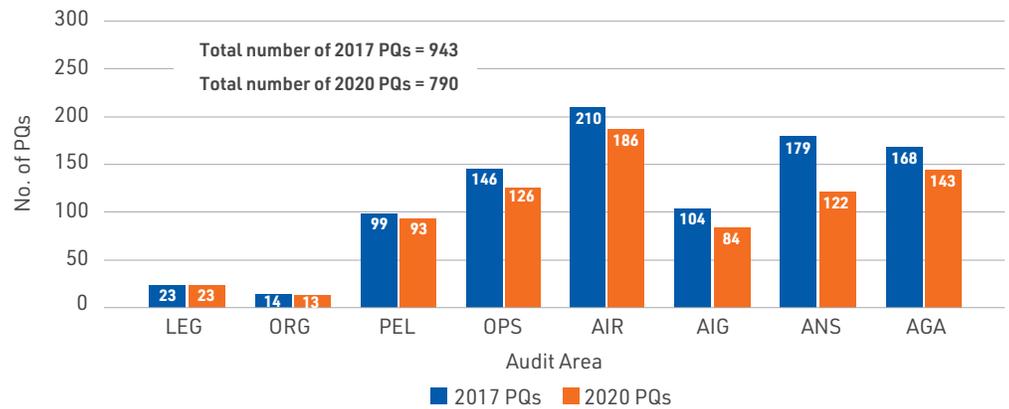
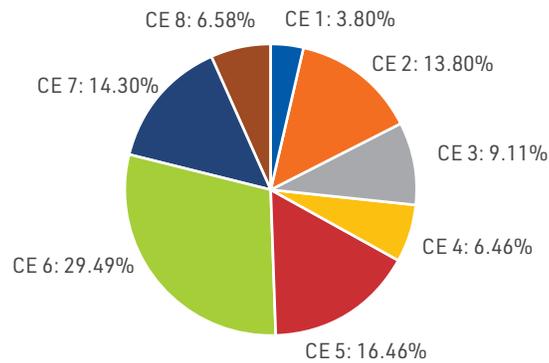


Figure 2-3. Distribution of 2020 PQs by CE in Percentage.



2.4 EFFECTIVE IMPLEMENTATION

2.4.1 Effective implementation (EI) is a measure of the State's safety oversight capability. A higher EI indicates that a State's safety oversight system and accident/incident investigation capabilities has a greater degree of compliance with ICAO provisions.

2.4.2 The EI is calculated for any group of applicable PQs based on the following formula:

$$\text{EI (\%)} = \frac{\text{Number of satisfactory PQs}}{\text{Total number of applicable PQs}} \times 100$$

2.4.3 The EI can be calculated for each CE, each audit area and as an overall value.

2.5 STATE AVIATION ACTIVITY QUESTIONNAIRE (SAAQ)

2.5.1 The State Aviation Activity Questionnaire (SAAQ) is used to collect comprehensive and specific information about each State's aviation activities, including legislative, regulatory, organizational, operational, technical and administrative details. States should complete the SAAQ on the online framework and keep it up-to-date. The SAAQ is an important tool for the Monitoring and Oversight office to monitor the level of aviation activity in the States as well as to prioritize and plan USOAP CMA activities.

2.6 COMPLIANCE CHECKLISTS (CC)/ ELECTRONIC FILING OF DIFFERENCES (EFOD) SYSTEM

2.6.1 According to the Memorandum of Understanding signed with ICAO on USOAP CMA, States are required to complete and maintain up to date the Compliance Checklists (CCs) for 18 of the 19 Annexes to the Chicago Convention (i.e. all Annexes except Annex 17). These checklists contain information on the implementation of the specific provisions of the relevant Annexes to the Chicago Convention. The completion of the CCs by Member States provides an overview of their level of implementation to the ICAO SARPs as well as any deviation categorized in one of the following three groups:

- a) More exacting or exceeds;
- b) Difference in character or other means of compliance; and
- c) Less protective or partially implemented or not implemented.

2.6.2 States must provide this information through the CC/EFOD module of the online framework. States can use the "Validate" function of the module to convert their entries into filed differences, as per the requirements of Article 38 of the Chicago Convention. Details of each State's filing of differences can be viewed in the report produced from the CC/EFOD Reports module.

2.7 STATE SAFETY PROGRAMME IMPLEMENTATION ASSESSMENT (SSPIA)

2.7.1 The State Safety Programme Implementation Assessment (SSPIA) is a performance-based activity under the USOAP CMA framework, where ICAO assesses the level of maturity of a State Safety Programme (SSP) by conducting a systematic and objective review of the State's implementation and maintenance of its SSP.

2.7.2 SSPIAs are conducted by using a set of SSP PQs and associated maturity level matrix. Developed based on relevant ICAO provisions, the SSP PQs are organized by assessment area, and each PQ is associated with one of four SSP components to enable a performance-based assessment of the level of maturity attained for each PQ.

2.7.3 The SSP PQs are classified according to four applicable SSP components, which are as follows:

- 1) State safety policy, objectives and resources;
- 2) State safety risk management;
- 3) State safety assurance; and
- 4) State safety promotion.

2.7.4 The eight assessment areas covered in SSPIAs are as follows:

- 1) SSP general aspects (GEN);
- 2) Safety data analysis – general aspects (SDA);
- 3) Personnel licensing and training (PEL) – approved training organization (ATO) aspects only;
- 4) Aircraft operations (OPS);
- 5) Airworthiness of aircraft (AIR) – approved maintenance organization (AMO) aspects only;
- 6) Air navigation services (ANS) – air traffic services (ATS) aspects only;
- 7) Aerodromes and ground aids (AGA); and
- 8) Aircraft accident and serious incident investigation (AIG).

2.7.5 To determine the maturity level of each SSP PQ, the SSP PQ is associated with a maturity level matrix that describes the set of criteria items for each maturity level. There are five levels of maturity for each SSP PQ, as follows:

- 0: Not present and not planned;
- 1: Not present but being worked on;
- 2: Present;
- 3: Present and effective; and
- 4: Present and effective for years and in continuous improvement.

2.7.6 A maturity level is attained upon meeting every criteria item under said maturity level. Assessment of an SSP PQ starts from lower level of maturity and can only progress to the next higher level of maturity when the lower maturity level has been reached with the fulfillment of all associated criteria item.

2.7.7 The outcome of an SSPIA is the determination of a maturity level for each SSP PQ based on the effectiveness demonstrated by the State's SSP implementation and maintenance. It does not affect the State's EI and the assessment of an SSP PQ does not generate a finding.



Chapter 3

USOAP CMA RESULTS



ICAO USOAP
Continuous Monitoring Approach

3.1 USOAP ACTIVITY PLAN

3.1.1 ICAO plans USOAP CMA activities for Member States annually, taking into consideration various factors, including safety risk factors, level of activities in States and States' progress in resolving identified deficiencies. A USOAP Activity Plan is published twice a year via ICAO's Electronic Bulletin and lists the completed and planned audits, ICVMs, SSPIAs, off-site validation activities and workshops for the current and coming years. A provisional activity plan is published in June, followed by an updated plan published in January of the following year.

3.1.2 States interested in receiving a USOAP CMA activity may make such request to Monitoring and Oversight, Air Navigation Bureau. However, these requests are considered based on certain established criteria and factors, including sufficient progress being achieved and documented by the State on the online framework as well as available ICAO resources.

Figure 3-1. Number of USOAP CMA Activities conducted in each ICAO region, including the number of States in each ICAO region, number of USOAP CMA activities conducted in each region, and number of States that received one or more activities for the reporting period.

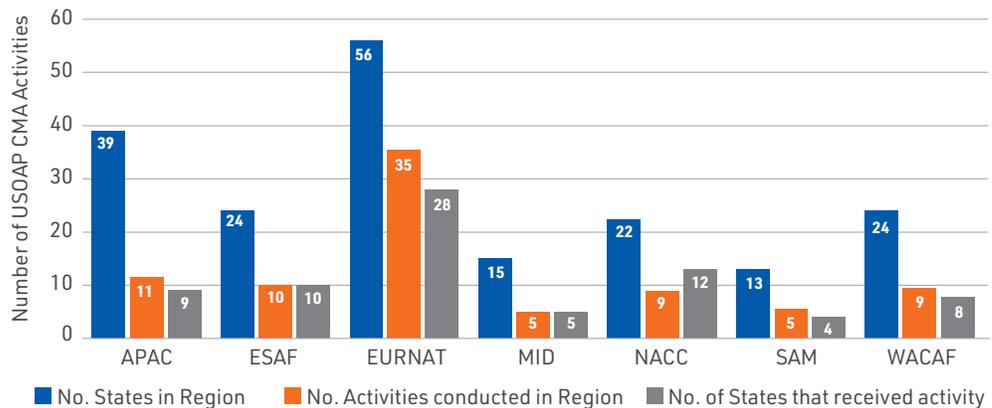
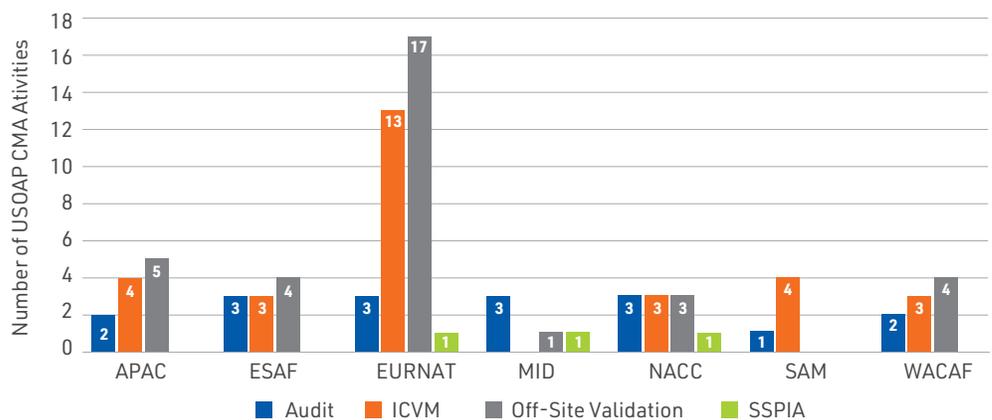


Figure 3-2. Number of USOAP CMA activities conducted in each ICAO region by types, i.e. audits, ICVMs, off-site validation activities (including Integrated Validation Activities), and SSPIAs, for the reporting period.



3.2 GEOGRAPHIC DISTRIBUTION OF ACTIVITIES

3.2.1 Regional balance is one consideration in the planning of USOAP CMA activities. For the reporting period of 1 January 2019 to 31 December 2021, Figure 3-1 shows the number of activities conducted in each ICAO region and the number of States that received the activities. Figure 3.2 gives a breakdown of the types of activities conducted in each region. It is important to note that the USOAP CMA was impacted greatly by the COVID-19 pandemic. For 22 out of 36 months of the triennium period, the number of activities was affected by severe travel restrictions and adverse health conditions in many areas of the world that precluded the safe deployment of auditors, subject matters experts, and assessors.

3.2.2 Figures 3-3 to 3-6 show the geographical illustrations of the different types of USOAP CMA activities conducted in each ICAO region.

Figures 3-3. Geographical illustration of CMA audits conducted from 1 January 2019 to 31 December 2021.

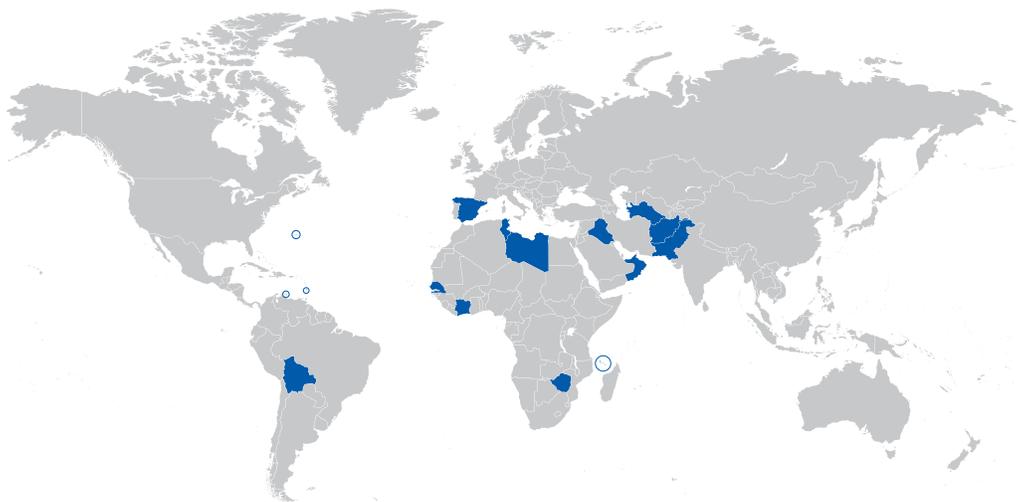


Figure 3-4. Geographical illustration of ICVMs conducted from 1 January 2019 to 31 December 2021.

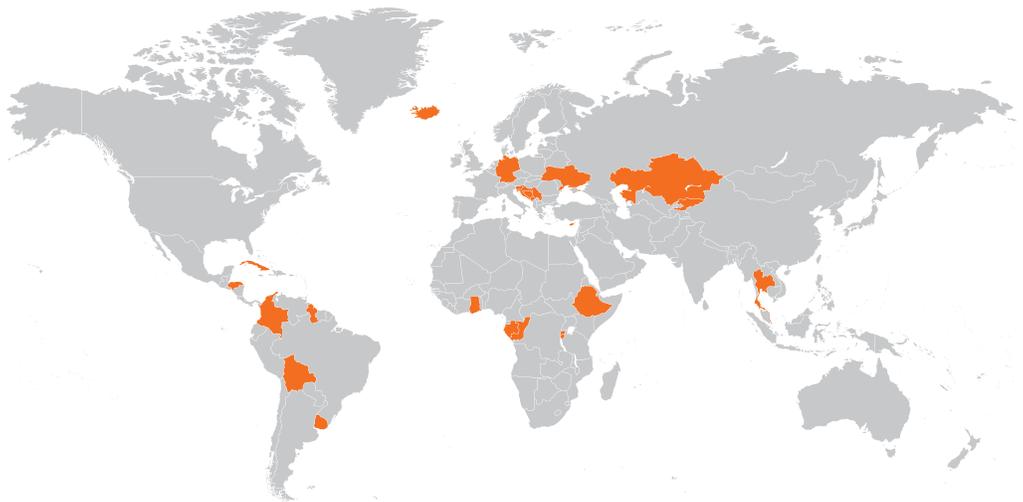


Figure 3-5. Geographical illustration of off-site validation activities conducted from 1 January 2019 to 31 December 2021.

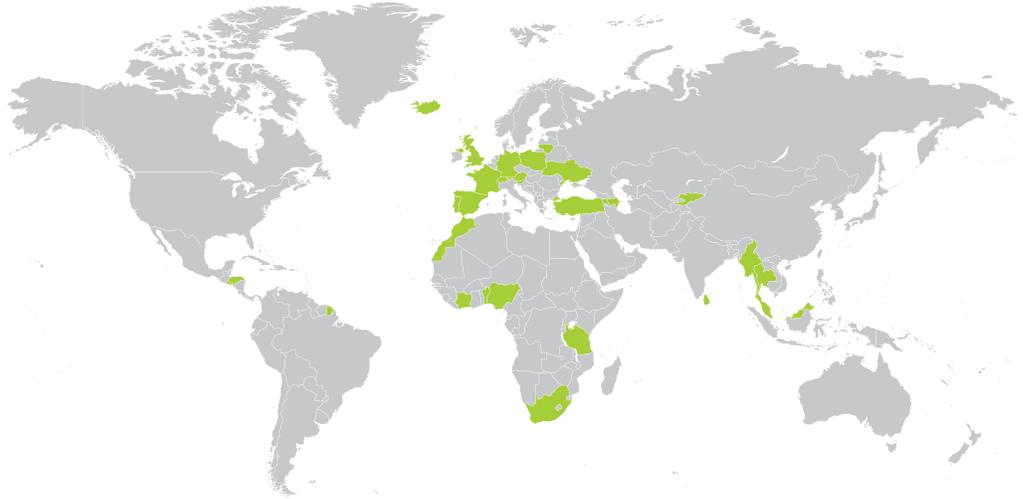
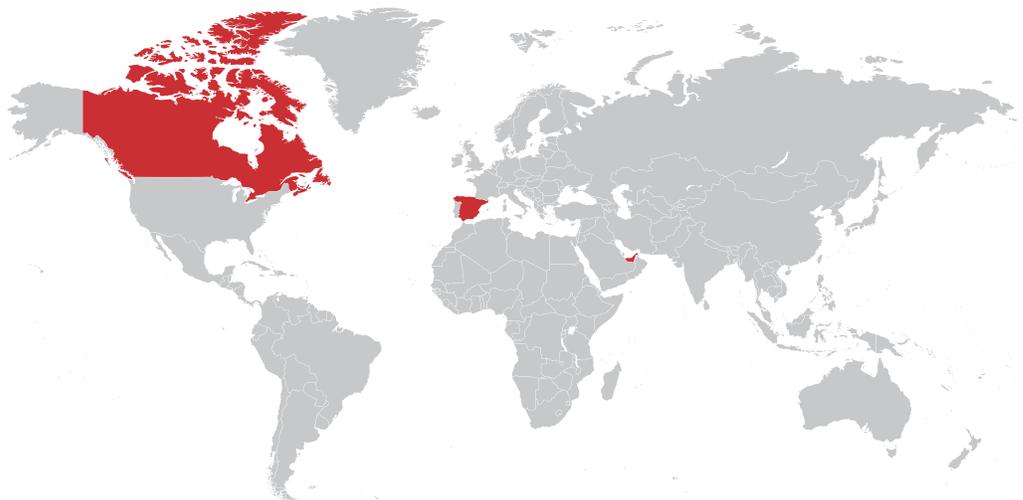


Figure 3-6. Geographical illustration of SSPIAs (including beta testing) conducted from 1 January 2019 to 31 December 2021.



