International Civil Aviation Organization

SUMMARY OF DISCUSSION

ICAO MID AIM/QMS FUNCTIONS SYSTEMS AND PROCESSES WEBINAR

(29 APRIL 2021, 10:00 – 14:00 UTC)

1. INTRODUCTION

1.1   The ICAO MID AIM/QMS Functions Systems and Processes Webinar was successfully held on 29 April 2021, from 10:00 to 14:00 UTC using MS Teams facility.

1.2   The Webinar's objective is to address the following:

   a) Provide an overview of the QMS requirements and present the new AIM Quality Manual (Doc 9839);
   b) Outline the Quality management system and its processes with a detailed explanation of step-by-step QMS implementation;
   c) Explain the importance of a QMS for the AIS/MAP products and services;
   d) Explain Quality Management principles and ISO 9001 Standard requirements;
   e) Present the AIS data process after its origination; and
   f) describe the relationship between Quality and Safety Management Systems in AIM

1.3   The Webinar was attended by a total of Eighty Nine (89) participants from thirteen (13) States (Australia (CASA), Bahrain, Egypt, Iran, Iraq, Jordan, Lebanon, Oman, Qatar, Saudi Arabia, Syria, USA (FAA) and UAE) and seven (7) Organizations/Industries (AACO, ACAO, CANSO. IATA, IFATCA, ISO and Jeppesen). The list of participants is at **Attachment A**.

1.4   The Webinar's materials including, Agenda/Work Programme, presentations and the Summary of Discussion are available at:
https://www.icao.int/MID/Documents/2021/AIM-QMS%20Webinar/SoD%20of%20AIM-QMS%20Webinar.pdf

2. OPENING REMARKS

2.1   Mr. Mohamed Smaoui, Acting Regional Director, ICAO Middle East Office, welcomed all participants and Mr. Smaoui extended his gratitude to :

   -     Ms. Louise Alberts from CASA
   -     Ms. Lindi-Lee Kirkman from IATA
   -     Mr. Abbas Niknejad from the ICAO EUR/NAT Office
   -     Mr. Aleksander Estrov from CANSO
   -     Mr. George Sempeles from FAA
   -     Mr. Paul Simpson from ISO; and
   -     Mr. Volker Meyer from Jeppesen/Boeing

Who accepted to support this Webinar, despite the time difference and their busy schedule.

2.2   Mr. Mohamed Smaoui thanked also the representatives of Egypt, Iran, Qatar, Saudi Arabia and UAE for having collaborated and accepted to share their experience in the QMS implementation.

2.3   Mr. Mohamed Smaoui recalled that the MIDANPIRG/18 meeting held virtually in February 2021 noted with concern that the level of implementation of Quality Management System (QMS) for the Aeronautical Information Services (AIS) in the MID Region is still far below expectation. The MIDANPIRG/18 meeting agreed that, Webinars on the NOTAM proliferation and

needs for improvement, as well as on the AIM/QMS Functions Systems and Processes be organized in 2021.

2.4   The Webinar was held in accordance with MIDANPRG/18 Conclusion 18/21 related to AIM WEBINARS in which ICAO MID office was asked to organize Webinars on the NOTAM proliferation and needs for improvement, as well as on the AIM/QMS Functions Systems and Processes in 2021.

3.   DISCUSSIONS

3.1   *Background*

ICAO AIM-QMS requirements

3.1.1   This session was provided in PPT01 presented by Mr. Radhouan Aissaoui, Regional Officer, Information Management ICAO MID Cairo, Egypt.

3.1.2   This presentation described the Aeronautical Information Management as the dynamic, integrated management of aeronautical information services through the provision and exchange of quality-assured digital aeronautical data, in collaboration with all parties. The Management of aeronautical data and aeronautical information must include collection; processing; quality control; and distribution. Accordingly, the AIS provider must establish processes to collect, process, store, quality control and distribute aeronautical data and aeronautical information. The collected data shall be verified and validated for compliance with data quality requirements. The presentation covered also the manner in which aeronautical information is gathered and managed as governed by Annex 15 to the Convention on International Civil Aviation (ICAO Annex 15), which defines how an aeronautical information service shall receive and/or originate, collate or assemble, edit, format, publish/store and distribute specified aeronautical information/data. The goal is to satisfy the need for uniformity and consistency in the provision of aeronautical information/data that is required for operational use by international civil aviation.

