ASIA PACIFIC REGIONAL ATM AUTOMATION SYSTEM SYMPOSIUM

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SP 408

Need For Standardisation & Guidance Material for Digital Tower & Remote Tower

Presented by Hong Kong, China

Introduction

1. Remotely operated aerodrome control (ICAO's ASBU module B1-RATS) or **Remote Tower (RT)**

   a) usually applies to low-traffic airports

   b) provides safe and cost-effective air traffic services (ATS) from a remote location to one or more aerodromes where dedicated and/or local ATS are considered neither sustainable nor cost-effective

   c) acts as a contingency tower to maintain aerodrome control operation in case main tower has to be evacuated

   d) States are encouraged to consider its implementation in timeframe of 2019-2025, where there is a positive business case with operational benefits

Introduction

1. A recent growing trend for deployment of similar technology for RT at conventional towers in medium-sized and even busy airports for enhancing ATC safety and operational efficiency

2. **Digital Tower (DT)** usually refers to such application for augmenting and enhancing visual capability for controllers at conventional towers

3. Despite its increasing application, DT has neither been specified in ICAO GANP nor any ASBU modules

Discussion

1. Amendment to the ICAO document PANS-ATM, Doc 4444 "Procedures for Air Navigation Services - Air Traffic Management" – to be effective on 8 November 2018

Note.— Provisions for the use of an ATS surveillance system in the aerodrome control service are contained in Chapter 8, Section 8.10.

7.1.1.2.1 Visual observation shall be achieved through direct out-of-the-window observation, or through indirect observation utilizing a visual surveillance system which is specifically approved for the purpose by the appropriate ATS authority.

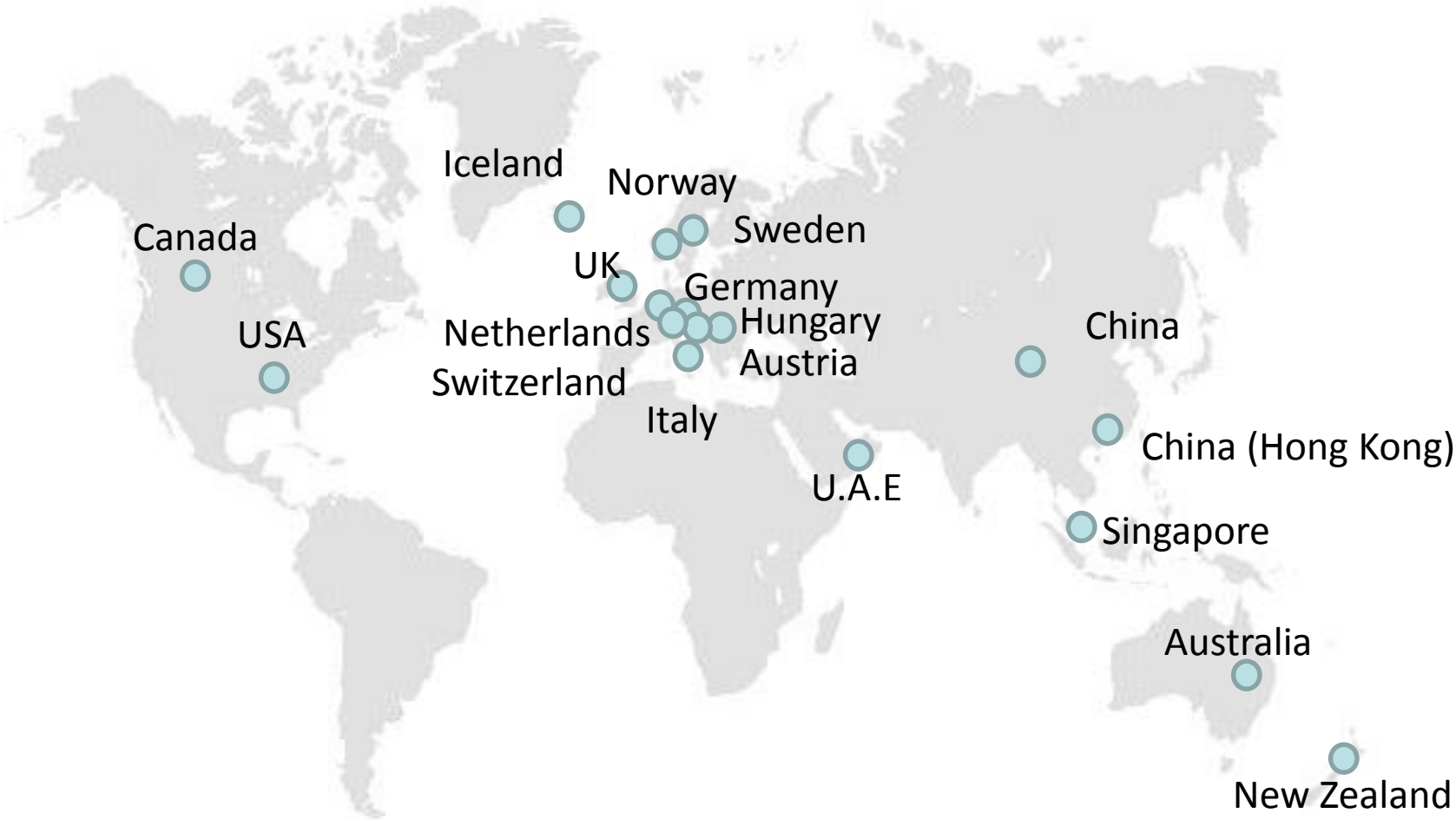
a) Lack of detailed requirements of the visual surveillance system for aerodrome operation