3.3 GLOBAL RESULTS BY CRITICAL ELEMENT

3.3.1 Based on USOAP CMA activities conducted during the reporting period of 1 January 2019 to 31 December 2021, the global average EI rose from 66.71 per cent to 68.17 per cent or an increase of 1.46 per cent. This change is connected to the following factors:

- a) a significant reduction in the number of USOAP activities during the reporting period due to the COVID-19 global pandemic and associated worldwide travel restrictions; and
- b) an increased deployment of validation activities in lieu of audits, which positively affected the average EIs, both overall and by CEs.

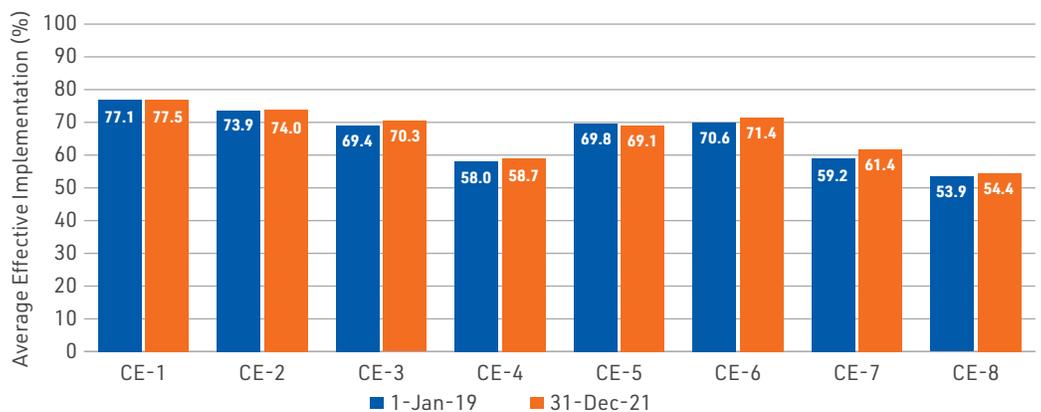
3.3.2 The COVID-19 global pandemic and associated worldwide travel restrictions led to a drastic drop in the number of USOAP on-site activities, namely audits and ICVMs, conducted during this triennium. As far as the overall global average EI was concerned, the historical data from USOAP activities in the past triennium outweighed the impact of the limited number of audit and validation activities conducted in the 2019 to 2021 triennium.

3.3.3 Another important factor contributing to the slightly higher global average EI for this triennium was the higher number of validation activities conducted in lieu of audits. In the past three years, ICAO conducted ICVMs in a virtual environment and increased off-site validation activities to comply with its oversight responsibilities during the global pandemic. This resulted in more validation activities conducted than audits.

3.3.3.1 Validations address “not-satisfactory” PQs only and review the implementation of corresponding corrective action plans by a State, the outcome of which tend to increase the State’s overall EI or, at a minimum, keep it at the same level.

3.3.4 In terms of the global average EI by CEs, as shown in Figure 3-7, by the end of 2021, CE-8 (Resolution of safety issues) had emerged as the CE with the lowest average EI at global level, followed by CE-4 (Technical personnel qualifications and training) at 58.73 per cent. CE-1 (Primary aviation legislation) remained the CE with the highest average EI, followed by CE-2 (Specific operating regulations) at 74.02 per cent. In the three-year reporting period, all CEs registered a slight increase in their average EIs, except for CE-5, which had a negligible 0.1 per cent decrease.

Figure 3-7. Global Average Effective Implementation (%) by Critical Element.

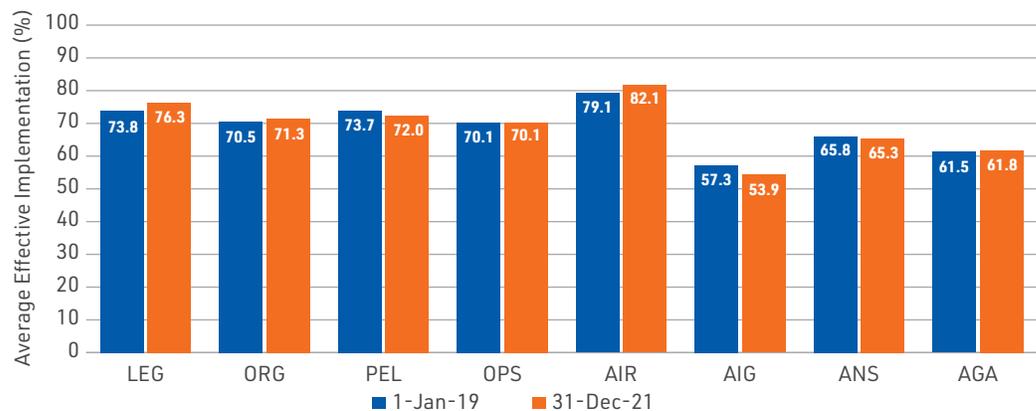


3.4 GLOBAL RESULTS BY AUDIT AREA

3.4.1 By the end of 2021, at the global level, the audit areas with the lowest average EIs were AIG, ANS and AGA, partly because ICAO only started to conduct USOAP audits in these areas in 2005, while audits of PEL, OPS and AIR began at the launch of USOAP in 1999.

3.4.2 AIR remained the area with the highest average EI (82.10 per cent) and AIG was the area with the lowest average EI (53.90 per cent). In the three-year reporting period, only two of the six technical audit areas, namely AIR and AGA, saw an increase in their global average EIs. PEL, AIG and ANS registered a drop, while OPS remained at the same level. LEG registered the highest rate of increase, from 73.80 per cent to 76.30 per cent for an increase of 3.4 per cent, while AIG registered the biggest drop, from 57.30 per cent to 53.90 per cent or a decrease of 5.9 per cent.

Figure 3-8. Global Average Effective Implementation (%) by audit area.



3.5 REGIONAL RESULTS BY CRITICAL ELEMENT

3.5.1 Figures 3-9 to 3-15 present the regional average Effective Implementation by CE for each of the seven ICAO Regions for the period of 1 January 2019 to 31 December 2021.

Figure 3-9. Regional Average Effective Implementation (%) by Critical Element for APAC Region (2019 to 2021).

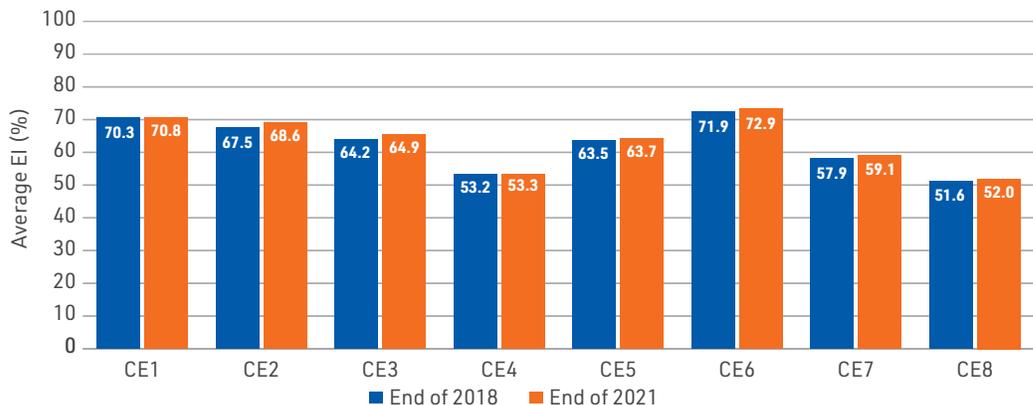


Figure 3-10. Regional Average Effective Implementation (%) by Critical Element for ESAF Region (2019 to 2021).

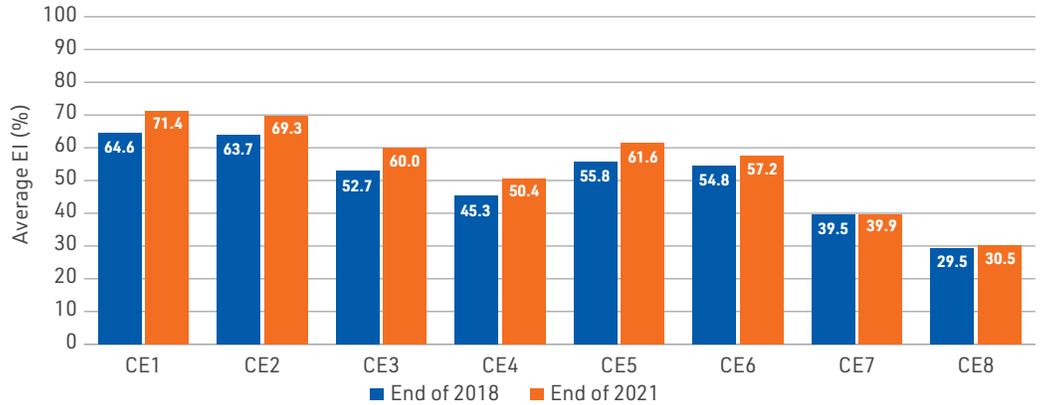


Figure 3-11. Regional Average Effective Implementation (%) by Critical Element for EUR/ NAT Region (2019 to 2021).

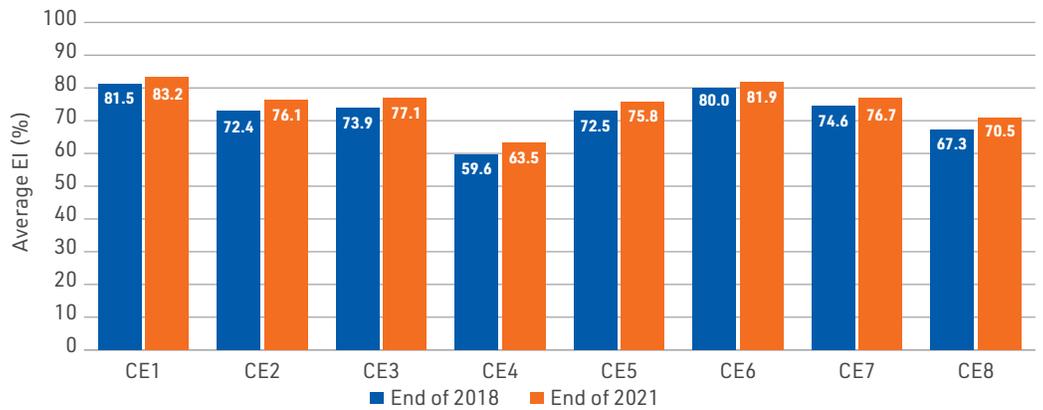


Figure 3-12. Regional Average Effective Implementation (%) by Critical Element for MID Region (2019 to 2021).

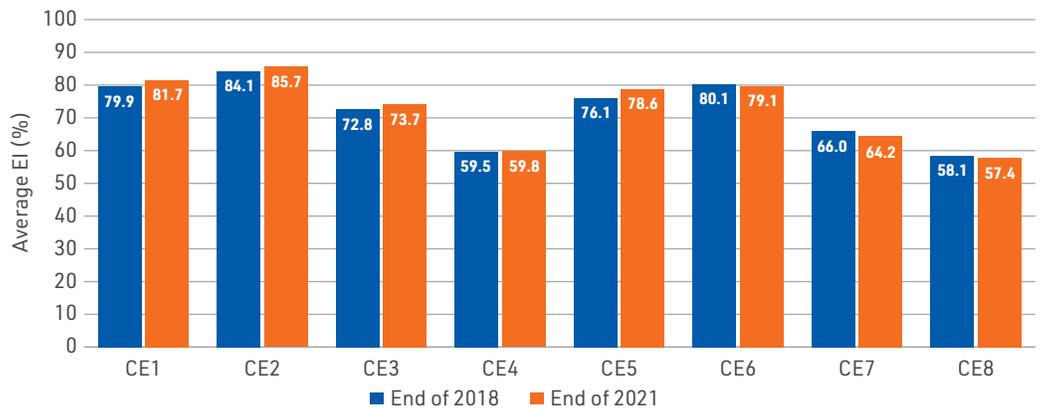


Figure 3-13. Regional Average Effective Implementation (%) by Critical Element for NACC Region (2019 to 2021).

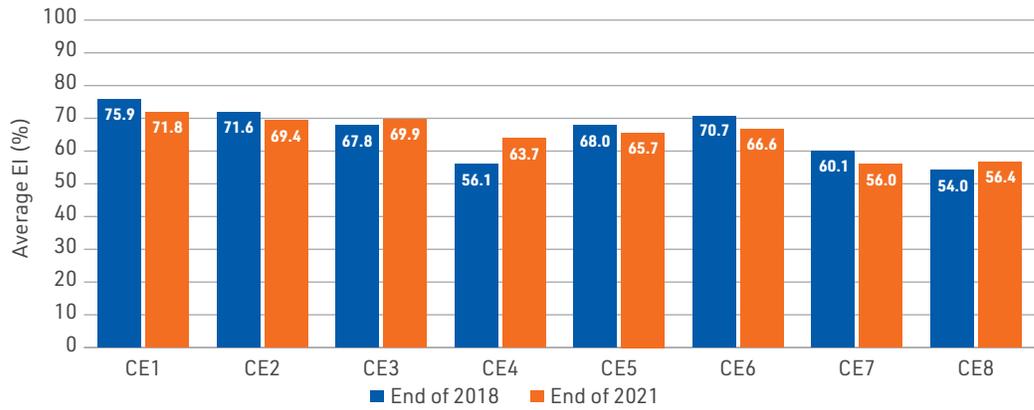


Figure 3-14. Regional Average Effective Implementation (%) by Critical Element for SAM Region (2019 to 2021)

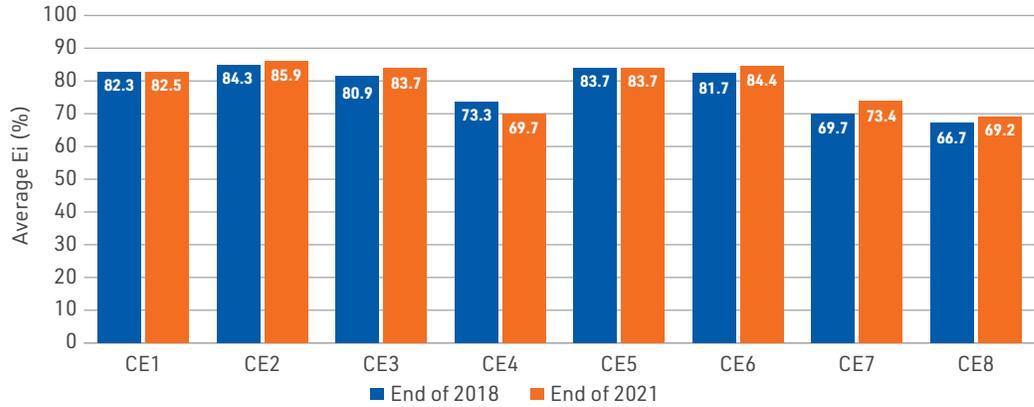
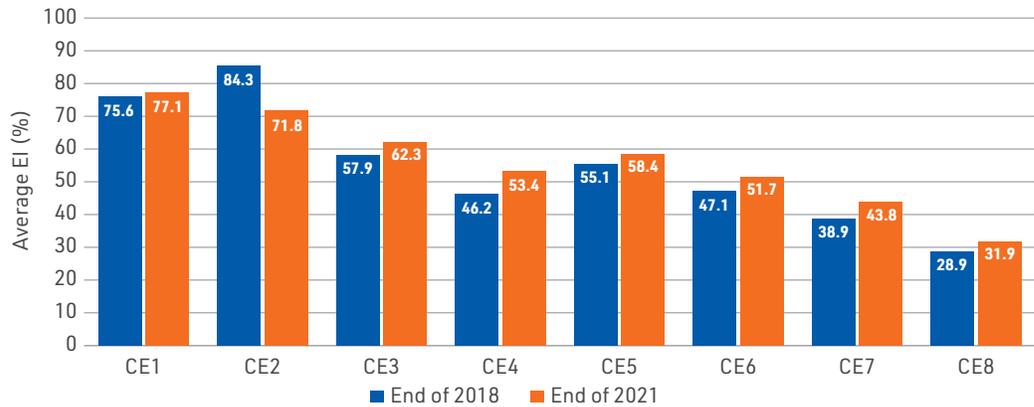


Figure 3-15. Regional Average Effective Implementation (%) by Critical Element for WACAF Region (2019 to 2021)



3.6 REGIONAL RESULTS BY AUDIT AREA

3.6.1 Figures 3-16 to 3-22 present the regional average EI of each ICAO region by audit area.

Figure 3-16. Regional Average Effective Implementation (%) by audit area for APAC Region (2019 to 2021).

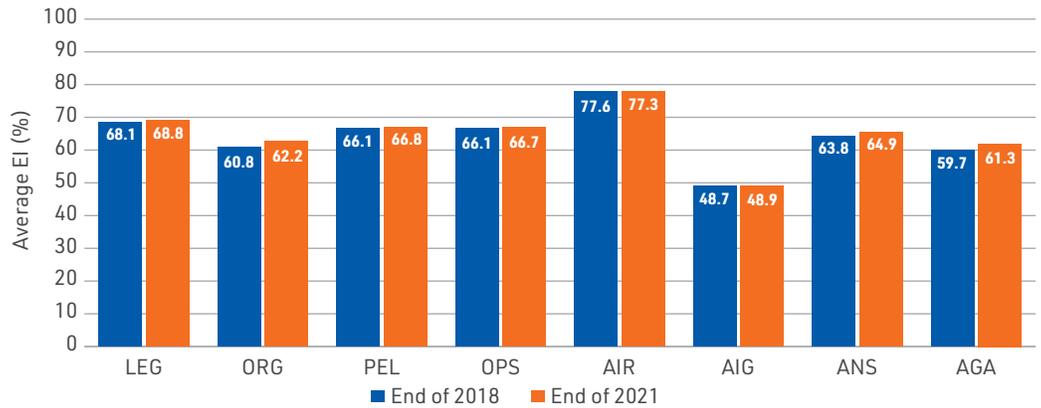


Figure 3-17. Regional Average Effective Implementation (%) by audit area for ESAF Region (2019 to 2021).