3.1.3   The presentation provided also a summary of the Standard and Recommended Practices (SARPs) related to a QMS covered in ICAO provisions including:

- Annex 15, Chapter 3;
- DOC 8126, Chapter 2;
- DOC 10066 (PANS-AIM) Chapter 3, and Appendix 1 (Aeronautical Data Catalogue).

Quality management system and its processes

3.1.4   This session was provided in PPT02 presented by Mrs. Abbas NIKNEJAD Regional Officer, Air Navigation System Implementation ICAO EUR/NAT Office, Paris.

3.1.5   This presentation describes the QMS Implementation Process as step-by-step framework for AIS QMS. ISO 9001:2015 Principles.

3.1.6   The ISO 9001:2015 Principles and Clauses were explained. It was explained the Plan Do Check Act (PDCA) cycle and its relation to the ISO 9001:2015 Standard requirements. The principle of the PDCA cycle Plan-Do-Check-Act is a cycle for implementing change which, when followed and repeated, would lead to repeated improvements in the process it was applied to and it is an efficient tool for achieving its requirements, especially the requirement from chapter 10.3 of the standard Continual Improvement.

3.1.7   A methodology on How to Implement A Quality Management System in 18 Steps was clearly explained.

3.2   *AIM Global Implementation Support*

3.2.1   This session was provided in PPT03 presented by Ms. Louise Albert, Senior Standards

Officer at the Civil Aviation Safety Authority CASA, Australia.

3.2.2   It was noted that the former AIS-AIM Study Group in 2008 drafted a quality manual for the ISO 9001:2008 quality management standard. It was identified that the draft material needed to be aligned with the later version of the quality standard: ISO 9001:2015. The Quality Manual Focus Group was tasked to create guidance material for a quality management system in the AIM domain. Due to differences between the two versions of the quality management system standards, FG-QM elected to create the document to closely represent the same structure as ISO 9001:2015.

3.2.3   It was noted that the quality manual provides guidance on the implementation of a QMS to direct and control the activities required for the provision of an AIS in a SWIM environment to support ATM operations. Its development methodology and its Structure are based on the Plan-Do-Check-Act (PDCA) cycle as a useful tool applicable to the QMS and its processes, ISO 9001:2015 standard and it provides Examples such as Quality Policy, Implementation plan and documented information list.

3.2.4   It is also worth noting that when a QMS has been implemented, an AISP should continuously monitor the system and its processes. The intent of continuous monitoring is to improve the QMS processes and procedures to better provide high quality aeronautical information products and services and improve customer satisfaction.

3.3   *Quality management system and its processes - CANSO QMS guidance material*

3.3.1   This session was provided in PPT09 presented by Mr. Aleksandr ESTROV CANSO AIM WG Chair.

3.3.2   This presentation described AIS functions, AIS models of operation and Aeronautical Data Chain. It was noted that CANSO AIM WG developed CANSO's Aeronautical Information Management (AIM) Quality Management Guidance Manual, which offers CANSO Members and States advice on how to improve the quality of AIM and fulfil the requirements of ICAO's Annex 15 – Aeronautical Information Services: the need for States to introduce a quality management system for AIM. The Manual has been designed to provide specific guidance on how to improve information management. It can help achieve the best practice recommended in the ISO 9000 on quality management system standards and assist in the development of a quality manual – the basis for enabling the provision of timely, quality aeronautical information. The Manual can also be used for the development of individual State quality manuals. The content can be adjusted for a State AIM based on local needs and goals, and the manual provides an easy and understandable path for development and adaptation.

3.4   *A Global Standard for a Global Organization*

3.4.1   This session was provided in PPT14 presented by Mr. Paul Simpson ISO TC 176 SC2 Chair, UK.

3.4.2   It was pointed out that ISO 9001 aims to provide a practical and workable Quality Management System for improving and monitoring all areas of your business. Organizations used the standard to demonstrate the ability to consistently provide products and services that meet customer and regulatory requirements, for management of risks and opportunities, aiming to enhance customer satisfaction.

