

الهيئة العامة للطيران المدني  
GENERAL CIVIL AVIATION AUTHORITY



## **MID AN Report 2021: SZC Success Stories/ best practices**



## Month of Knowledge for future of Air Navigation Services (MOKFANS)

### Introduction:

- Month of Knowledge for Future of Air Navigation Services, is an initiative founded by the United Arab Emirates General Civil Aviation Authority (GCAA), in collaboration with International Civil Aviation Organization (ICAO), and Arab Civil Aviation Organization (ACAO). This initiative aims to bring together the expertise of Air Navigation Services providers within the aviation sector, to review best practices and facilitate enhancement of the capabilities of the sector in the future.



### MOKFANS:

- The MOKFANS initiative is built around an online educational session, which initially occurred in 2020. At this time, the COVID Pandemic gripped the world and affected the aviation sector dramatically. The situation this created made it even more important to take this step and create such an event, to discuss the impact of the pandemic on the sector, how to adapt, overcome, and plan for future practices to prevent such losses in the aviation sector. In 2021, the event continued with its goal to ensure the establishment of a strong backbone for agility and business continuity of aviation, and specifically the Air Navigation Services Sector.

### Sessions:

- The event was conducted in a virtual platform. It focused on developing new systems and creating a strong base for allowing organizations to be ready for any future event which might affect the sector. The following topics were discussed as main ideas for each webinar:



The webinar consisted of 6 sessions, these are briefly explained below:

#### 1) Future of Flight Data Exchange:

The session discussed how important flight data is to the aviation industry, the importance of migrating to FF-ICE, and the latest developments and the future of FF-ICE.

#### 2) AIM SWIM Services:

The session discussed the possible features that could be made available through AIM SWIM Service (website), for example: AIP Data Viewer, Graphical Visualization(2D/3D) and various data exchange export functionalities.

#### 3) Artificial Intelligence in ATC:

The session provided an insight on current developments and views on the use of artificial intelligence in an operational ATC context. The speakers presented a general introduction and industry views from experts in the field.



#### 4) Generations of ATC:

This session was an extraordinary session, hosted by different generations of ATCO's (Retired, Supervisor, Young), and discussed the importance of ATC, Past, Current and Future.

#### 5) Management of Critical infrastructure:

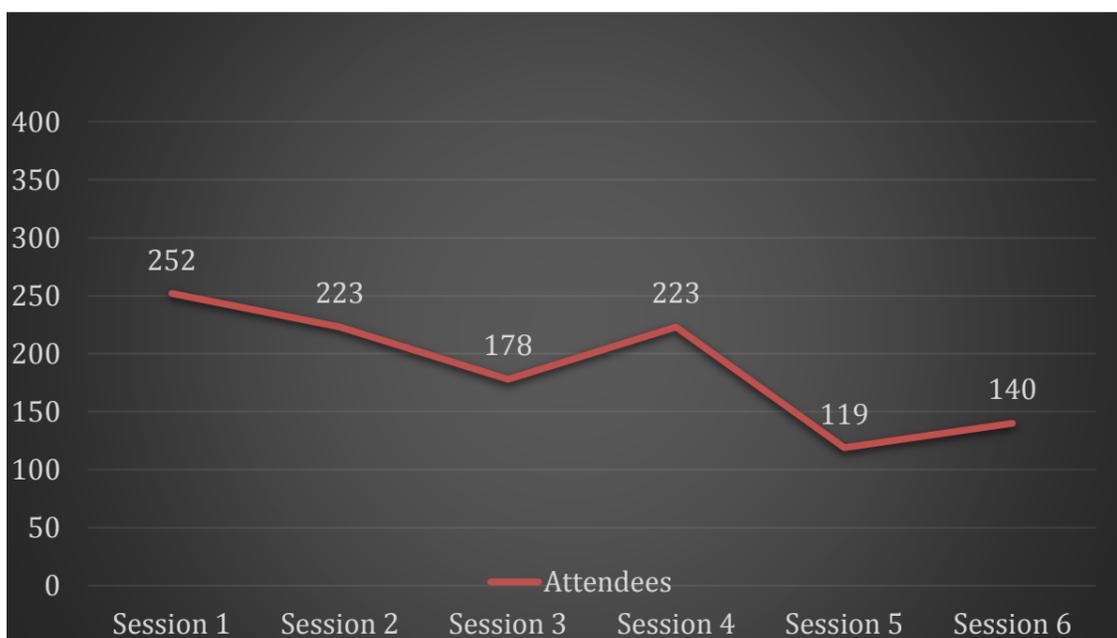
The session discussed maintenance impotency, building a robust maintenance program and policies, procedures and work instructions in the field.

