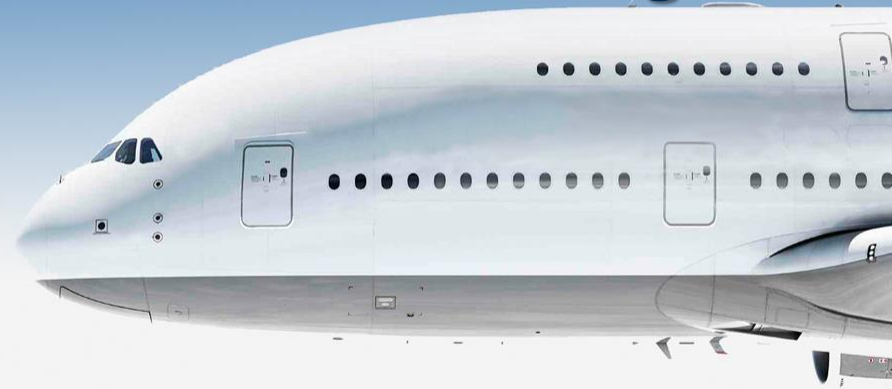




Proposals for ATM Safety Management Activities in the APAC region (WP37)

Presented in the ATM SG/9

Lia Sunok, LEE
Regional Officer, ATM
APAC Regional Sub-Office, 3 Nov. 2021





Outline

- Background
- Discussion on:
 - What has been done for ATM safety
 - Challenged identified
 - Current status check
 - Proposals for ATM safety management activities in the APAC region
- Conclusion

ATM Challenges

- **ATM is facing challenges owing to changes coming from ANS modernizations to fulfil the needs and expectations of aviation community.**
 - Constant air traffic growth
 - GANP ASBU, GASP Goals and Target
 - APAC Seamless ANS Plan and Regional Aviation Safety Plan
 - New entrants, business models
 - Safe and effective recovery from COVID-19 impacts



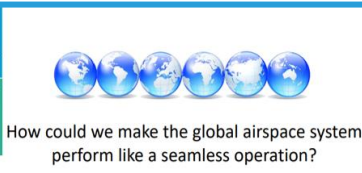
Constant Air Traffic
Growth



Increasing Complexity



Changes &
Emerging Challenges



Information Challenges

How could we make the global airspace system perform like a seamless operation?

**Meeting conflicting priorities in
ATM**

**Safety, Efficiency & Capacity,
Economical & Environmental
Sustainability**

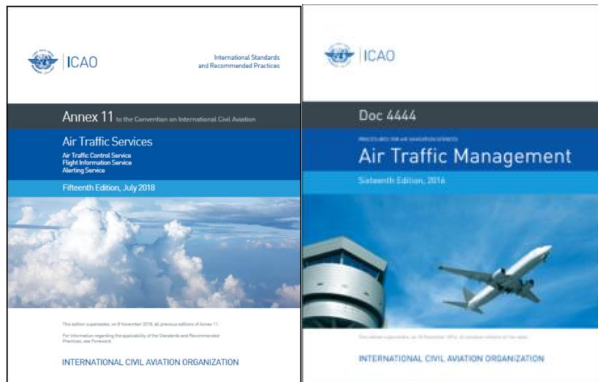
ICAO Key documents for ATM and Safety

➤ Air Traffic Service: Annex 11

- PANS-ATM: Doc 4444

➤ Safety Management: Annex 19

- Guidance Material: Doc 9859 (SMM: Safety Management Manual)



ICAO to ATM Challenges

❖ Annex 11 2.29 Safety Management

- Any significant safety-related change to the ATS system shall only be effected after a safety assessment has demonstrated that an acceptable level of safety will be met and users have been consulted.
- Post-implementation monitoring need to be conducted to verify that the defined level of safety continues to be met.

❖ Doc 4444 PANS-ATM Chap.2 (ATS Safety Management)

- A safety assessment shall be carried out in respect of proposals for
 - Significant airspace reorganizations;
 - Significant changes in the provision of ATS procedures applicable to an airspace or an aerodrome; and
 - The introduction of new equipment, systems or facilities

ATM Change Management

We are good to go !

Safety Risk Assessment

Before

Change
implementation

After

Remain Effective !!