3.4.3   Steps to quality management system implementation were explained. Creating a quality management system requires Identification of relevant interested parties and their needs and expectations, design and implement the processes that need to deliver products services that meet those expectations while keeping improving the system.

3.5   *Implementing a Quality Management System in AIM from end user perspective*

Importance of QMS for the AIS/MAP products and services – a Data-House View

3.5.1   This session was provided in PPT11 presented by Mr. Volker Meyer Manager International Relations Boeing Global Services.

3.5.2   The presentation illustrated the Upstream Data Chain, which refers to the data chain functions from the point of origination to the point of publication while the downstream Data Chain refers to the data chain functions from Application/Integration to end-use.

3.5.3   The presentation highlighted that the role and importance of aeronautical information changed significantly with the implementation of RNAV, RNP and more precise airborne computer systems. Aircraft are becoming database driven and their operation requires access to aeronautical information of a significantly higher quality than is currently available. It was pointed that efforts of all States must be aimed at significantly improving their AIM systems to assure that aeronautical information will be available in the right quality, the right form, at the right time, for the right user and it must be available without restriction.

3.5.4   Aeronautical data and aeronautical information of appropriate quality are required to ensure safety and support new concepts for the operational requirements of the air traffic management (ATM) community.   ICAO has defined aeronautical data and aeronautical information quality requirements in terms of accuracy, resolution, integrity, Traceability, Timeliness, Completeness and format that should be met and maintained when processing aeronautical data and aeronautical information. The presentation addressed specific problems and concerns regarding Aeronautical Data Quality

AIS data process after its origination

3.5.5   This session was provided in PPT12 presented by Mr. Volker Meyer Manager International Relations Boeing Global Services.

3.5.6   Jeppesen NavData Management and main steps of the production process was described with particular emphasis on maintenance, verification and validation. The presentation covered   also   AIRAC   Adherence   requirements   in   New   Annex   15   and Jeppesen Production Process in sync with ICAO publication.

3.6   ***Towards a quality management system in AIM from end-user***

3.6.1   This session was provided in PPT13 presented by Ms.Lindi-Lee Kirkman IATA Manager Safety & Flight Operations ATM Infrastructure Focus AME-RDEL-South East Africa.

3.6.2   The presentation described the elements of Aeronautical Data Quality and its importance from a users, systems and Ops perspective.

3.7   ***Relationship between Quality and Safety Management Systems in AIM***

3.7.1   This session was provided in PPT04 presented by Mr. George P. Sempeles Federal Aviation Administration (FAA) United States.

3.7.2   It was noted that ICAO Annex 15 and PANS-AIM (Doc 10066) describe State responsibilities for the provision of aeronautical information products and services and require the AISP to implement a QMS. However, due to the safety critical nature of aeronautical data managed by an AIS, an AIS should consider implementing a safety management system (SMS) as well as a QMS for the additional management of identified safety risks in regard to the processing of safety critical aeronautical data and information. A balanced SMS and QMS facilitate the AISP to realise safety obligations and provide control over aeronautical information products and services. The main components of SMS and QMS were presented, and how these can be applied within an AIS as either integrated or standalone complementary management systems.

3.7.3   The presentation provided also the the FAA Approach in linking SMS, QMS and AIS Activities.

3.8   ***Regional best practice MID States experiences in QMS implementation***

Egypt

3.8.1   This session was provided in PPT05 presented by NANSC/AIM, Egypt.

3.8.2   The presentation described the NANSC AIS structure and the ISO 9001 AIS certification history. It covered customer satisfaction and ways of distributing the Customer Survey. NANSC implemented a process to identify, determine, and evaluate risks and opportunities related to QMS performance. The process must include taking appropriate actions to address these risks and opportunities. The presentation provided Key Performance Indicators of the AIS Quality Management Systems with ISO 9001 Certification.