#### 6) ANS Cyber Security:

The session explained cyber security in ATC, discussed the importance of robust cyber security in aviation, the main objectives of cyber security and future of risks and threats within the aviation sector.

#### Statistics:

- For the total of 6 sessions, there were 17 expert speakers from the UAE GCAA Air Navigation Service Provider and external international organizations. The sessions attracted more than 1100 participants who registered for the event, from 127 organizations located all around the globe.



The overall number of attendees was 1135, not only from the aviation industry, but also members of the public from various organizations and students from different educational institutions.

#### - Challenges:

Due to the global participation, the main challenge faced the initiative was deciding the timing for the sessions. For many people who were interested in attending, the initial timing of the sessions was not practical. To overcome this issue, all webinars were re-scheduled to UTC and set to a standard time of 08:00UTC.

Another challenge was the scheduling the events around the established programs of ICAO and ACAO. These organisations had many events going on in parallel with the MOKFANS events, this was a lesson learned for the organisers to consider when planning future events.

#### - Conclusion:

After the success of 2020 and 2021, MOKFANS will continue in 2022, to create the ultimate strategy for the Air Navigation Services sector in aviation. This will in turn help in enhancing the aviation sector moving forward, additionally, it will help in raising awareness in the subsequent generations, as well as the general public from divergent industries.



## AIM improvements:

### 1- Develop a mechanism of making available AIP Digital datasets

From the perspective of transposing Annex 15/PANS-AIM requirements, the most demanding activity for a State AIS is the operational implementation of the digital datasets. It is required to convert some section of eAIP (Electronic Aeronautical Information Publication) to Digital AIP dataset. The challenge resides with different factors, namely institutional, financial, technical issues and lack of clear guidance from ICAO for this activity.

UAE developed a mechanism that will facilitate the incorporation of new technical requirements to manage Aeronautical Information within a modern and technological Aeronautical Information Management environment and provide the data in AIXM (Aeronautical Information Exchange Model) format.

The main activities were to set up the stage for the operational and technical implementation of ICAO Digital Datasets as part of the strategic GCAA plan for enhancing AIM system capabilities.

Enhancing AIM system capabilities are improvement stages and the natural result of UAE AIM continuous services development process. These have created a solid platform of functionalities allowing better, quality-controlled and standardized interaction with other internal and external stakeholder systems. The main driver for Phased approach employed by the UAE is the regulatory compliance and alignment of UAE AIM with ICAO SARPs (Annex 15 and PANS-AIM) as well as with the revised MID Region AIM Implementation Roadmap.

#### Implemented solution:

- Created UAE AIP Dataset Specification and Implementation Plan.
- Created UAE AIP Dataset Technical Specification.
- Upgraded the system to generate the required dataset.
- Produced AIP Dataset Sample in AIXM 5.1 Format.

#### Achieved Value:

- Compliance with Annex 15/PANS-AIM requirements related to Digital AIP dataset.
- Placing UAE GCAA as “implementer” champion in MID Region.
- AIP Dataset “Proof of concept” pioneered by UAE.