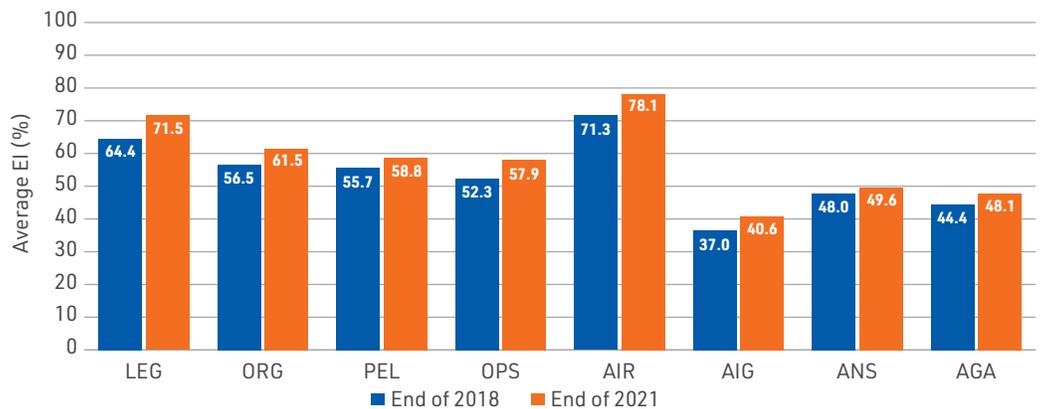


Figure 3-18. Regional Average Effective Implementation (%) by audit area for EUR/NAT Region (2019 to 2021).

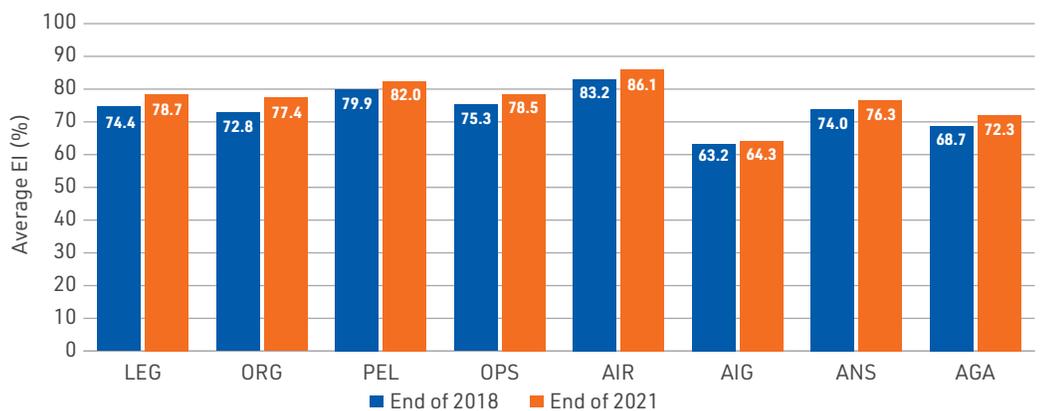


Figure 3-19. Regional Average Effective Implementation (%) by audit area for MID Region (2019 to 2021).

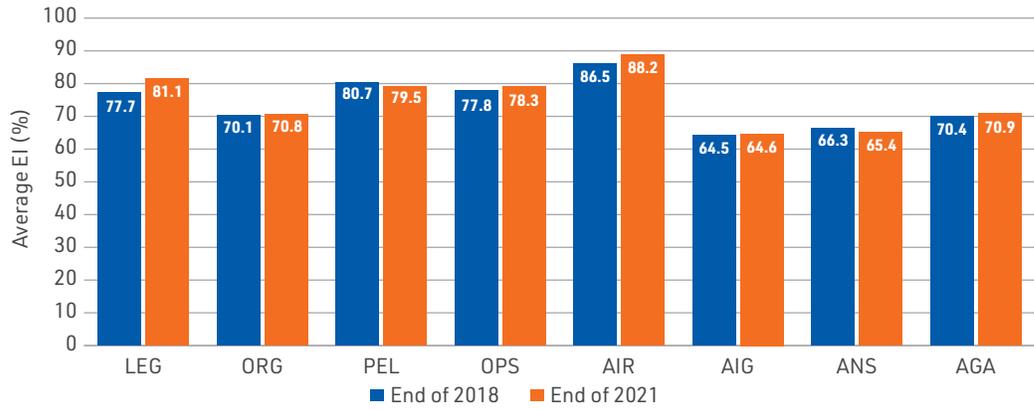


Figure 3-20. Regional Average Effective Implementation (%) by audit area for NACC Region (2019 to 2021).

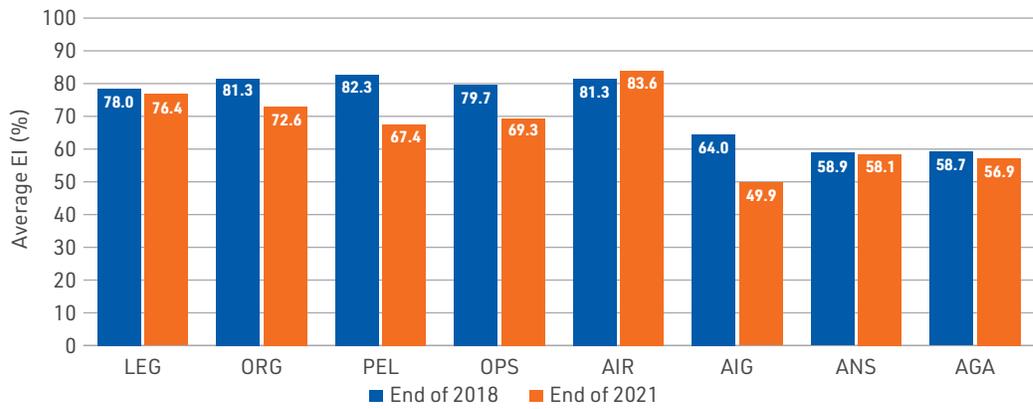


Figure 3-21. Regional Average Effective Implementation (%) by audit area for SAM Region (2019 to 2021).

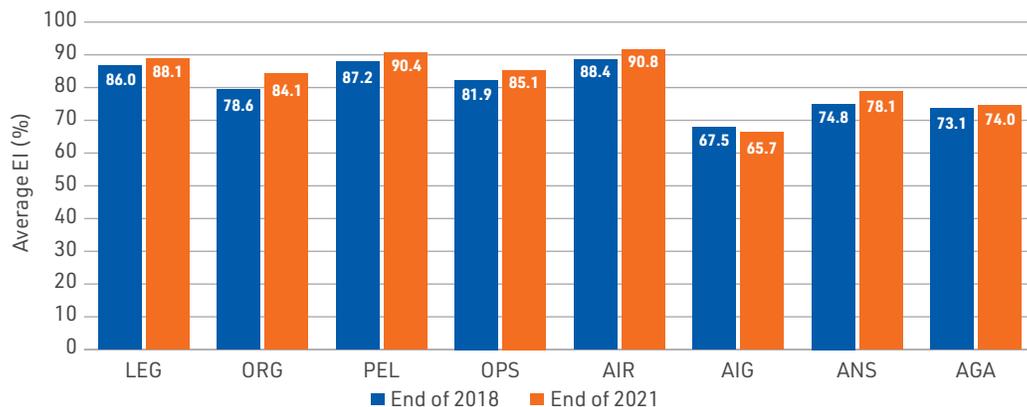
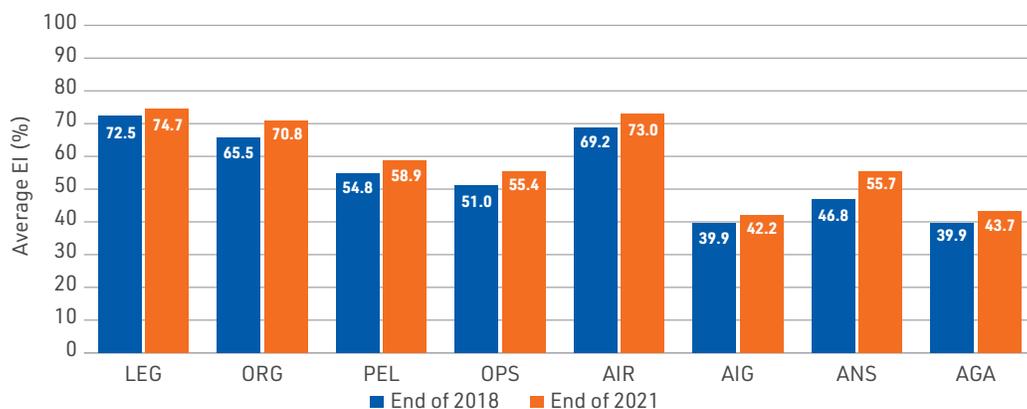


Figure 3-22. Regional Average Effective Implementation (%) by audit area for WACAF Region (2019 to 2021).





Chapter 4

HIGHLIGHTS OF ISSUES IDENTIFIED IN THE EIGHT AUDIT AREAS



ICAO USOAP
Continuous Monitoring Approach

This chapter highlights aspects related to safety oversight and accident/incident investigation, identified during USOAP CMA activities, where most States continue to face challenges. The information in this chapter is not intended to present a detailed or exhaustive list of all deficiencies identified through the programme. Additionally, the information does not address operational safety issues in the various areas. The report focuses on issues related to States' safety oversight systems and their systems for the independent investigation of aircraft accidents and serious incidents and occurrence reporting and analysis.

Note.—Appendix B presents the Effective Implementation (EI) values for each subgroup of the eight audit areas.

4.1 HIGHLIGHTS OF ISSUES IDENTIFIED IN THE LEG AREA

4.1.1 Developing and maintaining a comprehensive and up-to-date set of regulations

4.1.1.1 An improvement is observed in this aspect when compared with the last triennium. However, more States continue to face challenges in establishing comprehensive procedures to amend their civil aviation regulations or, if necessary, their primary aviation legislation, in a timely manner and bring them into full accord with applicable provisions contained in the Annexes to the Chicago Convention.

4.1.1.2 The findings observed include, but are not limited to, procedures lacking the following:

- a) an acceptable level of detail and customization regarding the processing of ICAO State Letters;
- b) coordination with all relevant entities, including technical and legal experts, within or outside of the State's civil aviation authority (CAA);
- c) realistic but effective timelines for each step of the process; and
- d) a comprehensive set of steps, starting from the identification of the need for amendments of the regulatory framework of a State to the actual promulgation and publication of amended or new legal requirements.

4.1.1.3 The absence of comprehensive and up-to-date States' legal frameworks consistent with ICAO safety-related requirements is due not only to deficiencies in the procedures, but also to limited qualified human resources in States for the rule-making process. Consequently, the legal basis for States to perform their safety oversight functions and duties is either incomplete or not in conformance with the latest ICAO SARPs. While an improvement has been observed in States that have adapted or adopted regulations from other sources, over 35 per cent of these States do not have an established and comprehensive process to ensure that their regulatory scheme is up-to-date following the amendments of ICAO Annexes.

4.1.2 Transfer of certain safety oversight functions and duties

4.1.2.1 More than 50 per cent of States that have ratified Article 83 *bis* face either or both of the following challenges.

- a) Most of these States have not amended their primary aviation legislation and/or related operating regulations to provide for the recognition of certificates of airworthiness, radio licences and crew licences issued or render valid by the State of the Operator in lieu of the State of Registry.
- b) Other States with air operators using foreign-registered aircraft have entered into agreements under Article 83 *bis* for the transfer of functions and duties between the State of Registry and the State of the Operator. However, they either do not meet minimum requirements or have not modified their primary aviation legislation to provide for the transfer of relevant functions and duties.

4.1.2.2 The absence of an adequate legal framework for the transfer or recognition of such transfer of functions and duties under Article 83 *bis* results in ambiguous safety oversight responsibilities between the State of Operator and State of Registry, increasing the safety risks associated with the operation of these aircraft.

4.1.3 Identifying differences with SARPs, notifying them to ICAO and publishing significant differences in the Aeronautical Information Publication (AIP)

4.1.3.1 More than 45 per cent of the States have not established an effective system for the identification and notification of the differences between the SARPs and their national regulations and practices to ICAO, as required by Article 38 of the Chicago Convention. This nonetheless represents a small improvement in comparison with the last triennium, which was 50 per cent of States.

4.1.3.2 More than 80 per cent of States continue to have difficulties identifying and publishing their significant differences in their AIP, as required by Annex 15.

4.1.3.3 The identification of differences requires sufficient understanding of the ICAO provisions involved, which may be limited by the following:

- a) the availability, qualification and training of the State's personnel,
- b) the complexity or formulation of the ICAO provisions, and
- c) the difficulty associated with the assessment of the level of compliance of national regulations and practices with SARPs.

4.1.3.4 The identification of significant differences implies a more elaborated evaluation of States' national regulations and practices vis-a-vis ICAO provisions in order to identify those differences particularly concerned with aircraft operations and the provision of facilities and services.

4.1.3.5 For those States which have established procedures for the notification of differences, these procedures often do not contain the necessary coordination with all relevant entities, including technical and legal experts, within or outside of the State's CAA, or realistic but effective timelines for each step of the process. In other States, procedures are robust, but implementation is not undertaken due to lack of detail and clarity on the steps to be taken or to limitations of qualified human resources available.

4.1.4 Establishing and implementing policies and procedures for granting exemptions

4.1.4.1 While improvements were observed when compared with the last triennium, more than 40 per cent of States still face challenges in the granting of exemptions where full compliance with national regulations is

not feasible. Specifically, States have failed to meet the requirements for granting exemptions, such as the need for appropriate, robust and documented safety risk assessments or aeronautical studies to support the request for exemptions and the imposition of limitations, conditions or mitigation measures, as appropriate.

4.1.4.2 Certain States have not yet included the legal basis for granting exemptions in the primary aviation legislation. The regulatory requirements are not comprehensive or the formal policy and/or associated procedures are not detailed enough or fully implemented. In other States, non-compliances with established requirements are not documented or are not duly processed through a risk assessment mechanism.

4.1.5 Establishing and implementing enforcement policies and procedures

4.1.5.1 In comparison with the previous triennium, a slight improvement is noted in the establishment of an effective framework (including legislation, regulations and procedures) to enable an effective enforcement of the applicable primary aviation legislation and specific operating regulations. Within the legal component of this framework, clear enforcement powers have been conferred to the aviation authorities including effective penalties to serve as a deterrent. Related policies and procedures have been established to facilitate cooperation of all stakeholders within the CAA, including the legal department and the various inspectorates, and provide for appropriate, consistent and commensurate responses to non-compliances or violations identified. Implementation of established enforcement procedures is particularly relevant in the areas where the State is involved in the provision of services or where conflict of interest may exist or be perceived, such as ANS and AGA.

4.2 HIGHLIGHTS OF ISSUES IDENTIFIED IN THE ORG AREA

4.2.1 Ensuring that safety oversight and accident and incident investigation authorities have sufficient human and financial resources

4.2.1.1 States should ensure that they have sufficient human and financial resources to enable them to conduct effective safety oversight and accident and serious incident investigation. However, nearly 60 per cent of States lack a sufficient number of qualified inspectors in the relevant technical areas.

4.2.1.2 Around 45 per cent of States do not ensure that their civil aviation and/or accident investigation authorities are able to attract, recruit and retain sufficient qualified technical personnel to perform their functions and responsibilities. This is further challenged by high remuneration structures from the industry, organizations, and even other State authorities.

4.2.1.3 In addition, almost 30 per cent of States have not established and implemented an effective mechanism to ensure that each safety oversight authority has sufficient financial resources to meet its national and international obligations. The impact of the reduction of industry operations in the last triennium may further increase the funding difficulties of some States.

4.2.2 Defining functions and responsibilities of authorities related to safety oversight or aircraft accident and incident investigation

4.2.2.1 When there is more than one authority or organization with functions related to safety oversight or aircraft accident and serious incident investigation, it is essential that the State has established and implemented procedures to ensure that all areas are covered and that there is no overlap of responsibilities. Nevertheless, there are still almost 30 per cent of States that have not clearly defined the functions and responsibilities related to safety oversight and aircraft accident and incident investigation. Specifically, they do not ensure that relevant technical areas are outlined, overlaps avoided, and the size and complexity of their aviation activities taken into consideration.

4.3 HIGHLIGHTS OF ISSUES IDENTIFIED IN THE PEL AREA

4.3.1 Approving training programmes related to the first issuance of licences and ratings

4.3.1.1 With slight changes in comparison to the previous triennium reports, about 60 per cent of the States have not implemented an effective process to approve training programmes related to the first issuance of licences and ratings.

4.3.1.2 In most of the States, the system for approval is not yet fully developed and effectively implemented as the qualifications and training of the inspectors continue to be a challenge for performing the review and approval of the training programmes in an effective and consistent manner. Often, the implementation of procedures is

not fully comprehensive and does not include, as applicable, domestic and foreign programmes for all types of licences and ratings for pilots, air traffic controllers and aircraft maintenance engineers.