Periodic Review & Monitoring

Continuously Improving
Interoperable
Highly-Performing & Safe

ATM

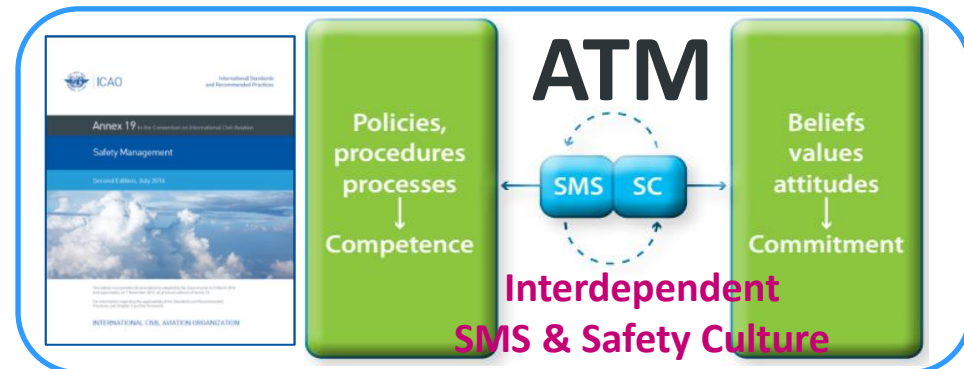
What ICAO says about Safety Culture

- **Annex 19** requires that both States and service providers **promote a positive safety culture** with the aim of fostering effective safety management implementation through the SSP & SMS.
 - **5.3.5** States shall take necessary measures, including the promotion of a positive safety culture, to encourage safety reporting through the systems referred to in 5.1.2 and 5.1.3.
- ANSPs **shall** define the safety policy reflecting **organizational commitment regarding safety** including the promotion of a positive safety culture. (**Annex19 App. 2**)

❖ **Safety Culture** is...

- the foundation & essential for effective SSP & SMS in ATM

- ❖ **One fundamental indicator of a safety culture is effective safety reporting**





What has been done

<https://www.icao.int/APAC/Meetings/Pages/2021-ATM-Safety-Assessment-Workshop.aspx>

- **2 Workshops on ATM Safety Risk Assessment in Change Management**
to enhance ATM safety management performance of APAC States through strengthening safety assessment capability
 - 3-day workshops on VTC on Nov 2020, June 2021
 - ICAO requirements & concepts and practical guidance (Doc 9859) on how to conduct the management of change process by the key methodologies of safety risk assessment in safety risk management.
 - Interactive group exercise on hands-on practice on a real case
 - Australia, FAA US, India, Republic of Korea, and Singapore contributed by sharing their experience and lessons learned in three workshops.



What has been done

<https://www.icao.int/APAC/Meetings/Pages/2021-Safety-Culture-Workshop.aspx>

- **A Webinar on ATM Safety Culture**

to enhance the understanding of importance of a positive Safety Culture promotion for efficient ATM implementations and effective safety management

- 2-day workshop on VTC on 27-28 October 2021
- Focused on positive safety reporting culture (Just Culture) for the consistent availability of safety data and safety information to effectively analyse safety risks
- Interactive hands-on exercise on Safety Culture elements to share the ideas
- Experience and lessons learned by experts from EASA, FAA US, IFALPA and IFATCA
- Especially, the visible commitment of high-level management to safety-related task highlighted

APAC Regional Guidance to States

ANSP Human and Simulator Performance

Optimal 'Aviation Culture'

The Asia/Pacific Seamless ANS Plan has regional guidance and expectations related to SMS and change management in ANS. <http://www.icao.int/APAC/Pages/edocs.aspx>



5.22 An optimal 'aviation culture' within regulators and service providers can only be implemented when top managers instil an understanding of a system-wide approach that creates an organic, learning and safe environment. When considering the key factors supporting an 'aviation culture', it is important to acknowledge that no 'national culture' is perfectly aligned with 'aviation culture', so there will always be a need for gap analysis and changes where development of an appropriate in culture is required. In focussing on management it is therefore important to train managers, and for **managers to have a level of competency** in the following areas (Figure 6):

- a) the advantages of a responsible, informed and accountable management, which promotes a proactive organisational culture with safety as a first priority, using **open communications and a team management approach**; and
- b) the implementation of an appropriate organizational culture which is effectively driven by management through **embedded safety review and assessment teams**, allowing the organization to respond organically to its operating environment;
- c) the systematic application of human factors principles in –
 - air safety investigation;
 - system design (ergonomics, human-in-the-loop);
 - effective training (including the use of simulators);
 - fatigue management;
 - automated safety nets; and
 - contingency planning;
- d) the implementation of effective safety reporting systems that –
 - are **non-punitive, supporting a 'Just Culture'**;
 - promote **open reporting** to management; and
 - focus on **preventive (systemic)**, not corrective (individual) actions in response to safety concerns, incidents and accidents.