Iran

3.8.3   This session was provided in PPT10 presented by I.R CAO/AIM, IRAN.

3.8.4   The presentation provided the ISO 9001 Iran AIS certification history. It covered the main challenge leading to the ISO 9001 certification including the position of AI (& QMS) in ANSP, the transition from Conventional AIS to digital-oriented AIM and Relation with Data originators/providers. Lessons learned from QMS implementation were highlighted including the development of simple and concise processes from QMS perspective, risk definition and monitoring in a Dynamic way and taking advantage of feedback from data users.

Qatar

3.8.5   This session was provided in PPT06 presented by QCAA/AIM, Qatar.

3.8.6   The presentation provided the ISO 9001 Qatar AIS certification history. The ISO 9001:2015 Certification is renewed and valid until 30 Sep 2023. The presentation highlighted also Qatar AIM before and after implementing QMS.QCAA AIM next steps include the Digitalisation of NOTAM and preparation/distribution/electronification of aeronautical charts.

Saudi Arabia

3.8.7   This session was provided in PPT07 presented by SANS/AIM, Saudi Arabia.

3.8.8   The presentation provided the SANS/AIM experience in QMS implementation and history. SANS/AIM Certified ISO 9001 for Quality Management System since 2012. The presentation highlighted the current Automation AIM System used by SANS/AIM, Staff competence and awareness and AIM internal and external communication channels. SANS document control system supports the management of files in compliance with regulations and quality management systems through Doc. Library access for AIM user including internal and external documents.

UAE

3.8.9   This session was provided in PPT08 presented by GCAA/AIM, UAE.

3.8.10   The presentation provided GCAA UAE AIM experience in QMS implementation A QMS aimed at providing consistency in the delivery of products and services that meet customer requirements.. it was noted that UAE AIM implemented quality management at each of the function stages based on a Process Approach. The presentation covered the three pillars: Quality Control, Quality Assurance and Quality Improvement which form the basis of QMS implantation. Detailed Quality control (QC) process was presented through which GCAA AIM seeks to ensure that product quality is maintained or improved.

3.8.11   Quality assurance is the process of verifying or determining whether products or services meet or exceed user expectations. It includes Quality/Compliance Audits, Monitoring and Meeting set quality targets, NOTAM quality assessment process encompasses implementation of corrections/improvement   from   audit   observations,   encouraging   staff   to   suggest innovative/improvement ideas, acting on survey results and responses and conducting regular hazard identification and risk assessments.

4. **WEBINAR CONCLUSIONS AND RECOMMENDATIONS**

4.1   Annex 15 requires States to introduce a QMS to provide users assurance and confidence in the quality of data and information throughout the aeronautical data chain (collection, processing, and distribution). Roles, responsibilities, competencies and associated knowledge, skills and attitudes required for the performance of each function within the AIS is identified in the QMS.

4.2   The application of a QMS introduces benefits such as risk-based thinking, effective communication, overall understanding and demonstrated control over processes.

4.3   QMS is essential as it directs and controls an organization with respect to quality through documented and predictable processes. A desired result is in fact achieved more efficiently when activities and related resources are managed as a process. Effective QMS implementation is crucial to control quality in aeronautical data and aeronautical information and ensure the satisfaction of the end user.

4.4   A QMS offers the ability to exercise control over processes and procedures for the provision of aeronautical data and information products and services. The AISP defines quality objectives that are focused on the standardized quality requirements of the next intended user of aeronautical products and services. QMS should apply throughout the entire aeronautical data chain from origination of data to the release of products and services to the next intended user.

4.5   During the development/implementation of QMS, Global aeronautical data quality provisions must be considered in the QMS processes (procedures for Quality assurance, Quality control and error detection) in order to ensure that the required quality levels are adequately met (data catalogue, quality aspects (accuracy, resolution, format, completeness, timeliness, etc.))

4.6   The following information should be included as part of the QMS:
- Scope of QMS;
- Overarching processes
- Roles and responsibilities;
- Work instructions, operating procedures, and guidance material;
- Training plans;
- Formal internal and external arrangements and agreements;
- Compliance observations, and
- Continuous monitoring and performance metrics.

4.7   It was recall that the level of implementation of Quality Management System (QMS) for the Aeronautical Information Services (AIS) in the MID Region is still far below expectation. 9 out of 15 states have implemented QMs in AIM.