4.3.2 Ensuring supervision and control of flight and practical test delivery by the designated flight and practical examiners

4.3.2.1 More than 50 per cent of the States have not implemented an effective system for the supervision and control of flight and practical test delivery in order to ensure consistency and reliability of testing by the designated flight and practical examiners related to flight crew, air traffic controller and aircraft maintenance engineer licences. Many States have not taken into account all aspects necessary to implement this requirement appropriately, including the supervision of designated examiners, an adequate level and frequency of surveillance activities, and the availability of procedures and guidance material for inspectors on the supervision and control of flight and practical test examiners.

4.3.2.2 In addition, States do not account for aspects of their systems that are related to the development of procedures and checklists for the observation of examinations and for the assessment of the competency of examiners during the conduct of examinations and checks. Often, the supervision tasks are carried out by other sections within the CAA in coordination with the Licensing Authority; however, the coordination between the CAA entities is not properly documented. Insufficient and attrition of qualified personnel to perform the supervision tasks continues to be a challenge.

4.3.3 Implementing a surveillance programme of approved training organizations (ATOs)

4.3.3.1 About 50 per cent of States have not implemented an effective programme for the surveillance of the ATOs for pilots, air traffic controllers and aircraft maintenance engineers. This applies not only to domestic ATOs, but also to foreign ATOs which provide training to the staff of some of the service providers in the State. Many States have not ensured consistency in their methods of surveillance nor appropriately determined the frequency of inspections. In addition, random inspections are often not included in the surveillance programme. Many States have not developed and maintained an effective system to keep track of their surveillance activities in relation to ATOs.

4.3.4 Performing surveillance activities in relation to air traffic controllers

4.3.4.1 Surveillance activities on air traffic controllers continue to be a challenge. Less than 50 per cent of the States have not established and implemented an effective system for the surveillance of air traffic controllers to ensure that they continue to comply with the conditions of their privileges while performing their functions. Deficiencies have been found in such areas as the development and implementation of surveillance programmes and plans, the availability and training of inspectors, development of inspector procedures and guidance, the conduct of random and periodic inspections, and the analysis of surveillance data to determine areas of concern, such as non-compliance with the regulations and unsafe practice.

4.3.5 Supervising and controlling designated medical examiners (DMEs)

4.3.5.1 Notwithstanding a 5 per cent improvement in the supervision and control of DMEs by States, less than 50 per cent of the States have not effectively implemented a system for the supervision and control of DMEs. In many States, familiarization training of the appointed medical assessors have not been tailored to enable them to clearly understand their duties and responsibilities within the CAA, particularly in respect to the supervision and control of DMEs. These duties and responsibilities include the inspection of premises and equipment, the verification of the use of the latest ICAO SARPs and relevant guidance material by DMEs as applicable, the provision of up-to-date refresher training, the timely transmittal of reports to the Licensing Authority and record-keeping of sensitive and confidential information of applicants and licence holders.

4.4 HIGHLIGHTS OF ISSUES IDENTIFIED IN THE OPS AREA

4.4.1 Maintaining sufficient qualified technical staff

4.4.1.1 Many States, around 45 percent, experience challenges in attracting and retaining sufficient qualified technical resources to enable them to carry out all of their certification and surveillance obligations, both nationally and internationally. This is mainly due to industry wages being greater than the wages offered by the States for the same or comparable positions.

4.4.1.2 More than 65 per cent of States have not fully planned all training requirements based on the training plan for their technical staff. Furthermore, training, including all the required initial, recurrent, specialized and on-the-job (OJT) training, are not fully provided to ensure that the inspectors acquire and maintain the required level of knowledge, skills, competence and qualifications.

4.4.2 Ensuring that air operators implement all regulations in their procedures

4.4.2.1 Some States have not implemented detailed and comprehensive procedures to ensure that their air operators review and implement all regulations related to the contents of the operations manual before the air operator certificate (AOC) or any specific approval is granted.

4.4.2.2 Some States have not established and implemented procedures for coordination between OPS and AIR inspectors for the evaluation and issuance of specific approvals contained in the operations specifications, including those regarding the conduct of low visibility operations.

4.4.2.3 More than 35 per cent of States have not ensured that air operators that have airplanes of a maximum certificated take-off mass in excess of 27 000 kg establish and maintain flight data analysis programme with adequate safeguards to protect the source(s) of the data.

4.4.3 Transport of dangerous goods by air

4.4.3.1 Over 70 per cent of States have not established and implemented processes for reporting dangerous goods incidents and accidents. Specifically, they lack procedures for investigating and compiling information concerning accidents and incidents involving dangerous goods, which occur within their territories and involve the transport of dangerous goods originating in or destined for another State.

4.4.3.2 More than 60 per cent of States have not established and implemented surveillance programmes for all entities involved in the transport of dangerous goods by air in compliance with Annex 18 and the Technical Instructions.

4.4.3.3 Half of the ICAO Member States have not implemented procedures to ensure that the organizations or agencies involved in the transport of dangerous goods by air, including Designated Postal Operators (DPO), have established and implemented initial and recurrent dangerous goods training programmes.

4.4.3.4 Some States have not ensured that passengers are warned as to the types of dangerous goods that they are prohibited or restricted from transporting aboard an aircraft.

4.4.4 Establishing and implementing a surveillance programme

4.4.4.1 Some States have not established and implemented a comprehensive surveillance programme to verify that all their AOC holders comply, on a continuing basis, with national regulations and international standards as well as provisions of the AOCs and associated operations specifications. Around 40 per cent of States do not include the necessary processes and procedures for coordination among its different departments.

4.4.4.2 Around 45 per cent of States have not developed and implemented a system to track the deficiencies identified as well as to accept or validate the corrective actions taken by air operators. Also, over 45 per cent of States have not used their tracking system to track past deficiencies when establishing their surveillance programme or when carrying out risk assessments.

4.4.5 Implementation of an enforcement system

4.4.5.1 Nearly half of the States have not yet established and implemented procedures to take graduated enforcement actions, such as fines, restrictions or suspensions, when air operators do not rectify, in a timely manner, deficiencies that were identified during surveillance activities.

4.4.5.2 More than 45 per cent of States have not established and implemented enforcement procedures to address situations in which entities and air operators involved in the transport of dangerous goods by air, having been notified of deficiencies, have not rectified them in a timely manner.

4.5 HIGHLIGHTS OF ISSUES IDENTIFIED IN THE AIR AREA

4.5.1 Implementing training programme for airworthiness inspectors

4.5.1.1 To date, only 40 per cent of States have appropriately implemented a training programme for airworthiness inspectors. Focusing specifically on the States that have received one of the various USOAP CMA activities during this triennium, the “not satisfactory” percentage stands

at roughly 35 per cent. While this is a marked improvement from past trienniums suggesting a positive trend towards more formalized training programmes among the States sampled, it remains a key area of concern. As such, it would benefit from continued support and assistance from other ICAO Member States.

4.5.2 Implementing a comprehensive procedure for the amendment of enabling airworthiness regulations and national standards, including the identification and notification of differences to ICAO

4.5.2.1 While a solid majority of States have promulgated and implemented aviation regulations, approximately 50 per cent remain deficient in the area of implementing procedures for the amendment of their enabling airworthiness regulations and national standards. The process of amending a State’s enabling airworthiness regulations and national standards should be recognized globally as a key indicator of a State’s maturation process within the aviation community. The ability to continually review and refine the regulations and national standards will also create a more comprehensive and State-tailored approach to the continuity of overall aviation safety.

4.5.2.2 As a key requirement for clear and effective global communication, Member States are required to identify and notify to ICAO of differences between their own practices and those established by the international standards, as contained in the Annexes to the Convention on International Civil Aviation. Unfortunately, only 37 per cent of States have been meeting this requirement satisfactorily. The Effective Implementation rate of this requirement remains the lowest when compared with compliance to other AIR requirements.

4.5.3 Taking appropriate actions when information obtained from reliability monitoring indicates a degraded level of safety

4.5.3.1 Similar to the previous triennium report, about 40 per cent of the States have not established or implemented a formal system to conduct ongoing surveillance of their air operators’ reliability programmes. As part of the maintenance programme approval process, the air operators should submit a reliability programme and appropriate information to the CAA for evaluation and approval. The reliability programme should be administered and controlled by the air operators and monitored by the CAA’s airworthiness inspectors. In the event that an acceptable level of reliability is not maintained, an observable negative trend exists, or significant deficiencies are detected

in the design or conduct of operations, the State of the Operator should initiate a special evaluation, impose operational restrictions, if necessary, and/or stipulate corrective actions for the operator. These steps should be adopted immediately in order to resolve the problems in a timely manner or suspend the affected authorization unless there is a corrective action plan acceptable to the CAA.

4.5.3.2 As a follow-up to the information stated in 4.5.3.1, about 49 per cent of the States have not established and implemented a documented process to initiate special evaluations or impose special operational restrictions when information obtained from reliability monitoring indicates a degraded level of safety. While it is positive to note that this is an improvement over the past three years, the simple truth remains that half of the States cannot ensure that appropriate actions are taken in a timely manner.

4.5.4 Establishing or implementing surveillance programmes for AOC holders and/or approved maintenance organizations (AMOs)

4.5.4.1 About 45 per cent of Member States have not implemented formal surveillance programmes for AOC holders and/or AMOs to verify their continuing compliance with national regulations, international standards as well as the AOCs and AMO certificates. This shortcoming translates to a potential lack of implementation, at the operational level, of well-intended and safety-based rules and policies. As such, global aviation safety efforts remain at risk of being ineffective due to the lack of assurance of compliance with safety-related requirements and best practices in the area of AIR.

4.5.4.2 Additionally, 35 per cent of the States have not established and/or effectively implemented a documented comprehensive process or method to track identified deficiencies, including the subsequent evaluation of the corrective actions presented by their AOC holders or AMOs. This lack of documented process reduces the CAA's abilities to take appropriate actions, including enforcement measures, to ensure the timely resolution of the deficiencies identified during surveillance activities.

4.5.5 Conducting effective surveillance of the performance of delegated safety oversight tasks

4.5.5.1 The number of States delegating certain aviation safety oversight tasks to other CAA divisions, State bodies, Contracting States, regional organizations, private agencies or individuals remains minimal. However, about 40 per cent of those applicable States have not established and/

or effectively implemented a documented comprehensive process to conduct surveillance of the tasks performed by the delegated entities/individuals. Further to that issue, USOAP CMA activities continue to find some of the States have not conducted any such surveillance.

4.5.5.2 States without sufficient resources or competencies might consider delegating specific safety oversight functions and activities to a regional safety oversight organization (RSOO), a regional accident and incident investigation organization or another State. States may also consider delegating activities to other recognized entities, (such as trade associations, industry representative organizations or other bodies) that may collect and analyse data on their behalf, provide training or conduct surveillance and monitoring activities. However, it must be noted that the ultimate responsibility for safety oversight remains with the States themselves. This statement is true regardless of the safety oversight-related functions and activities that they may choose to delegate. This warrants the understanding that although a State may delegate specific functions and activities, there is still a need for sufficient personnel to interact with the delegated entity and to process information provided by that entity.

4.5.5.3 States must continue to place a priority on resolving deficiencies and/or concerns when they are identified in these delegation-arrangements. This area of concern remains an issue, given that 30 per cent of the applicable States are still not meeting the requirement for documented resolution.

4.6 HIGHLIGHTS OF ISSUES IDENTIFIED IN THE AIG AREA

4.6.1 Independent accident investigation authority and the investigation processes

4.6.1.1 Only 41 per cent of the States have established an autonomous accident investigation authority (or commission, board or other body) for the investigation of aircraft accidents and incidents that is independent from State aviation authorities and other entities that could interfere with the conduct or objectivity of an investigation. The civil aviation authority being in charge of accident and incident investigation, as is the case in the majority of States, has proven to be inadequate, because conflicts arose when the investigation findings identified deficiencies in the performance of the safety oversight functions.

4.6.2 Ensuring the effective investigation of serious aircraft incidents as per Annex 13

4.6.2.1 Less than 40 per cent of the States have established a process to ensure the investigation of serious aircraft incidents, as required by Annex 13. In most cases, there is insufficient or no guidance established by the State (including actions to be taken, timelines and personnel to be involved in the assessment and decision-making processes) to support the assessment process, following the receipt of an incident notification, in order to decide whether the State will launch an independent investigation as per Annex 13. The timely identification of serious incidents is all the more challenging for States which do not have a permanent, independent investigation authority or have such an authority but without all the necessary qualified and experienced personnel.

4.6.2.2 In practice, the effective investigation of serious incidents is also affected by the lack of immediate reporting – or, worse, the total lack of reporting – of serious incidents (or incidents that may be serious incidents) by service providers (e.g. air operators and ATS providers) to the designated State authority due to an insufficient reporting culture in the State. This is usually related to a lack of an independent investigation authority and, thus, fair disciplinary action to reporters. Only a small number of States have a comprehensive process as well as the necessary qualified and experienced personnel (technical staff and management personnel of the accident investigation authority) to ensure that investigations of serious incidents are effectively carried out when required by Annex 13. The lack of thorough, independent investigations of serious incidents may leave unidentified and unacted-upon safety issues, which could then lead to an accident or even a major fatal accident.

4.6.3 Providing sufficient training to aircraft accident investigators

4.6.3.1 Less than 35 per cent of the States have developed a comprehensive and detailed training programme for their aircraft accident investigators. Even though many States have started developing such a training programme, the content is often insufficient. In many cases, recurrent and specialized or advanced training are not addressed and OJT is not addressed in sufficient, practical details, including the phases of the OJT (e.g. observation or performance of tasks under supervision), the necessary qualification and experience of OJT instructors, and the assessment of the OJT outcome. As for the implementation of training programmes, it is often limited by an insufficient budget and

by an ad hoc rather than a planned approach to the provision of training. Only a small number of States – mostly States with more mature accident investigation authorities – provide their investigators with the necessary training to effectively conduct their tasks. The provision of investigation-related training is particularly challenging for States which do not have a permanent investigation authority.

4.6.3.2 It is worth noting that training is also necessary for the technical personnel of States which, through signed agreements, fully delegate accident and serious incident investigations to another State or to a regional accident and incident investigation organization. The State of Occurrence remains responsible for carrying out the first actions (including the preservation of evidence) following an occurrence. Insufficient training contributes to many shortcomings, including:

- a) lack of timely launch of the investigation when needed (in particular for serious incidents);
- b) lack of preservation of essential evidence of transient nature following an accident or serious incident;
- c) poor management of investigations; and
- d) poor investigation reports and/or safety recommendations.

4.6.4 Ensuring proper coordination and separation between the “Annex 13” investigation and the judicial investigation

4.6.4.1 Less than 40 per cent of the States have effective and formal means (including appropriate provisions in the legislation and formal arrangements) for the proper coordination of investigation activities between the investigation authority and the judicial authority. Such means are essential to ensure the necessary separation between the two investigations (e.g. for the conduct of interviews with witnesses and for the analysis of the information collected). They are also necessary for governing the coordination of activities on the scene of an accident (e.g. for the securing and custody of evidence, and the identification of victims) and for cockpit voice recorder (CVR) and flight data recorder (FDR) read-outs as well as the relevant examinations and tests. In particular, they are intended to ensure that investigators have ready access to all relevant evidence and that flight recorder read-out analysis and other necessary examinations and testing are not impeded or significantly delayed due to judicial proceedings.

4.6.4.2 While provisions in the primary legislation as well as formal arrangements are needed to address the above-mentioned issues, in practice, many States have initiated actions (such as seminars and workshops or courses involving accident investigation authorities and judicial authorities) to help build a constructive dialogue and understanding between the two communities, which have distinct legal basis and procedures. Making such arrangements is much more challenging for States which do not have a permanent, independent accident investigation authority.

4.6.5 Establishing and implementing a State's mandatory incident reporting systems

4.6.5.1 Less than 50 per cent of the States have established an effective mandatory incident reporting system, as required by Annex 19. Such a system needs to be supported by the appropriate legislation/regulations, procedures and guidance material. Many of these States have not clarified in their regulations the types of occurrence to be reported by service providers in the various aviation domains, and under which timescale. For example, it is advisable that the reporting of accidents and serious incidents be done within a few hours (as per Annex 13: "as soon as possible and by the quickest means available") and ideally directly to the State's accident investigation authority, when established, since those occurrences demand an immediate action from the State (the institution of an investigation).

4.6.5.2 On the other hand, incidents other than serious incidents are normally received and processed by the State's CAA and are also analysed by the service provider itself within the framework of its safety management system (SMS), thus not demanding any immediate action from the State. For these incidents, the deadline for reporting to the State may be longer so as not to overburden the service providers (around 2 to 5 days would be reasonable).

4.6.5.3 States should provide clear guidance to the industry on which incidents will be of interest to be reported and when to do it. An ineffective State mandatory incident reporting system not only affects the effectiveness of the CAA's continuous surveillance programme, but also limits the ability of the State to follow the data-driven approach which is necessary for the implementation of the State Safety Programme (SSP).

4.6.6 Establishing an aircraft accident and incident database and performing safety data analyses at State level

4.6.6.1 More than 60 per cent of the States have yet to establish an accident and incident database to facilitate the effective analysis of information on actual or potential safety deficiencies and to determine any preventive actions required. Over the last decade, many States have been trained in the use of the European Co-ordination Centre for Aviation Incident Reporting Systems (ECCAIRS) database, which enables States to ensure compatibility with the ICAO accident/incident data reporting (ADREP) taxonomy. However, many States do not have the qualified technical personnel to properly administer their database. In addition, the data collected are not shared with the concerned stakeholders in order to identify actual or potential safety deficiencies and adverse trends as well as to determine any preventive actions required. The unavailability of such information affects the ability of the State to effectively implement an SSP.