### UAE AIP Dataset Sample in AIXM Format

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  xmlns:aixm-message="http://www.aixm.aero/schema/5.1/message"
  xmlns:gml="http://www.opengis.net/gml/3.2"
  gml:id="gmlID837148"
  xsi:schemaLocation="http://www.aixm.aero/schema/5.1/message http://www
  <aixm:messageMetadata xmlns:cae="http://www.comsoft.aero/cadas-aimdb/extension"
    xmlns:gmd="http://www.isotc211.org/2005/gmd"
    xmlns:gco="http://www.isotc211.org/2005/gco"
    xmlns:aixm="http://www.aixm.aero/schema/5.1">
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    <gmd:characterSet>
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    </gmd:characterSet>
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</aixm-message:AIXMBasicMessage>
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### 2- QR Code Technology In NOTAM Operation

Enhancing AIM system capabilities are improvement stages and the natural result of UAE AIM continuous services development process. As part of NOTAM improvements initiative and to ensure that GCAA services are provided according to the standards of quality efficiency and transparency, QR code technology to scan/read text from NOTAM database to NOTAM transmission terminal has been implemented.

The challenge was that NOF Operations required to type two times the same message due to the systems being on different unconnected networks for security reasons. This led to delays and possible typing errors, the implemented initiative has contributed in reducing errors and improving performance by avoiding two-times NOTAM typing.



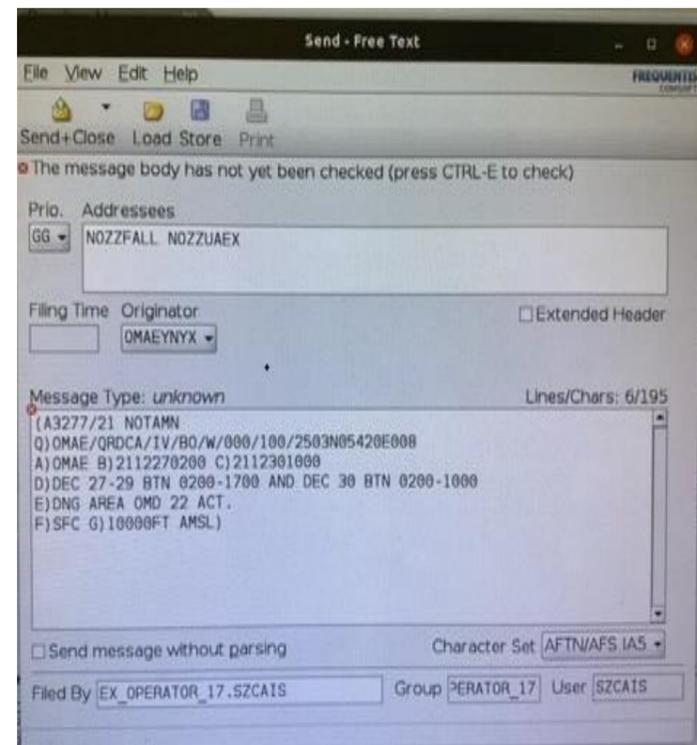
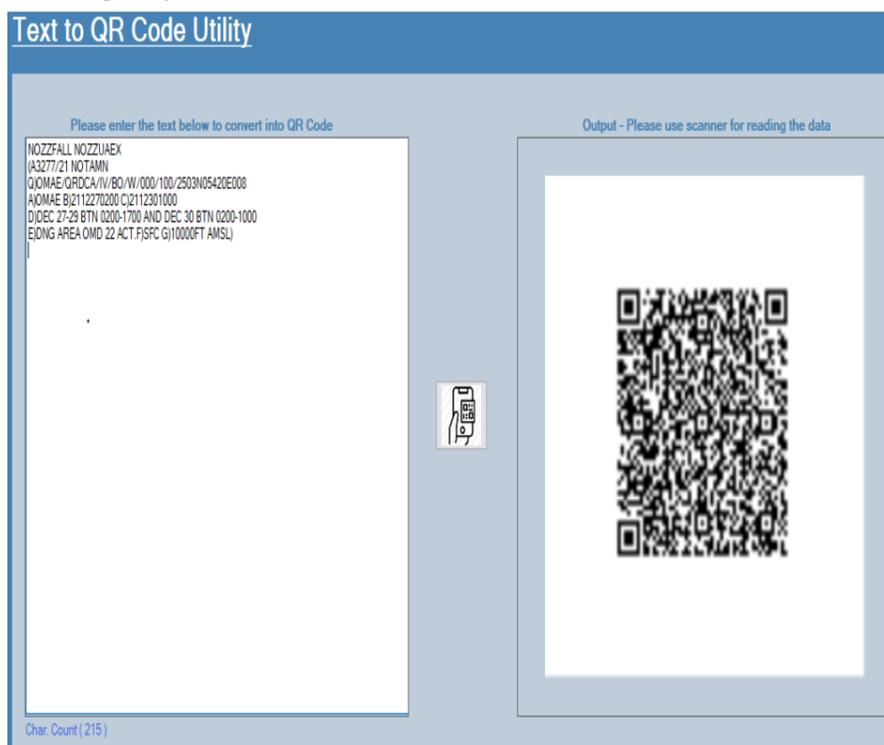
**Implemented solution:**