4.8   It was called upon Member States that have not yet done so, to accelerate their QMS implementation.

4.9   It was pointed out that the No Country Left Behind (NCLB) initiative highlights ICAO's efforts to assist States in implementing ICAO Standards and Recommended Practices (SARPs). The main goal of this work is to help ensure that SARP implementation is better harmonized globally so that all States have access to the significant socio-economic benefits of safe and reliable air transport.

4.10   It was noted that ICAO MID has a key role to play and will continue working closely with states and key international organizations to provide guidance material, gather and share best practices and offer support to states in need of assistance.

4.11 It was agreed that this webinar will be followed by a series of webinars on NOTAMs workshop and AIM process.

5. CLOSING

5.1 Mr. Radhouan Aissaoui, Regional Officer Information Management, ICAO MID Regional Office, thanked all participants for their active participation and fruitful discussion and valuable outcomes. He indicated that from an ICAO perspective, the objectives of the Webinar were met as the Webinar shared information on the background, requirements and best implementation practices of ICAO Provisions related to QMS in AIM.

5.2 Mr. Radhouan Aissaoui expressed his gratefulness to the speakers from Boeing, CASA, CANSO, FAA, IATA, ISO and Member States (Egypt, Iran, Qatar, Saudi Arabia and UAE) as well as the support from the ICAO EUR/NAT Office.

ICAO MID AIM/QMS Functions Systems and Processes Webinar

(29 April 2021, 10:00 – 14:00 UTC)

List of Participants

State Org/Industries	Contact	Title
Australia	Ms. Louise Alberts	CASA
Bahrain	Mr. Mohammed Ahmed Alhallaq	Head of Aeronautical Info. Operations
	Ms. Hanan Abdulla Alawadi	Aeronautical Information Specialist
	Mrs. Noora Nabeel Kamal	Aeronautical Information Specialist
Egypt	Mr. Samer Hussein Emam	G.M. Airspace Affairs and AIS
	Mr. Ahmed Saied A. Abdelaziz	Senior ANS Safety Oversight Inspector
	Mr. Elsayed Abdulla Zidan	Senior ANS Inspector
	Mr. Ahmed Mostafa M. Arman	Senior CNS Inspector
	Ms. Gehan Hassan Abdelghany	ANS Inspector
	Ms. Mona Sabry	G.M of Quality (NANSC)
	Mr. Ayman Emam Ibrahim	G.M. of AIS (NANSC)
	Mr. Yonan Emil	Briefing Directorate Manager
	Mr. Mahmoud Abdelwahhab	AIS Specialist
	Mr. Sherif Arafat Saad Hussein	Aerodrome Safety Manager
	Ms. Basma Refat Abd El- Hameed	Compliance and safety General Manager
	Mr. Mohamed Ibrahim Atef EL-hefnawy	Aviation Safety Specialist
	Ehab Raslan Mohamed	G.M of R&D
	Mohamed Abdel Hamid	Engineer - R&D specialist
	Mr. Mohamed A. Galal	Head of Compliance & Safety Sector
Iran	Mr. Mehran Maleki	AIM Expert
	Mr. Mohammad Sadeghi	Expert in Charge of AIS Data
	Ms. Sotoudeh Nikmanesh	ATC Expert
	Mr. Ilnaz Khodamoradi	Process Expert
Iraq	Mr. Saif Mudhafa Obaid Al-Bayati	Airworthiness Inspector
	Mr. Fakhri A. Kadhim Abotaheen	Airworthiness Inspector
	Mr. Ali Walid Abdul Ameer	Manager of AIS Dept
	Mr. Mouthana Khalid	AIS Officer
	Mr. Haider Abdulhameed	AIS Officer
	Mr. Naser Rasheed	AIS Officer
	Mr. Ali Mohammed Hameed	Manager of AIP Unit