4.7 HIGHLIGHTS OF ISSUES IDENTIFIED IN THE ANS AREA

4.7.1 State responsibilities concerning flight procedure design (FPD) service

4.7.1.1 The most relevant concern about global safety oversight in the Air Navigation Services is that a majority of the States are not ensuring the maintenance and periodic review of flight procedures (including its flight validation processes). Only 29 per cent of the States have satisfactorily shown appropriate action in this aspect. Even though the requirements for interval revision (i.e., interval not to exceed five years) are often published, a lack of surveillance activities and real enforcement capabilities allow the FPD providers to exceed the prescribed requirements without ensuring that they continue to comply with changing criteria and meet user requirements.

4.7.1.2 In addition, the impact on safety due to the lack of effective mechanisms to ensure the revision of the FPDs is affected by the fact that only 62 per cent of the States have established and implemented a mechanism to ensure the flight procedures are in accordance with the criteria promulgated by the State, such as a detailed approval process, as prescribed in Annex 11.

4.7.2 Search and Rescue services

4.7.2.1 Among the air navigation services, Search and Rescue (SAR) is still the service that represents a major challenge for the States performing safety oversight function, mainly because SAR is a State function that often integrates several State entities and the role of the regulator is not clearly defined among them. The lack of clarity or definition of the role of a safety oversight authority for SAR thus obscures the lack of implementation of ICAO provisions, which is demonstrated in the following instances:

- The majority of the SAR organizations have not concluded letters of agreement for cooperation with its neighbouring States. Only 36 per cent of the States have taken this action.
- Less than half of the States, about 43 per cent, can ensure that each rescue coordination centre (RCC) and rescue sub-centre (RSC) employ a sufficient workforce in coordination and operational functions, including appropriate criteria to assess the required workforce. In addition, only 46 per cent of the States ensure that the RCCs and RSCs are staffed 24 hours a day by trained personnel proficient in the use of the English language.
- Plans of operation for the conduct of SAR operations are described in Annex 12, complemented by the *International Aeronautic and Maritime Search and Rescue Manual* (Doc 9731), which was developed in coordination with the International Maritime Organization (IMO). However, only 56 per cent of the States have implemented a mechanism to assess if the plans of operation have been developed in accordance with their national requirements and, if appropriate, for the national system, which include the identification of designated public or private SAR units that are suitably located and equipped for SAR operations.
- Furthermore, less than half of the States (48 per cent) ensure the execution of SAR exercises to test the developed plans of operation. In addition, States also fail to follow up on the conclusions drawn by the evaluation of the exercises showing deficiencies in the performance of SAR oversight authorities.

4.7.3 Implementing a formal surveillance programme and enforcement actions for Air Navigation Service Providers (ANSPs)

4.7.3.1 Even though there is no certification standard for ANSPs, States are required to verify compliance status on a continuing basis to ensure that the service provider is in accordance with the applicable national regulations and international standards. To achieve this objective, States need to develop and implement a formal surveillance programme that would cover all significant aspects of the services provided. About 44 per cent of the States have not developed a comprehensive surveillance programme in ANS, including the lack of criteria to plan surveillance activities.

4.7.3.2 Many States do not have real enforcement capabilities, even when the ANSP is a separate national or a private entity, or where the Civil Aviation Authorities are responsible for both oversight and service provision. Furthermore, 45 per cent of the States have shown a lack of real effective power to take appropriate actions, up to and including enforcement measures, to resolve identified safety issues. States should ensure that identified safety issues are resolved in a timely manner through a system that monitors and records progress, including actions taken by individuals and organizations performing an aviation activity to resolve such issues.

4.8 HIGHLIGHTS OF ISSUES IDENTIFIED IN THE AGA AREA

4.8.1 Maintaining sufficient qualified technical staff

4.8.1.1 Around 63 per cent of States are experiencing challenges in attracting and retaining sufficient technical qualified resources, which makes it difficult for them to carry out all of their certification and surveillance obligations nationally and internationally. This is related to higher salaries and benefits offered by some aerodrome operators and industry stakeholders.

4.8.1.2 The majority of ICAO Member States (more than 75 per cent) have not fully and appropriately implemented all training requirements for their technical staff in the AGA area.

4.8.2 Implementing aerodrome certification requirements

4.8.2.1 More than a quarter of States have not established a process for the certification of aerodromes and over 60 percent of States have not yet fully implemented the certification requirements.

4.8.2.2 Most States have not yet established and implemented a comprehensive enforcement system to deal with identified non-compliance and ensure safe aerodrome operation

4.8.2.3 The challenge faced by most States that have not certified their aerodromes is the lack of minimum certification requirements at many aerodromes, in addition to the lack of a sufficient number of qualified aerodrome technical staff with the appropriate mix of technical disciplines to be able to cover all aspects involved in the certification of aerodromes

4.8.3 Establishing and implementing a formal surveillance programme for certified aerodromes

4.8.3.1 More than half of the States have not developed or implemented a formal surveillance programme for the continuing supervision of the operations conducted by aerodrome operators. States are required to establish and implement a surveillance programme that normally includes procedures for each type of surveillance activities, as well as periodic and non-periodic inspections.

4.8.3.2 Most States do not review the organizational competence and level of resources of aerodrome operators or certificate holders to ensure that they employ competent personnel to perform all critical activities for aerodrome operations and maintenance.

4.8.4 Establishing and implementing a comprehensive enforcement system

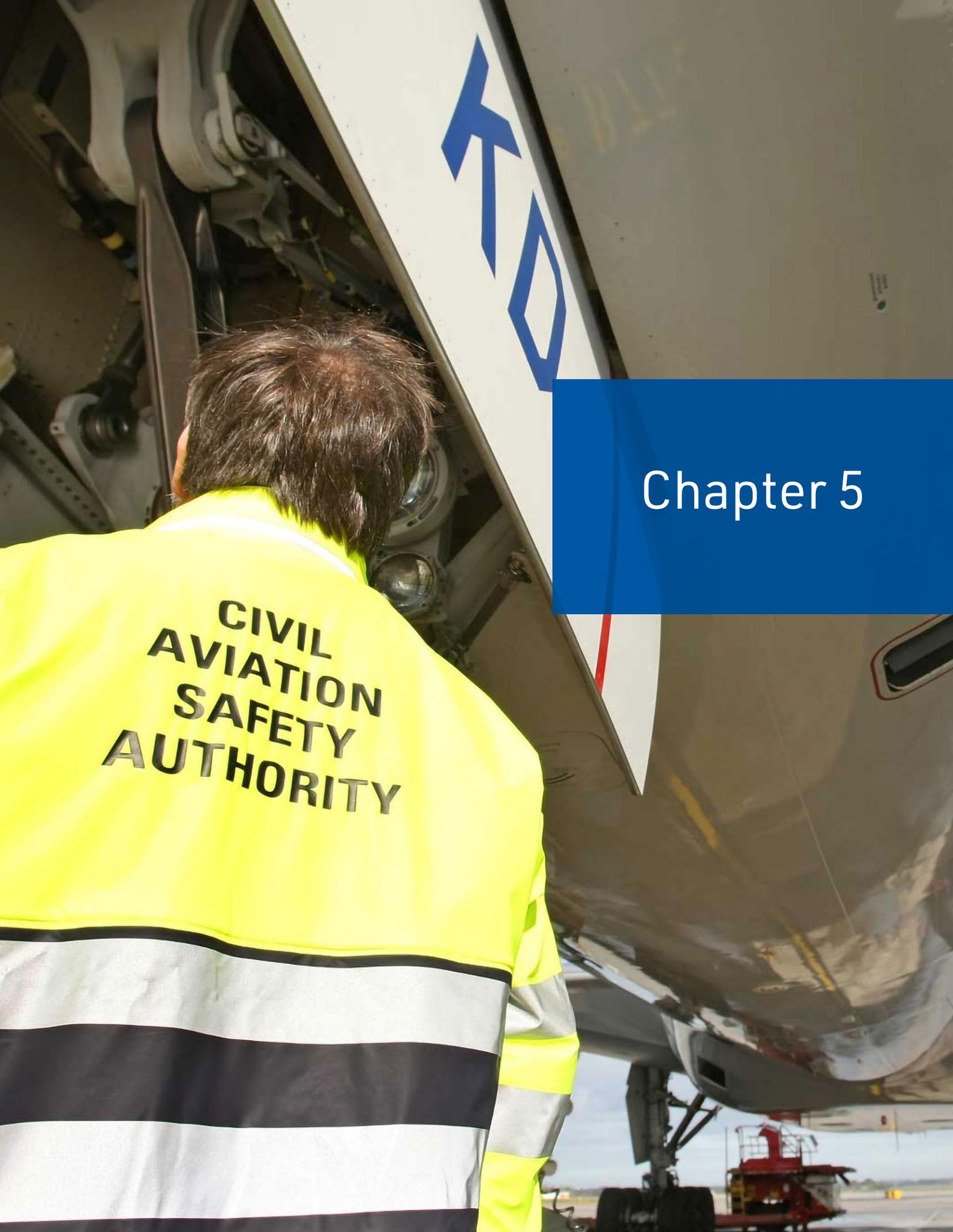
4.8.4.1 Many States have not yet developed and implemented a process to take actions, including enforcement, if the aerodrome operator does not rectify deficiencies found during surveillance activities within a reasonable time.

4.8.4.2 Around half of the States have not established and implemented a process for the management of conflicts between safety and environmental requirements.

4.8.5 Obstacle Limitation Surfaces (OLS) and Wildlife Hazard Management (WHM)

4.8.5.1 Nearly a third of the States have not yet ensured the implementation of requirements relating to the group of OLS at and around aerodromes or established coordination with the land-use authorities in the interest of aviation safety.

4.8.5.2 Some States have not yet established and implemented a process to mitigate against an increase or potential increase in the wildlife strike hazard due to land use development likely to attract wildlife around an aerodrome.



Chapter 5

STATE ENGAGEMENT IN THE USOAP CMA ONLINE FRAMEWORK



ICAO USOAP
Continuous Monitoring Approach

5.1 STATE USAGE OF THE COMPLIANCE CHECKLISTS (CC)/ELECTRONIC FILING OF DIFFERENCE (EFOD) SYSTEM

5.1.1 States are obligated under Article 38 of the Convention to notify ICAO of differences between the State's practices and the practices established by international standards. ICAO established the Electronic Filing of Differences (EFOD) system to assist Member States and ICAO in ascertaining the status of States' implementation of SARPs and in identifying the level of compliance of States' national regulations and practices vis-à-vis the relevant SARPs.

5.1.2 During the 2019 – 2021 triennium, there was a 1 per cent decline in the percentage of SARPs reported by States using the EFOD, as compared to that of the previous period (2016 to 2018), dropping from 71 per cent

to 70 per cent. This slight decrease was expected since the data include the addition of SARPs from two new Annex volumes published during the triennium, namely, Annex 10 – *Aeronautical Telecommunications, Volume VI – Communication Systems and Procedures Relating to Remotely Piloted Aircraft Systems C2 Link*, and Annex 16 – *Environmental Protection, Volume IV – Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA)*. The majority of States have not yet begun to report the level of their compliance to the SARPs of these new volumes.

Note. – The date of applicability of Annex 10, Volume VI was 1 January 2019, while that of Annex 16, Volume IV is 26 November 2026.

5.1.3 In total, 125 of ICAO's Member States have reported various degrees of completion in their level of compliance to the SARPs during this triennium period.

Figure 5-1. Level of Compliance to SARPs as Reported by ICAO Member States (2019 to 2021)

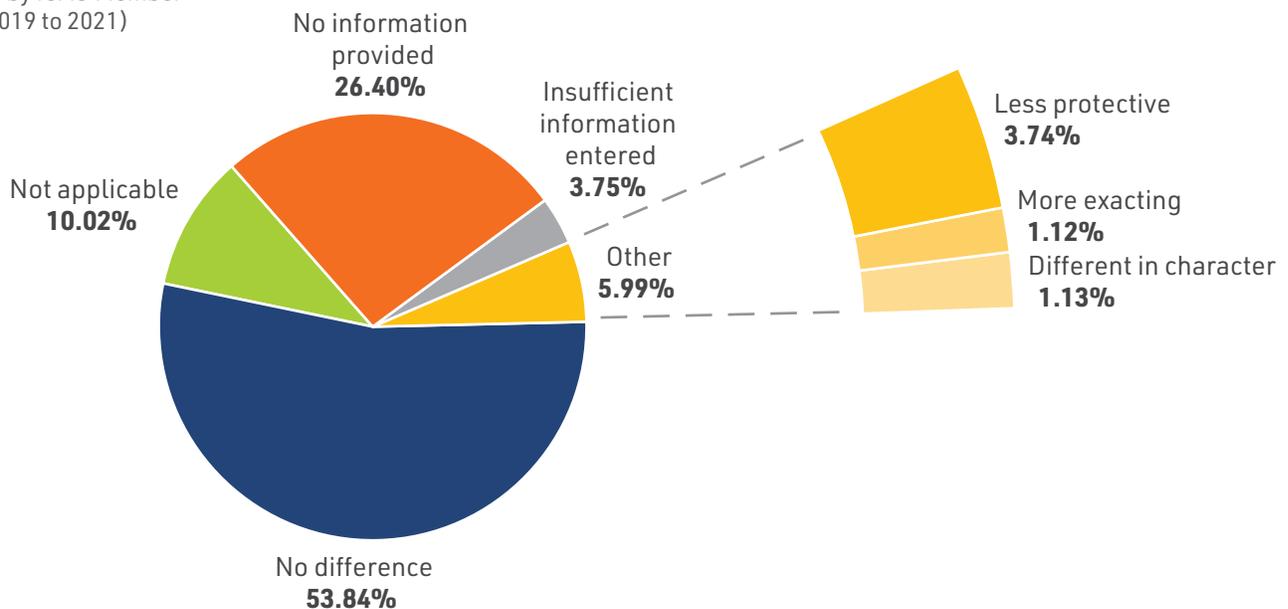
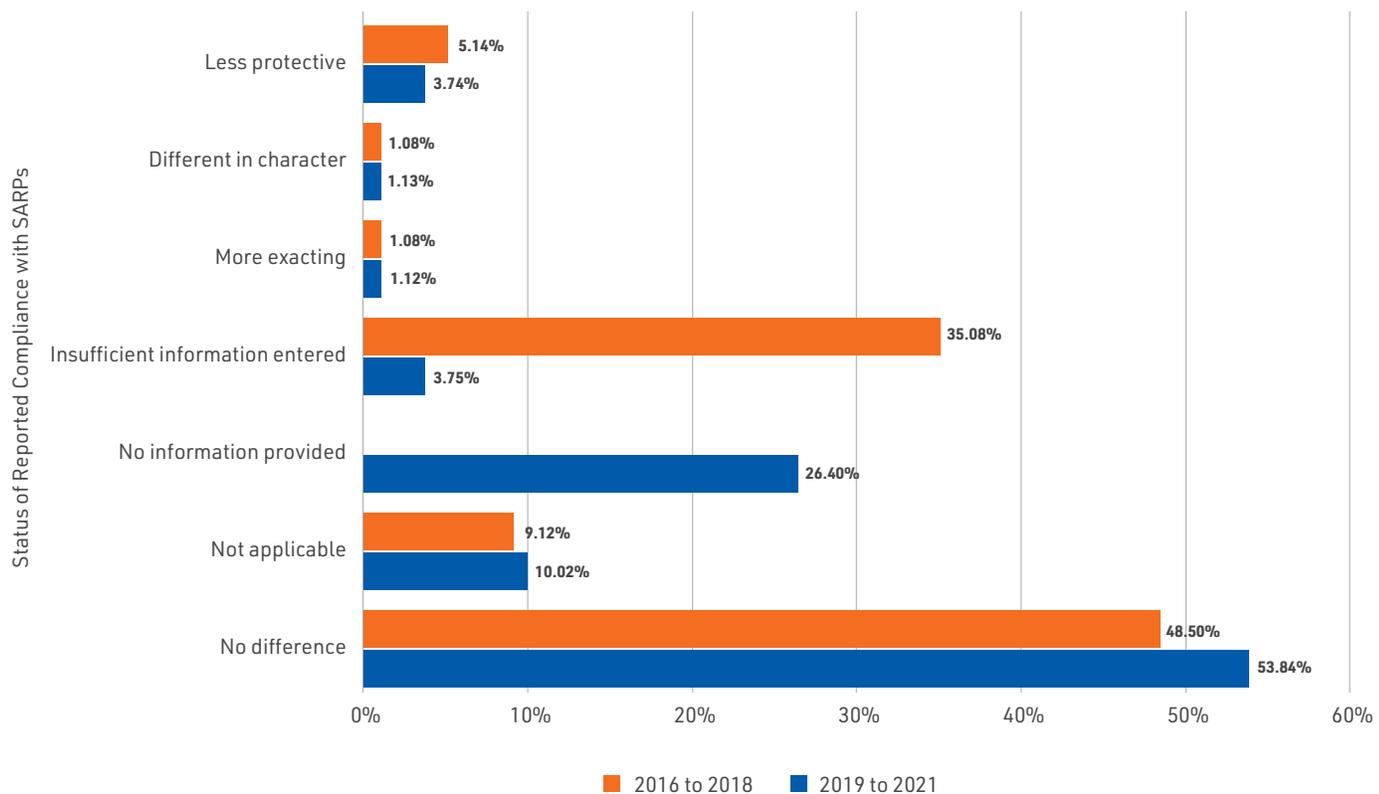


Figure 5-2. Comparison of Level of Compliance with SARPs as Reported by States: 2016-2018 versus 2019-2021





Chapter 6

EVOLUTION AND TRANSFORMATION OF THE USOAP CMA



ICAO USOAP
Continuous Monitoring Approach

6.1 INTERNAL TRANSFORMATION AND ORGANIZATIONAL OPTIMIZATION

6.1.1 As the entity in charge of managing USOAP, Monitoring and Oversight (MO), Air Navigation Bureau (ANB) has conducted and concluded a number of review processes for the programme. It has also implemented actions to address and mitigate risks associated with programme execution. The reviews included the following:

- a) Lean review, which is a continuous improvement methodology that understands value from the perspective of customers/clients by focusing on improving processes that deliver value and reduce waste by streamlining activities;
- b) Risk management review, which is an activity where an organization identifies hazards, determining who will be harmed, assessing the overall risk, determining appropriate precautions, and recording the findings accordingly; and
- c) Management systems review, which is a systematic assessment to measure the effectiveness of an organization's management system.