b) Lack of global guidance material on how to develop a safety case and a systematic approach for planning, implementation and transition of the system into safe operation

Discussion

1. Nowadays, pace for technological development in DT and RT is well ahead of the available governing standards and guidance materials
2. This led to the prevailing circumstances that diversified approaches are being adopted by different States and equipment suppliers
3. Despite the unavailability of such standards and guidance materials, trials/implementation of DT and RT have been intensively carried out worldwide to meet individual ATC operational needs

Trials/implementation of DT & RT Worldwide



DT & RT Trials at Hong Kong International Airport

1. The trial setup will be integrated with A-SMGCS, ADS-B, and flight plan data

2. Customised display screens showing flight information and panoramic view of runways and apron areas will be installed at aerodrome control tower and a remote site outside the airport

3. The objectives are to gather feedback from controllers and evaluate the technology to determine if it can:

   a) Enhance out-of-window view for performing day-to-day duties in managing aircraft and vehicle movements on the aerodrome, particularly under low visibility conditions

   b) Provide contingency operation from an off-tower location

   c) Improve visibility of distant areas of the airport under expansion

Need for Harmonisation

1. In the light of technology for digitisation of tower operation being ready for deployment with a view to enhancing ATS safety, service levels and efficiencies :

   a) a harmonised approach with common standards and guidance materials for application of both DT and RT has become a pressing need for all stakeholders

   b) to ensure that system trials and implementation will not be fragmented with loopholes, where safety and service levels might be compromised

2. Despite ICAO has made reference to EASA guidance material published in 2015, standards and guidance materials are urgently required from ICAO to govern rapid technological development and intensive activities of trials and implementation of DT/RT worldwide

Discussion at 13th Air Navigation Conference

1. Working papers were presented by China and Hong Kong China respectively during the ICAO 13th Air Navigation Conference (ANC) and 55th APAC DGCA Conference which aroused intensive discussion

2. A number of States and International Organisation expressed their support

3. The Conferences noted the challenge to ensure a harmonized approach due to variety of operational requirements, and importance in striking a right balance between a prescriptive and a performance based approach to ensure innovation would not be stifled

4. It was agreed that the working papers would be referred to relevant ICAO technical expert group to continue development of provisions and guidance material, as necessary

Conclusion

The symposium is invited to :-

1. note the diversified approaches currently adopted by various States/Administrations in conducting trials on or implementing DT and RT to meet individual ATC operational needs

2. note a harmonised approach with common standards and guidance materials is necessary to ensure the harmonisation and implementation of DT and RT for upholding safety and service levels

3. note that the working papers would be referred to relevant ICAO technical expert group to continue development of provisions and guidance material, as necessary

民航處
CIVIL AVIATION DEPARTMENT

Thank you