- Installation of a software , “BUILT” - to generate the QR Code.  
The software was developed in-house, it is installed on the network where the local database resides which converts NOTAM text into a QR Code.
- Installation of QR Code Scanner.  
QR Code Scanner is installed on the NOTAM transmission terminal network which scans the code, transforms back to text and is ready for transmission.

**Achieved Value:**

- Time Optimization (Average 4 minutes 54 seconds saved per NOTAM)
- Productivity (More NOTAM can be processed, when required).
- Error Reduction (0% typo errors during Year 2021).
- Workload Reduction.

**Sample of Text Conversion Process**





## ATM improvements:

### 1. Establishment of route L710

Collaborative work with Muscat ACC to reduce the congestion in Muscat ACC Central sector

Benefits:

- Track mile reduction for re-routed traffic
- 50% overall reduction of DFLOW ground delay
- Enabler for future airspace capacity enhancements

### 2. Continuous Descent Operations (CDO) establishment with Bahrain

- Optimize airspace utilization
- Enhance efficiency of traffic
- Reduce operational cost for airspace users
- Increase environmental benefits

Benefits:

### 3. UAE Bahrain Aeronautical Messages Handling System (AMHS)

- Project Initiated in 2019
- Successful completion of interoperability and preoperational tests with the support of Bahrain colleagues was achieved during September 2020.
- Circuit (Abu Dhabi – Bahrain) upgraded from CIDIN to AMHS was effective on 25th of October 2020.

### 4. Flexible use of ATC simulation during of abnormal traffic level

- Importance and validity of adopting such method during low traffic levels
- Mitigate challenges opposed by COVID19
- Maintain & sharpen skills of ATC staff
- Eases the preparedness for return of traffic levels
- Adapt rosters to accommodate difficulties of staff availability
- Presented & shared by UAE in MIDANPIRG 18 (15-22 February 2021) under agenda item 5.2.6

Statistics Sample	A/C utilizing CDO	Jet Fuel Savings	CO2 Emissions Reduction
JUN – NOV 2020	4,000	1,800 Metric Tons	5,377 Metric Tons

### 5. QEYAS

Operational Monitoring & Enhancement Management Program

QEYAS is a program developed to:

- Raise ATCO awareness
- Highlight good practices
- Highlight deficiencies in standards both in ATCO behavior and ATC procedures.

The program includes, but not be limited to the following:

- Procedure compliance
- Post incident follow up for ATCO's involved in incidents.
- Any observations where safety is compromised, or a deliberate disregard for procedures are observed. (Random review)
- ATC License limitations
- Following up with newly validated ATCO's performance.