6.1.2 Additionally, MO implemented a human resources strategy and conducted a structural review to facilitate the operation and evolution of USOAP with all available allocated resources.

6.1.3 MO participates in various activities to identify, address and monitor potential deficiencies in the programme. It underwent regular internal and external audits of its quality management system (QMS) in accordance with ISO 9001 during the 2019 to 2021 triennium. These audits resulted in no findings. In addition, stakeholder feedback data collected by MO through its QMS indicated a satisfaction rate of over 85 per cent, as provided by States regarding CMA activities conducted from 2019 to 2021.

6.1.4 To identify and resolve deficiencies promptly, MO manages a Running Action Item List (RAIL), which captures organizational challenges to USOAP CMA operations. During the current reporting period, 53 actions were entered for tracking and addressing these issues, 26 corrective measures were implemented, and 27 actions remained outstanding as the end of the triennium. ICAO's Office of Internal Oversight also undertook an internal audit of the overall aviation safety audit process in 2021, resulting in eight recommendations that are already under implementation.

6.1.5 During the triennium, MO improved internal and external communications related to the USOAP CMA within ICAO as well as with its Member States and partners. Four newsletters and one update on the evolution of the USOAP CMA were issued and are available on ICAO's public website. Fourteen Electronic Bulletins were issued during the triennium period. MO submitted articles on the USOAP CMA to the fourth and fifth editions of the *World Civil Aviation Report*, which is ICAO's annual flagship publication that reviews the state of the aviation industry as told by a diverse group of global aviation experts. (These reports are available for purchase through the ICAO Store.) An article on the development, evolution, and maturation of SSPIAs was published on *Uniting Aviation*, the premier ICAO online newsletter that provides information on the latest trends, events, and thought leadership in civil aviation. In addition, MO produced a series of three SkyTalks during the 2021 High-Level Conference on COVID, which shared the latest status of the programme's evolution. The series is available currently on ICAOTV

6.1.6 Regular meetings were held between MO at ICAO Headquarters and the Regional Offices to support the prioritization of Member States for USOAP CMA activities and other associated tasks. Frequent exchanges with ICAO partners on monitoring activities (i.e., the United States, the European Union Aviation Safety Agency, and the European Commission) enabled the coordination of activities and contributed to minimizing the duplication of repetitive activities that were a burden to the States.

6.1.7 Revisions of the *Universal Safety Oversight Audit Programme Continuous Monitoring Manual* (Doc 9735) and the USOAP-related portions of the *Regional Office Manual (ROM)* were launched in 2021 to include new and improved processes resulting from the implementation of the GEUSR recommendations, programmatic changes as a result of the COVID-19 global pandemic, and overall organizational improvements. The new edition of Doc 9735 and updated information in the ROM are expected to be published in the next triennium.

6.2 UPDATES TO USOAP CMA TRAINING

6.2.1 During the triennium, MO reviewed various aspects of its USOAP CMA training materials. This training is pivotal for carrying out the programme's mandate of activities; therefore, it was necessary to invest time, personnel, and resources to ensure the continued accuracy and effectiveness of the training.

6.2.2 MO revised and published Phases I and II of the USOAP CMA Computer-Based Training (CBT) to ensure the continued effective training of potential auditors, State representatives, and other stakeholders seeking to improve their overall knowledge of the programme's activities.

6.2.3 In addition, an Auditor Preparation course was developed and delivered at the end of 2021. This new week-long virtual or in-person classroom training, which will now take place after the USOAP CBT but prior to an OJT audit, will provide USOAP auditor candidates with the competencies (e.g., knowledge, skills, and attitudes) required to perform audits effectively.

6.2.4 MO updated the content of its USOAP CMA workshop material, which included the addition of a module on the role of the National Continuous Monitoring Coordinator (NMC). This new module shares updated information on aspects of the core USOAP activities and supporting functions with the States through their NMCs.

6.3 PROGRAMMATIC CHANGES IN RESPONSE TO COVID-19

6.3.1 For nearly two years, the COVID-19 global pandemic has had an unprecedented effect on ICAO's oversight activities. All on-site USOAP CMA activities were suspended starting in mid-March 2020, including CMA audits, ICVMs, SSPIAs, and workshops. MO refocused its USOAP activities on maintaining the efforts to assess States' capability in providing safety oversight through assessment of the States' effective and consistent implementation of the critical elements of a safety oversight system.

6.3.2 MO utilized its resources to eliminate the backlog of corrective action plan (CAP) assessments, which provided States with feedback on whether their potential corrective action measures fully addressed the finding identified during USOAP activities. Assessment of 2,400 backlogged CAPs was completed in 2020.

6.3.3 Through the Safety and Air Navigation Oversight Audit Section (OAS) under MO, ICAO increased its off-site validation activities to maximize on the availability of ICAO Headquarters staff. These validations allowed an ICAO team of subject matter experts to assess corrective actions implemented by the State and validate submitted supporting evidence without an on-site visit to the State.

6.3.4 To further support the continued oversight of States' safety oversight systems, OAS reviewed its USOAP CMA audit and validation activities to develop methodologies and processes for conducting USOAP CMA activities in a virtual environment. These actions were aimed at building resilience in the programme to face emerging situations that continued to disrupt on-site activities.

6.3.5 Virtual ICVMs were introduced in 2020 for States with adequate technological environments that allowed for consistent remote interaction. Similar to on-site ICVMs, an ICAO team of subject matter experts collected and assessed evidence provided the State demonstrating the State's implementation of corrective actions to previous findings. In a virtual ICVM, however, States forwarded their evidence electronically, which SMEs reviewed and, later, discussed with their State counterparts using web-based teleconferencing software.

6.3.6 Another new activity is focused audit which was first conducted in a virtual environment in 2020. This audit type is based on a systematic and objective review of audit areas using a subset of PQs that pose a safety risk, is based on identified and/or observed deficiencies, focuses on specific subareas (e.g., dangerous goods, search and rescue), and/or any other relevant criteria. As with on-site audits, ICAO assesses a State's safety oversight system and their implementation of ICAO SARPs. Again, it is conducted via remote discussions with State counterparts using web-based teleconferencing software and the electronic submission of supporting evidence, as appropriate.

6.3.7 The expanded use of off-site and virtual activities allowed ICAO to execute the activities to update EIs of States accordingly as well as to continue carrying out its oversight of States' safety oversight system during the extraordinary circumstances of the pandemic.

6.3.8 COVID-19 pandemic restrictions prevented the full deployment of USOAP CMA-related training in 2020 and 2021, including the delivery of USOAP CMA workshops, newly-developed SSPIA workshops, and on-the-job auditor training. To alleviate the problem, MO created alternate means to deliver training virtually as well as provide online training on specific USOAP CMA-related topics, which benefited other Sections in ICAO, the Regional Offices, and Member States. Auditors received remote familiarization training to ensure their knowledge and currency on items related to their respective audit areas.

6.3.8 In response to the pandemic's impact on the aviation industry, MO, through its Oversight Support Unit (OSU) swiftly developed and managed the COVID-19 Contingency-related Differences/Electronic Filing of Differences (CCRD/EFOD) platform on the USOAP CMA online framework. The platform provided States with an online location to document COVID-19-related aviation contingency measures necessary during the pandemic that would differ temporarily from ICAO SARPS to ensure continued safe operations, particularly those related to licensing and certification. The CCRD/EFOD platform was available from April 2020 to July 2021.

6.4 IMPLEMENTATION OF THE RECOMMENDATIONS OF THE GEUSR

6.4.1 The Group of Experts for a USOAP CMA Structured Review (GEUSR) was established following the 39th Session of the ICAO Assembly to review the USOAP CMA methodology, processes, and tools to provide States with an opportunity to provide user feedback and enable ICAO to plan improvements to the programme. The aim was to identify adjustments to further strengthen the programme, while considering the evolving safety strategy of ICAO's and State's progress in implementing Annex 19 – *Safety Management*.

6.4.2 The 214th Session of the ICAO Council agreed to 37 recommendations across six groups. The implementation of the recommendations began in the second quarter of 2019, with 36 of the 37 GEUSR recommendations completed by the end of 2021. The one outstanding recommendation is scheduled for completion in the first quarter of 2022.

6.4.3 The recommendations in Group A (Structured Revision of the Protocol Questions) and Group B (Priority Protocol Questions) were aimed at rationalizing and prioritising PQs, with the objective of reducing the administrative burden on both the States and ICAO. The actions associated with these groups were finalized in December 2020 with the publication of the newest amendment of the PQs on the online framework. Notable features of the 2020 edition of the PQs were a 16 per cent reduction in the overall number of PQs from 943 to 790 as well as the identification of a subset of PQs, known as priority PQs, that, when resulting in a low EI, may indicate a lack of State capability to identify and resolve safety deficiencies. By the end of 2021, the new PQs were available to States in English, French, Spanish, and Russian.

6.4.4 The recommendations in Group C (Types and Prioritization of USOAP CMA Activities) expanded the programme's access to a variety of auditing and validation activities. This included the development of methodologies and processes for focused audits, follow-up audits, and integrated audit activities. Also, this group included recommendations for the continued development of the SSPIAs, focusing on phase 2. In completing these particular recommendations, an SSPIA module was added on the online framework, an SSPIA workshop developed and deployed, a new Safety Management section added to the State Aviation Activity Questionnaire (SAAQ) web page, and an SSPIA Question-and-Answer sheet and SSPIA module guidance material published.

6.4.5 Group D (Presentation of State Indicators) of the recommendations were implemented to benefit States and ICAO by providing functional improvements to the SAAQ and enhancing the data and information that are conveyed to decision-makers through the enhancement of the online State Dashboard. The SAAQ was updated for the first time since its introduction in 2001, with total number of questions cut by 17 per cent. The revised SAAQ and the associated module are now available in the online framework in English, French, Spanish, and Russian. In addition, the State Dashboard on the online framework was reconfigured to provide State's with better visual representation of the States' participation in the various aspects of the USOAP CMA.

6.4.6 Group E (Training and Guidance) recommendations were designed to offer the NCMCs, and their teams if appropriate, with additional guidance, training, and tools to assist them in fulfilling their roles as facilitators of the State's participation in the USOAP CMA. In June 2021, MO published the first-ever Guidelines for NCMCs on the online framework in English, French, Spanish, and Russian. In addition, MO has enhanced its communication with the States through increased outreach and participation in regional NCMC meetings. Lastly, the online framework tutorial training material was updated for the first-time in a decade to reflect current USOAP CMA practices, which became available for States in the first quarter of 2022.

6.4.7 The recommendations in Group F (Tools Enhancements on the USOAP OLF) have the objective of improving and enhancing functionalities of the online framework to further facilitate States' use of the platform. Their implementation included an update to the online framework that allows States to complete the PQ self-assessment and CAP modules off-line. Additional updates included the availability of a data exchange feature between

States and the online framework, the inclusion of a function for States to provide feedback regarding the USOAP CMA, and other continuous enhancements to all online framework modules.

6.5 AD HOC USOAP ADVISORY GROUP

6.5.1 The Ad Hoc USOAP Advisory Group (USOAP-AG) was established in November 2019 following a recommendation from the Thirteenth Air Navigation Conference (AN-Conf/13). ICAO established the group to further evolve the USOAP CMA, beyond the recommendations of the GEUSR, by addressing duplicative efforts and finding synergies to enhance the efficiency of the programme. It also will maintain the safeguards necessary to guarantee the independence, universality, standardization, and global acceptance in the implementation of the USOAP CMA.

6.5.2 The USOAP-AG had an in-person meeting at ICAO Headquarters in Montreal in December 2019. Once COVID-19 began affecting international travel, the two remaining in-person meetings were converted to ten virtual meetings.

6.5.3 The USOAP-AG produced 43 recommendations, categorized into six groups, as well as advisory information that was presented to the ICAO Council during its 221st Session (26 October to 20 November 2020). The ICAO Council, in the same session, requested that the Secretary General consult with the States on the proposed recommendations and the planned expansion of the USOAP CMA scope. To familiarize States with the USOAP-AG recommendations and advisory material and to facilitate the overall consultation process, MO delivered seven workshops in all ICAO regions to 238 participants.

6.5.4 The consultation process began with the issuance of a State Letter to the Member States in March 2021, with State responses due to ICAO by the end of July 2021. ICAO received 67 responses from 66 States and one international organization, namely the European Union Aviation Safety Agency (EASA). The responses were analysed and presented to the ICAO Council during the sixth meeting of its 225th Session on 2 March 2022, whose decision called for, among others, the development of an action plan identifying specific tasks, timelines, and resources to implement the agreed upon recommendations (see C-MIN 225/6).

6.6 SSPIA PROGRESS UNDER THE USOAP CMA

6.6.1 The State Safety Programme Implementation Assessment (SSPIA) is a performance-based activity carried out under the USOAP CMA framework that assesses the level of maturity of a State Safety Programme (SSP) by conducting a systematic and objective review of the State's implementation and maintenance of its SSP. The novel activity was developed to ensure that Annex 19 and other Safety Management-related provisions are adequately assessed under the USOAP CMA framework.

6.6.2 The last triennium period (2016-2018) marked the transition of the SSPIAs from Phase 0 to Phase 1. Under Phase 0, SSPIAs were voluntary and entirely on a confidential basis.

6.6.3 In 2018, ICAO progressed to Phase 1 of the SSPIA, with States undergoing assessments on a voluntary, non-confidential basis. Under this phase, the SSPIA report focused primarily on two aspects: 1) the States' SSP implementation achievements, which were shared with all States on the OLF following completion of the SSPIA; and 2) "Opportunities for Enhancements", which highlighted, only for the assessed State's review, areas with identified room for improvements. Three States were assessed during Phase 1.

6.6.4 In 2020, ICAO introduced the maturity level matrix to complement the SSP PQs and to complete the SSPIA assessment tool, supported by a group of SSP experts from seven States and one regional safety oversight organization,

6.6.5 During this same year, ICAO initiated additional measures to support States' participation in SSPIAs. An SSPIA module was added to the online framework, which allows States to conduct a self-assessment of their SSP PQs. An SSPIA Q&A sheet was developed with the aim of providing brief answers to the most common questions received from States regarding the assessments. In addition, an SSPIA workshop, similar to the USOAP CMA workshops, was developed to provide valuable information to States on how SSPIAs are conducted and how States can prepare for successful completion in this activity. An SSP section was added to the SAAQ to be used, in conjunction with the SSP PQ self-assessment, to assist ICAO in prioritizing and planning SSPIAs.

6.6.6 In 2021, ICAO launched Phase 2 of the SSPIA. Under this phase, States will undergo non-voluntary, non-confidential assessments. States will be provided with quantitative measures on implementation and maintenance of their SSPs, as reflected in the maturity level for each assessed PQ. One State took part in a beta test assessment in 2021. Additional SSPIAs were scheduled; however, restrictions related to COVID-19 prevented the conducting of more activities during the year.

6.6.7 ICAO will continue to refine its methodology, processes and tools for SSPIAs performed under Phase 2 at end of the current phase, which will occur during the next triennium. Appropriate action will be taken, as necessary, to refine the assessments based on lessons learned, observations from States, and new developments in the aviation community in terms of SSP implementation and maintenance.







APPENDICES



ICAO USOAP
Continuous Monitoring Approach

Appendix A

DEFINITIONS AND TERMINOLOGY

DEFINITIONS

Audit. A USOAP CMA on-site activity during which ICAO assesses the effective implementation of the critical elements (CEs) of a safety oversight system and conducts a systematic and objective review of a State's safety oversight system to verify the status of a State's compliance with the provisions of the Convention or national regulations and its implementation of ICAO Standards and Recommended Practices (SARPs), procedures and aviation safety best practices.

Audit area. One of eight audit areas covered by USOAP audit and validation activities, i.e. primary aviation legislation and civil aviation regulations (LEG), civil aviation organization (ORG); personnel licensing and training (PEL); aircraft operations (OPS); airworthiness of aircraft (AIR); aircraft accident and incident investigation (AIG); air navigation services (ANS); and aerodromes and ground aids (AGA).

Compliance Checklist (CC). Assists the State in ascertaining the status of implementation of ICAO Standards and Recommended Practices (SARPs) and in identifying any difference that may exist between the national regulations and practices and the relevant provisions in the Annexes to the Convention.

Corrective action plan (CAP). A plan of action to eliminate the cause of a deficiency or finding.

Critical Elements (CEs). The critical elements of a safety oversight system encompass the whole spectrum of civil aviation activities. They are the building blocks upon which an effective safety oversight system is based. The level of effective implementation of the CEs is an indication of a State's capability for safety oversight.

Documentation-based Audit. A USOAP CMA off-site activity during which ICAO conducts a systematic and objective review of the establishment and/or implementation of a State's safety oversight system whose security situation, as classified under the UN Security Level System, precludes an on-site activity by ICAO and/or whose limited

level of aviation activities does not warrant an on-site activity. (Note: This audit type, by itself, does not result in an effective implementation (EI) score).

Effective Implementation (EI). A measure of the State's safety oversight capability, calculated for each critical element, each audit area or as an overall measure. The EI is expressed as a percentage.