APAC Seamless ANS Plan 7.43

Aviation Culture: Just Culture (Priority 1)



Optimal Aviation Culture Factors (from APAC Seamless ANS Plan 3.0)

7.43 The following systems should be established to support human performance in the delivery of a Seamless ANS service. The systems should consider all the elements of the SHEL Model (Software, Hardware, Environment and Liveware – humans), in accordance with the ICAO Human Factors Digest No. 1 and related reference material:

- a) human performance **training for all managers** of operational air navigation services (such as aerodrome operators, ATC organisations and aeronautical telecommunications), such training to include the importance of:
 - a **proactive organisational culture** where managers and operational staff are informed and safety is a first priority, using **open communications** and an effective **team management** approach;
 - assessment and management of risks by **safety review and assessment teams** comprising multidisciplinary operational staff and managers which review safety performance and assess significant proposals for change to ATM systems, particularly those related to human capabilities and limitations;
 - effective safety **reporting systems** that –
 - are **non-punitive**, supporting a ‘Just Culture’;
 - promote **open reporting** to management; and
 - focus on **preventive (systemic)**, not corrective (individual) actions in response to safety concerns, incidents and accidents.
- c) human performance-based **training and procedures for staff** providing operational air navigation services (such as aerodrome staff operating ‘airside’, air traffic controllers and aeronautical telecommunications technicians) regarding the importance of:
 - an effective safety reporting culture; and
 - **‘Just Culture’** (Priority 1).

<https://app.mural.co/t/icao3243/m/icao3243/1634113820729/c5ef414c6cb55d636ecc57b47f19759aecb21466?sender=slee6110>





Challenges identified

- **The survey results conducted during a series of workshops on ATM safety management in 2020 and 2021 shows:**
 - Hazard Identification and safety risk mitigation
 - Lack of resources and experience,
 - Lack of qualified, competent safety experts with relevant knowledge and capabilities
 - Lack of practical guidance on 'HOWs': methodologies and tools
 - Lack of safety data to analyse in the process of ATM safety risk management

Current Status Check

- **The lower USOAP EI scores in the APAC region**
 - **CE8** (Resolution of safety concerns): **49.6%**
 - **CE4** (Qualified technical personnel): **54.03%**
 - **CE7** (Surveillance obligations): **58.03%**

Chart 8.3 – Overall EI by critical element RASG-APAC States compared to all ICAO member States

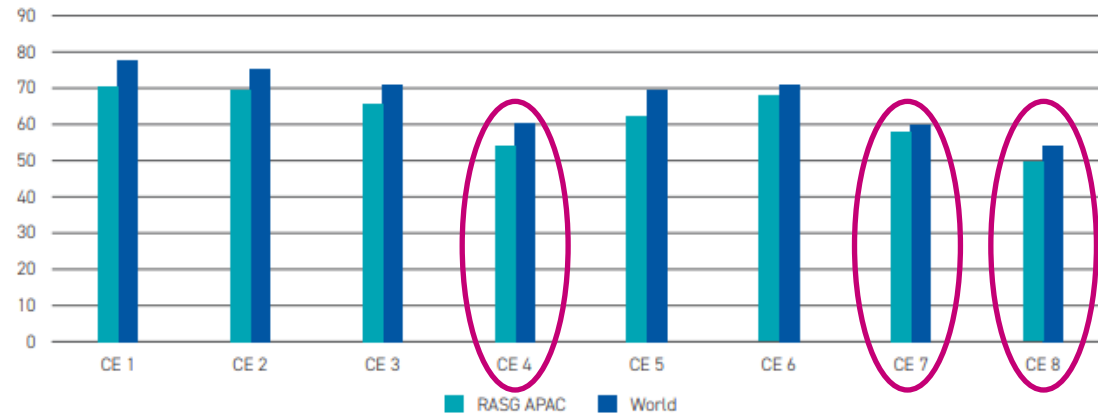


Figure is from the APAC Annual Safety Report for 2021
Data was extracted from the iSTARS database on the 20 July 2021.



Current Status Check

- **Data matters in ATM Safety Risk Management**

ATM is increasingly relying on safety data and information in the course of transformation toward globally interoperable harmonized operations thru digitalized automation where data matters.

- Overall reporting rates in APAC region are rather low in general.
- ATM Safety data coming from ATM operations is needed for the effective analysis and assessment of safety risks involved in ATM changes implementations.
- For proactive safety information

Proposals



❖ To address the challenges and difficulties

1. APAC region-wide ATM Safety Management Survey incl. Safety Culture

- For better situation awareness of how ATM safety-related behaviours in the APAC region
- To get a clearer picture of the effectiveness of ATM SMS
- To identify appropriate regional support activities.

2. Continuous activities on ATM Safety Management

- To better facilitate the effective e implementation of ATM changes in the APAC member States
- By providing a forum for ATM stakeholders to share experience, lessons learned and best practices with exercises on real change cases in the forms of workshops and seminars.



Action by the Meeting

- **The meeting is invited to:**
 - a) Note the information contained in this paper;
 - b) Discuss the proposed actions in paragraph 2.11 to 2.13; and
 - c) Discuss any other matters as appropriate.



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THANK YOU