State Org/Industries	Contact	Title
	Mr. Hasan Hammoodi Ali	Manager of Charting Unit
	Mr. Duaa Ali Abd Alhussain	Charting Officer
	Mr. Nowfel Abdul Hadi	AIS Officer
	Mr. Firas Abdullah	AIS Officer
	Mr. Aymen Kadhim	AIS Officer
	Mr. Mustafa Abdul-Rahman	AIS Officer
Jordan	Mr. Nart Omar Younis Bzadogh	Director Quality/Safety Management System
	Mr. Tamer Ahmad Alnabelsi	Chief of ANS Airspace Design Division
	Mr. Tarik Mohammed khalil Al-rabee	AIS Officer
	Mrs. Narman Izzat As'ad	Chief Of ATM Training Division
	Mrs. Areej Said Al Ajou	ANS Inspector
	Mr. Tareq Okleh A. Al Momani	AIS Officer
	Mr. Mohammed Farouq O. Doqa	ATCO
	Mr. Miteb Shaher M. Alkharabsheh	AIS Officer
	Mr. Amer Jaser Alazzeh	ATC
	Mr. Raed Ghazawi	ANS Inspector
Lebanon	Mr. Bassem Nasser	Chief of AIM
Oman	Mr. Jaffer Abdul Amir Moosani	AIM Director
	Mrs. Samiya Salim Al-Battashi	Aeronautical Data Management Officer
	Mr. Faisal Hamed Albusaidi	Aeronautical Data Management Officer
	Mr. Said Musallam Al-Tamimi	AIS Chief
	Mr. Harith Said Al-Harthi	Aeronautical Data Management Officer
Qatar	Mr. Faisal Alqahtani	Head AIM
	Mrs. Pamela Erice	AIM Supervisor
	Mr. Roel Santiago	AIM Office
	Mr. Asiri Christo	AIM Officer
	Mr. Antonio Cardoso	
Saudi Arabia	Mr. Abdullah Al Ahmadi	Acting GM Aviation Information Standards
	Mr. Ibrahim Alshaya	Aeronautical Charts Supervisor
	Mr. Imed ben Saad	AFP and AIM Expert
	Ms. Hind Abdulaziz Almohaimeed	AIP Specialist
	Mr. Mohamed A. Ben Abdessalem	AIM Strategy Specialist
	Mr. Hadi A. Alghamdi	Manager of Saudi Aeronautical Information Publication
	Mr. Mohammed A. Filimban	AIM Quality Management Specialist

State Org/Industries	Contact	Title
Syria	Mr. Tareq Algeref	Chief Air Navigation Department
UAE	Mr. Abdalla Salim Al Rashidi	Director AIM
	Mrs. Wedad Khaleel Al Hosani	ANS Quality Assurance Officer
	Mr. Dean Fernandes	Head of AIM Publication
	Mr. Balakrishnan Thalasayanan	AIM Publication Officer
	Ms. Maram Khaled Ali	AIM Publication Officer
	Mr. Mohammad Nasheem	AIM Design Officer
	Ms. Hanan Hassan Al Hamoudi	ANS Publication Officer
	Mr. Robert Novac Bara	Air Navigation Inspector
USA (FAA)	Mr. George Sempeles	Aeronautical Information Specialist
AACO	Mr. Walid Al Hoss	Manager Economics and Technical Department
	Mr. Mohammad Akel	Specialist – Economics & Technical Dept
ACAO	Mr. Hicham Bennani	Safety and Air Navigation Expert
CANSO	Mr. Aleksandr Estrov	CANSO AIM WG Chair
IATA	Ms. Lindi-Lee Kirkman	Manager Safety Flight Operations ATM Infrastructure Focus
IFATCA	Mr. Raouf Helmy	IFATCA Representative Middle East
ISO	Mr. Paul Simpson	
Jeppesen	Mr. Volker Meyer	Manager International Relations
ICAO	Mr. Mohamed Smaoui – ICAO MID	Acting Regional Director
	Mrs. Muna Alnadaf – ICAO MID	RO/CNS
	Mr. Radhouan Aissaoui - ICAO MID	RO/IM
	Mr. Ahmed Amireh – ICAO MID	RO/ATM/SAR
	Mr. Ahmad Kavehfirouz - ICAO MID	RO/ATM/SAR
	Mrs. Manal Wissa - ICAO MID	Programme Analysis Associate
	Mr. Abbas Niknejad ICAO EUR/NAT	RO/ANS/AIM

- END –