Finding. Generated in a USOAP CMA activity as a result of a lack of compliance with Articles of the Convention, ICAO Assembly Resolutions, safety-related provisions in the Annexes to the Convention, Procedures for Air Navigation Services (PANS) or a lack of application of ICAO guidance material or good aviation safety practices.

ICAO Coordinated Validation Mission (ICVM). An activity during which an ICAO team of subject matter experts collects and assesses evidence provided by the State demonstrating that the State has implemented corrective actions (or mitigating measures for significant safety concerns) to address previously identified findings; ICAO validates the collected evidence and information.

Mitigating measure. An immediate action taken to resolve a significant safety concern (SSC).

Objective evidence. Information that can be verified, supporting the existence of a documented system and indicating that the system generates the desired results.

Off-site validation activity. A USOAP CMA activity during which an ICAO team of subject matter experts assesses corrective actions implemented by a State and validates submitted supporting evidence at the ICAO HQ without an on-site visit to the State.

Oversight. The active control of the aviation industry and service providers by the competent regulatory authorities to ensure that the State's international obligations and national requirements are met through the establishment of a system based on the critical elements.

Protocol Question (PQ). The primary tool used in USOAP for assessing the level of effective implementation of a State's safety oversight system based on the critical elements, the *Convention on International Aviation*, ICAO Standards and Recommended Practices (SARPs), Procedures for Air Navigation Services (PANS) and related guidance material.

Safety. The state in which risks associated with aviation activities, related to, or in direct support of the operation of aircraft, are reduced and controlled to an acceptable level.

Safety risk. The predicted probability and severity of the consequences or outcomes of a hazard.

Scope. Audit areas and protocol questions (PQs) addressed and covered in a USOAP CMA activity.

Significant Safety Concern (SSC). Occurs when the State allows the holder of an authorization or approval to exercise the privileges attached to it, although the minimum requirements established by the State and by the Standards set forth in the Annexes to the Convention are not met, resulting in an immediate safety risk to international civil aviation.

Validation. Confirming submitted information in order to determine either the existence of a protocol question (PQ) finding or the progress made in resolving the PQ finding.

ACRONYMS AND ABBREVIATIONS

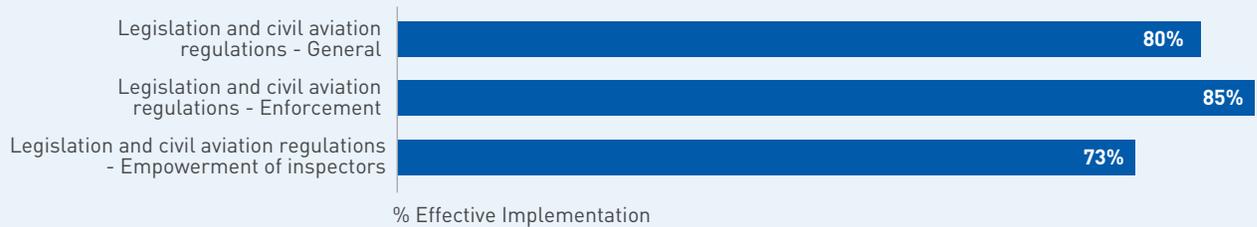
AGA	Aerodromes and ground aids	MO	Monitoring and Oversight (MO) of the Air Navigation Bureau
AIG	Aircraft accident and incident investigation	OAS	Safety and Air Navigation Oversight Audit Section
AIR	Airworthiness of aircraft	OPS	Aircraft operations
ANB	Air Navigation Bureau	ORG	Civil aviation organization
ANS	Air navigation services	PANS	Procedures for Air Navigation Services
AOC	Air operator certificate	PEL	Personnel licensing and training
CAA	Civil Aviation Authority	PQ	Protocol Question
CAP	Corrective action plan	RCMC	Regional Continuous Monitoring Coordinator
CC	Compliance Checklist	RSOO	Regional safety oversight organization
CE	Critical Element	SAAQ	State aviation activity questionnaire
CMA	Continuous Monitoring Approach	SARPs	Standards and Recommended Practices
EFOD	Electronic Filing of Differences	SMS	Safety management system
EI	Effective Implementation	SSC	Significant Safety Concern
GASP	Global Aviation Safety Plan	SSP	State Safety Programme
ICVM	ICAO Coordinated Validation Mission	USOAP	Universal Safety Oversight Audit Programme
LEG	Primary aviation legislation and specific operating regulations		
MIR	Mandatory information request		

Appendix B

STATISTICAL DATA FOR SUBGROUPS OF EACH AUDIT AREA

The following graphs depict the Effective Implementation (EI) for each subgroup in the eight audit areas for the 2019 to 2021 triennium

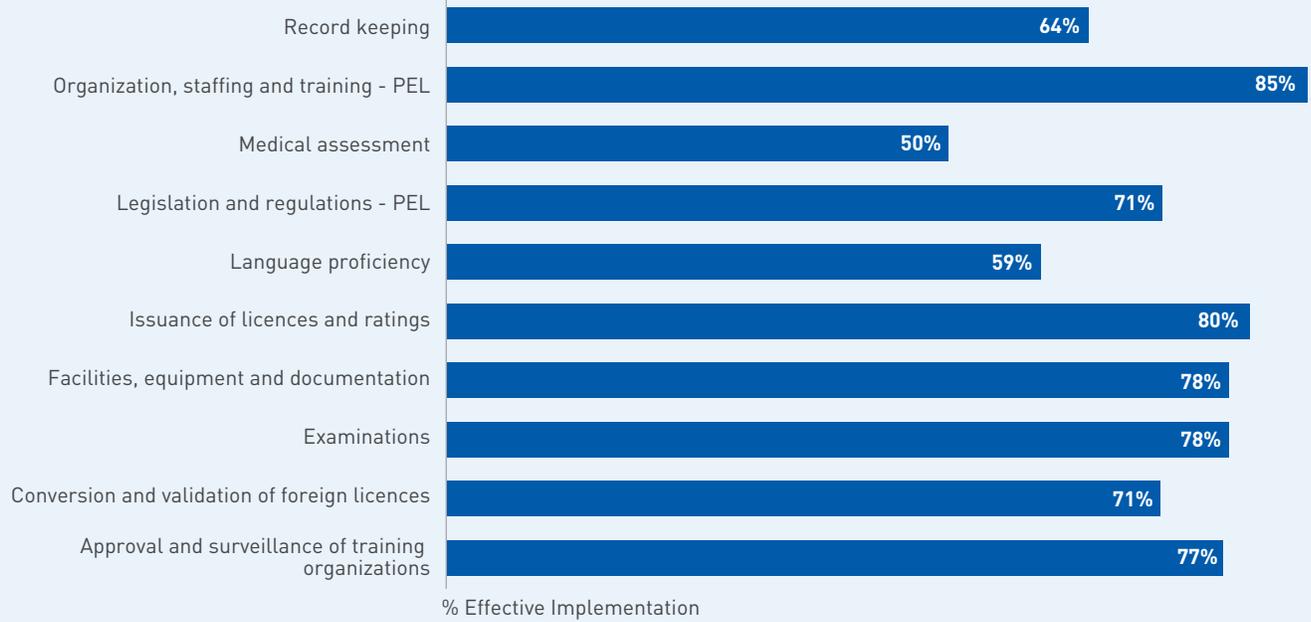
LEG



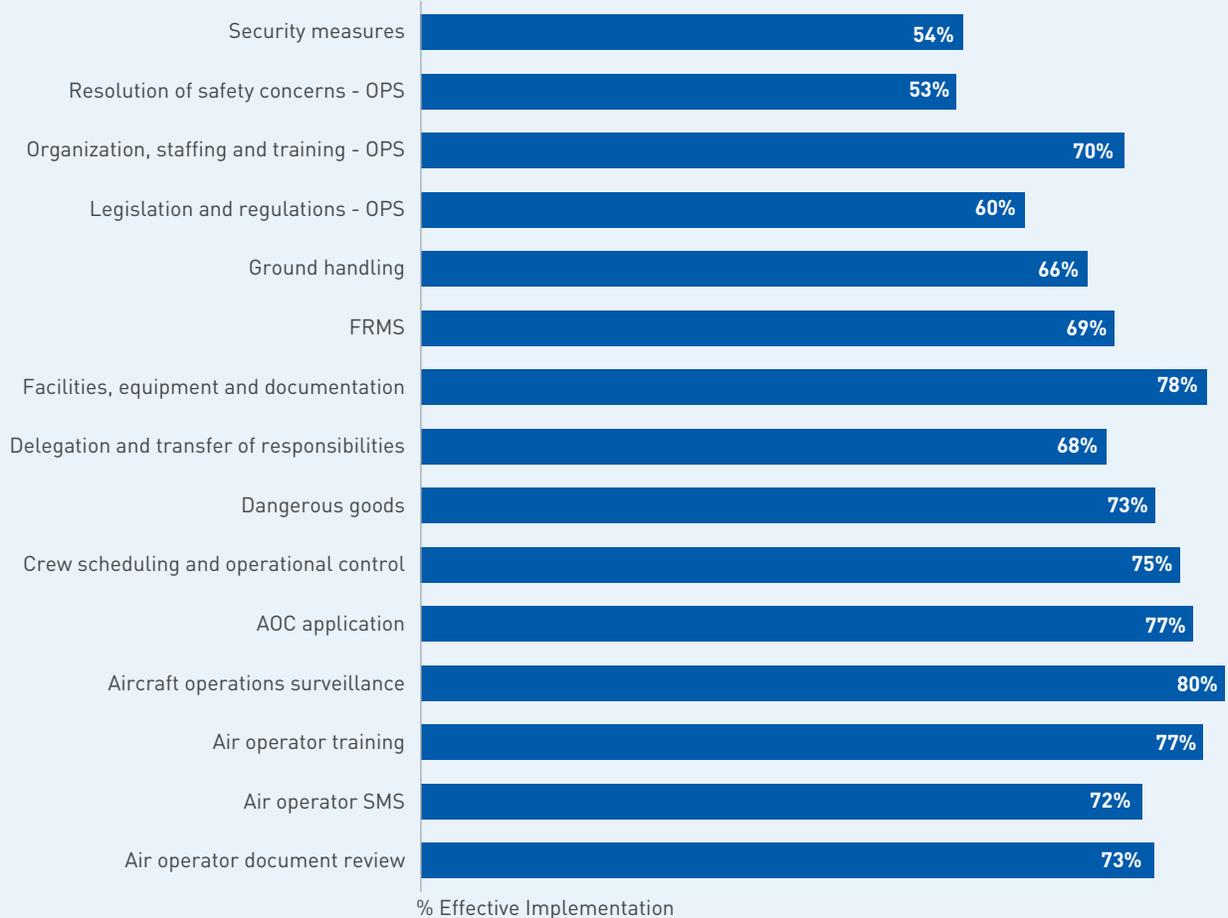
ORG



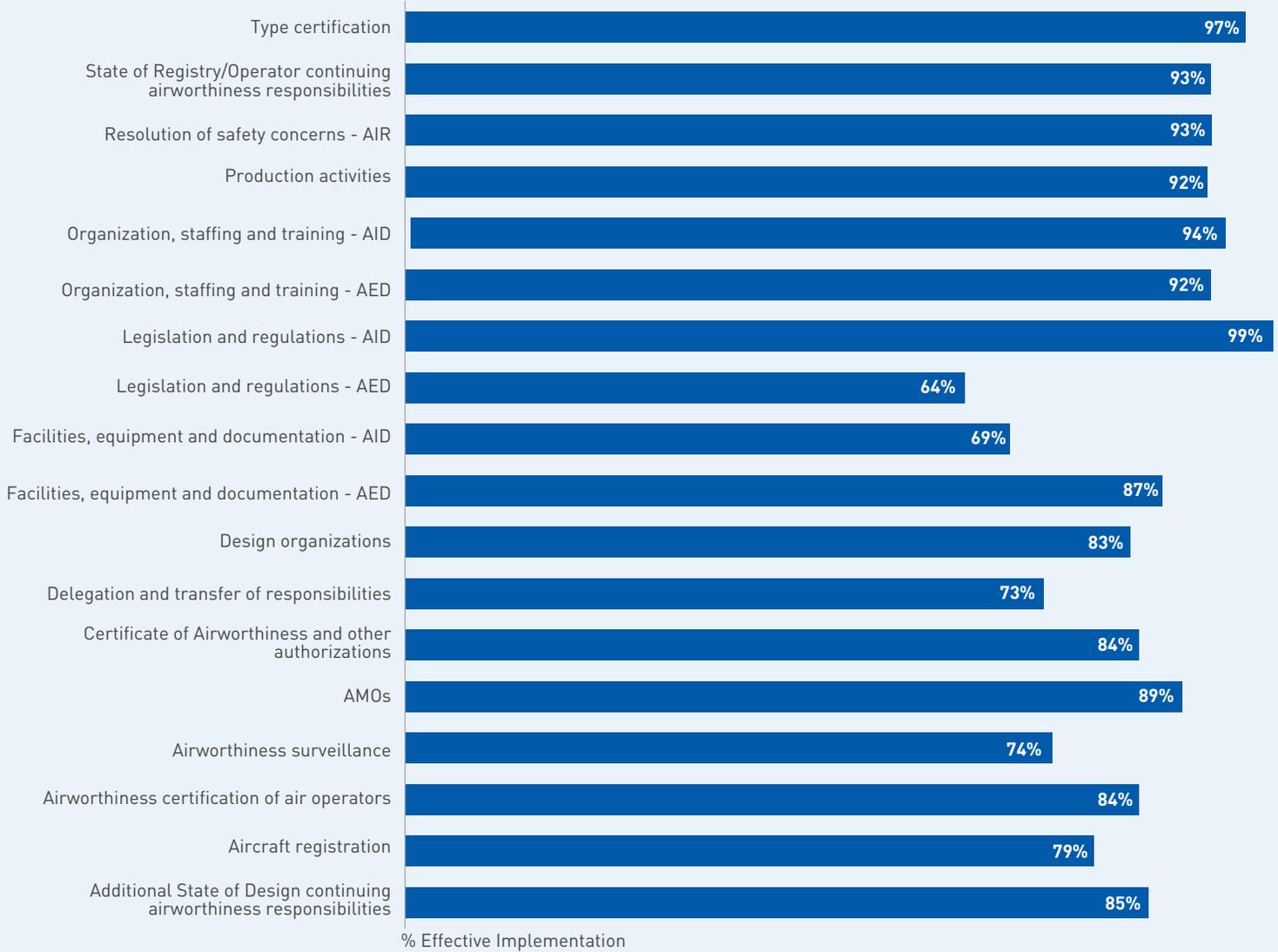
PEL



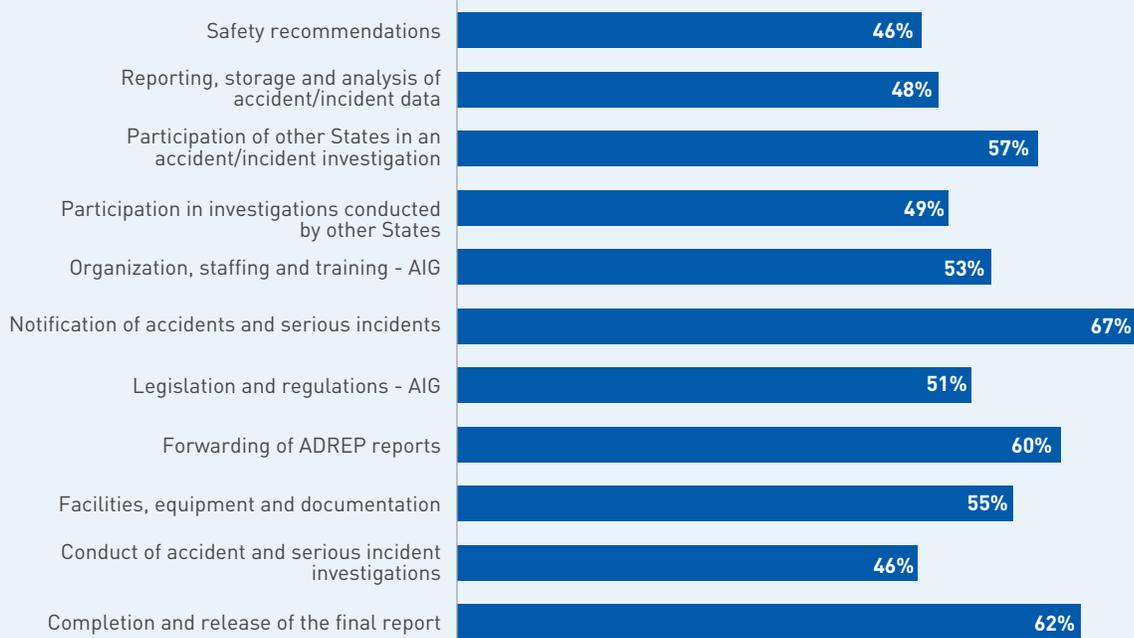
OPS



AIR

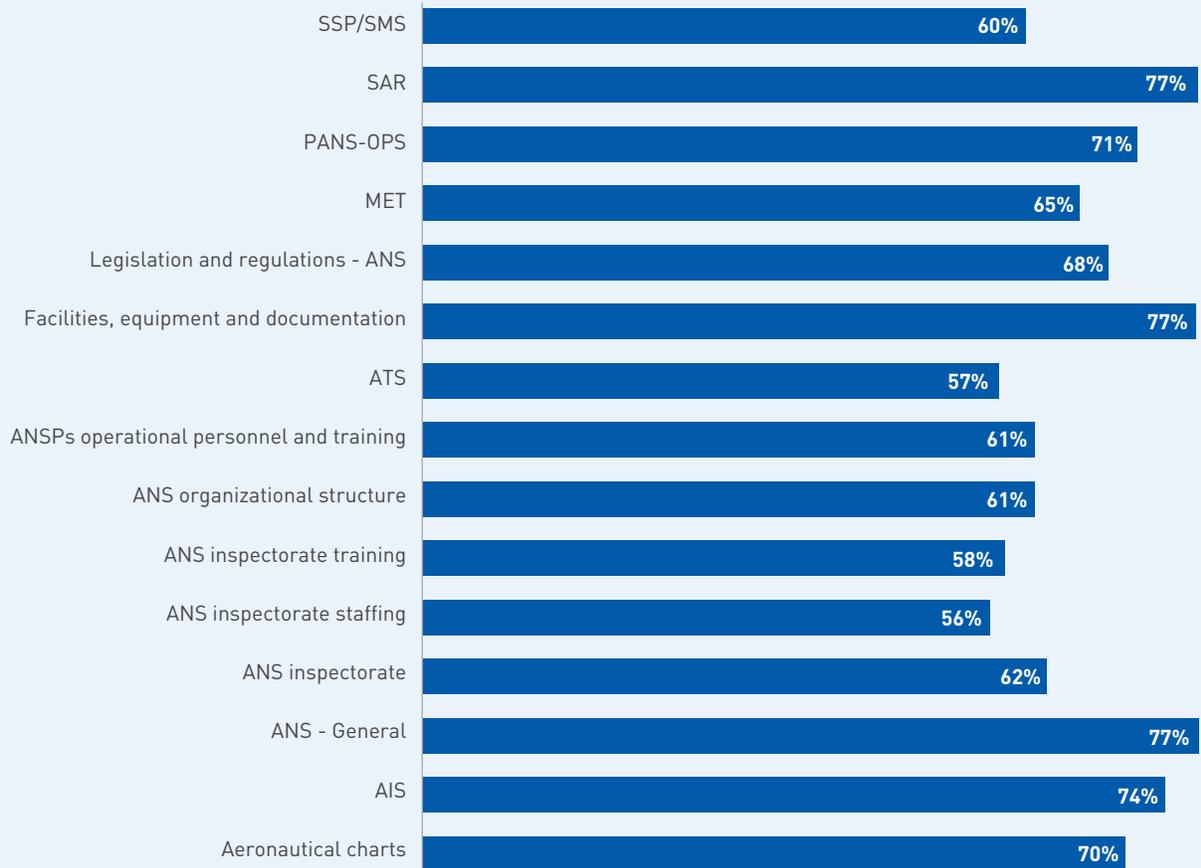


AIG



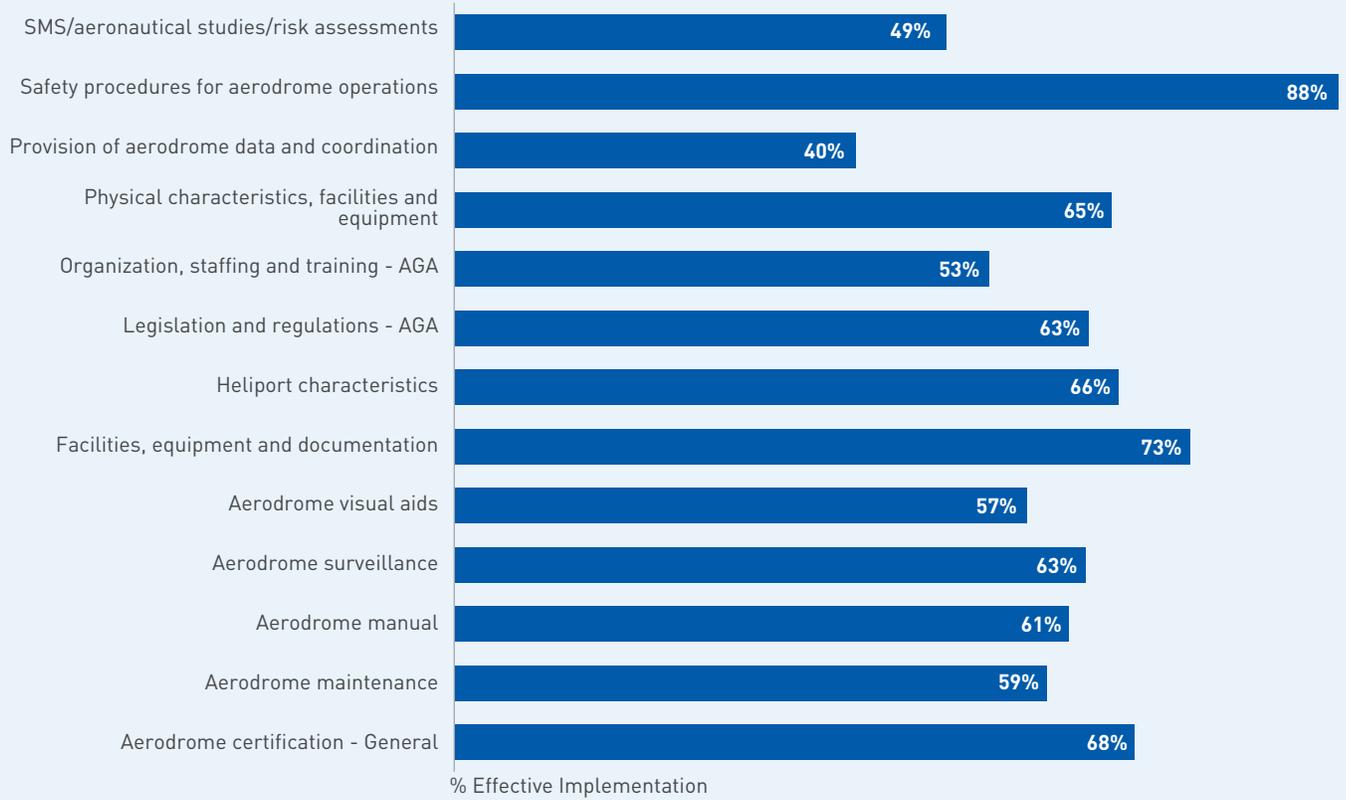
% Effective Implementation

ANS



% Effective Implementation

AGA



Appendix C

USOAP CMA ACTIVITIES COMPLETED (2019 TO 2021 TRIENNIUM)

Tables C-1 to C-3 below include information on USOAP CMA activities completed from 1 January 2019 to 31 December 2021.

APAC: Asia and Pacific Office

ESAF: Eastern and Southern African Office

EUR/NAT: European and North Atlantic Office

MID: Middle East Office

NACC: North American, Central American and Caribbean Office

SAM: South American Office

WACAF: Western and Central African Office

Table C-1. USOAP CMA activities conducted in 2019.

No.	State	ICAO Region	USOAP CMA Activity	Dates
1	Afghanistan	APAC	Documentation-based Audit	1 to 19 December 2019
2	Austria	EUR/NAT	Off-site Validation	October 2019
3	Benin	WACAF	Off-site Validation	September 2019
4	Bolivia	SAM	Audit	14 to 24 October 2019
5	Bosnia & Herzegovina	EUR/NAT	ICVM	18 to 25 February 2019
6	Burundi	ESAF	ICVM	5 to 14 November 2019
7	Comoros	ESAF	Audit	2 to 13 December 2019
8	Congo	WACAF	ICVM	18 to 26 June 2019
9	Côte d'Ivoire	WACAF	Audit	14 to 25 October 2019 and 11 to 19 December 2019
10	Cuba	NACC	ICVM	13 to 18 February 2019
11	Cyprus	EUR/NAT	ICVM	5 to 12 November 2019
12	El Salvador	NACC	Off-site Validation	November 2019
13	European Union Aviation Safety Agency	EUR/NAT	Off-site MIR PQs Validation Activity	June 2019
14	Fiji	APAC	ICVM	27 August to 4 September 2019
15	Gabon	WACAF	ICVM	29 January to 6 February 2019
16	Ghana	WACAF	ICVM	26 March to 3 April 2019
17	Honduras	NACC	ICVM	2 to 9 July 2019
18	Kyrgyzstan	EUR/NAT	ICVM	8 to 12 April 2019
19	Montenegro	EUR//NAT	ICVM	22 to 29 January 2019
20	Netherlands (Curaçao)	NACC	Audit	2 to 12 September 2019

No.	State	ICAO Region	USOAP CMA Activity	Dates
21	Organization of Eastern Caribbean States (Antigua and Barbuda, Grenada, Saint Kitts and Nevis, Saint Lucia and Saint Vincent and the Grenadines)	NACC	Audit	4 to 14 March 2019
22	Rwanda	ESAF	ICVM (cost-recovery)	5 to 19 August 2019
23	Senegal	WACAF	Audit	11 to 21 February 2019
24	Serbia	EUR/NAT	ICVM	19 to 26 March 2019
25	Slovenia	EUR/NAT	ICVM	26 August to 3 September 2019
26	Spain	EUR/NAT	SSPIA	4 to 14 November 2019
27	Thailand	APAC	ICVM	13 to 22 May 2019
28	Tonga	APAC	ICVM	18 to 27 November 2019
29	Turkey	EUR/NAT	Off-site Validation	October 2019
30	Turkmenistan	EUR/NAT	Audit	10 to 21 June 2019
31	Ukraine	EUR/NAT	Off-site Validation	December 2019
32	United Arab Emirates	MID	SSPIA	8 to 18 December 2019
33	United Kingdom	EUR/NAT	Off-site Validation	May 2019
34	United Kingdom (Bermuda)	NACC	Audit	6 to 16 May 2019
35	Uruguay	SAM	ICVM	19 to 26 March 2019
36	Zimbabwe	ESAF	Audit	19 to 29 August 2019

Table C-2. USOAP CMA activities conducted in 2020.

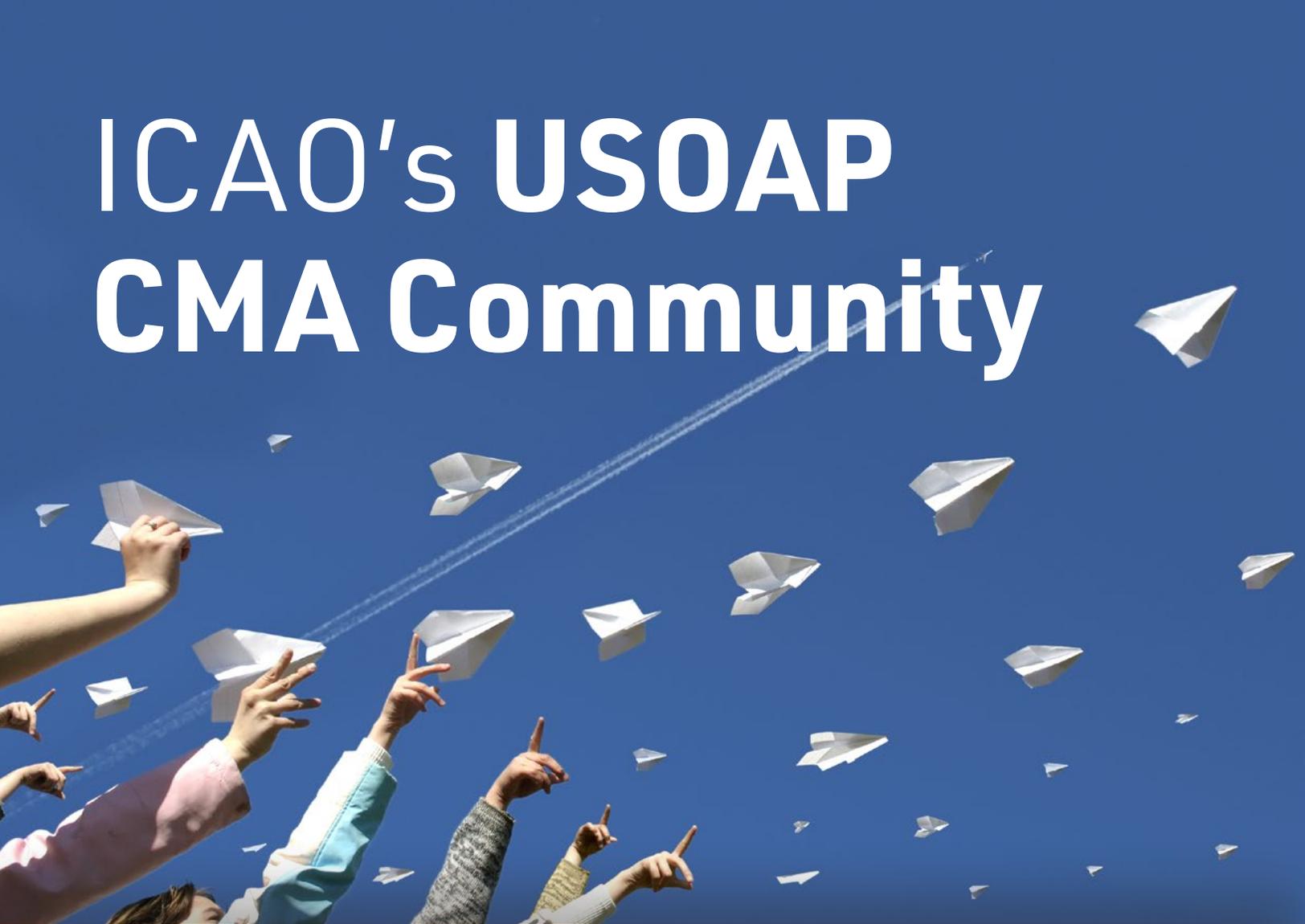
No.	State	ICAO Region	USOAP CMA Activity	Dates
1	Croatia	EUR/NAT	ICVM	30 November to 16 December 2020
2	Denmark	EUR/NAT	Off-site Validation	April 2020
3	Eswatini	ESAF	Off-site Validation	April 2020
4	Ethiopia	ESAF	ICVM	21 to 28 January 2020
5	Gambia	WACAF	Off-site Validation	October 2020
6	Guyana	SAM	ICVM	14 to 21 January 2021
7	Honduras	NACC	Off-site Validation	February 2020
8	Iceland	EUR/NAT	Off-site Validation	April 2020
9	Iraq	MID	Documentation-based Audit	20 January to 19 February 2020
10	Kyrgyzstan	EUR/NAT	Off-site Validation	November 2020
11	Libya	MID	Documentation-based Audit	31 August to 21 September 2020
12	Malaysia	APAC	Off-site Validation	December 2020
13	Myanmar	APAC	Off-site Validation	April 2020
14	Oman	MID	Audit	23 February to 4 March 2020

No.	State	ICAO Region	USOAP CMA Activity	Dates
15	Poland	EUR/NAT	Off-site Validation	November 2020
16	Portugal	EUR/NAT	Off-site Validation	January 2020
17	San Marino	EUR/NAT	ICVM (virtual)	9 to 24 November 2020
18	Seychelles	ESAF	Off-site Validation	May 2020
19	South Africa	ESAF	Off-site Validation	November 2020
20	Spain	EUR/NAT	Off-site Validation	March 2020
21	Sri Lanka	APAC	Off-site Validation	November 2020
22	Tunisia	EUR/NAT	Audit	3 to 14 February 2020
23	Ukraine	EUR/NAT	ICVM	25 February to 3 March 2020
24	United Republic of Tanzania	ESAF	Off-site Validation	April 2020

Table C-3. USOAP CMA activities conducted in 2021.

No.	State	ICAO Region	USOAP CMA Activity	Dates
1	Armenia	EUR/NAT	Off-site Validation	July 2021
2	Bahamas	NACC	ICVM (virtual for AIG)	2 to 10 November 2021 and 6 to 10 December 2021
3	Bolivia	SAM	ICVM	23 to 30 November 2021
4	Canada	NACC	SSPIA	9 to 17 December 2021
5	Côte d'Ivoire	WACAF	Off-site Validation	September 2021
6	Djibouti	ESAF	Documentation-based Audit	15 February to 5 March 2021
7	Germany	EUR/NAT	ICVM (virtual)	1 to 11 October 2021
8	Iceland	EUR/NAT	ICVM (virtual)	26 April to 14 May 2021
9	Kazakhstan	EUR/NAT	ICVM (virtual)	2 to 11 August 2021
10	Kuwait	MID	Off-site Validation	November 2021
11	Malta	EUR/NAT	ICVM (virtual)	5 to 21 April 2021
12	Morocco	EUR/NAT	Off-site Validation	January 2021
13	Myanmar	APAC	Off-site Validation	January 2021
14	Nigeria	WACAF	Off-site Validation	January 2021
15	Pakistan	APAC	Off-site MIRs PQs Validation Activity	January 2021
16	Pakistan	APAC	Audit	29 November to 10 December 2021
17	Singapore	APAC	ICVM (virtual)	16 to 19 November 2021
18	Slovenia	EUR/NAT	Off-site Validation	October 2021
19	Spain	EUR/NAT	Audit	22 to 23 June 2021
20	Switzerland	EUR/NAT	Off-site Validation	July 2021
21	Thailand	EUR/NAT	Off-site Validation	October 2021

ICAO's USOAP CMA Community



An innovative way to expand the Programme's global outreach via a private community setup and to better serve ICAO Member States in coordination with our Regional Offices.

AUDIENCE

- National Continuous Monitoring Coordinators (NCCMs)
- State aviation safety personnel facilitating USOAP CMA activities
- ICAO qualified auditors, experts and staff, including Regional Offices
- USOAP Consultation Group Members
- Programme stakeholders, staff and alumnae

BENEFITS

- Growing Programme outreach
- Dynamic environment for engaging and exchanging with NCCMs and ROs
- Direct channel for insight and communication with the States
- Leveraging digital technologies and social media to efficiently carry out our mandate and enhance our services
- Increased visibility of USOAP CMA

For more information:

www.usoap-community.icao.int



ICAO USOAP
Continuous Monitoring Approach



ICAO

999 Robert-Bourassa Boulevard
Montréal, Quebec
Canada H3C 5H7

www.icao.int

