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CANSO Position Paper on Remote Tower Operations

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CANSO Position on Remote Tower Operations

1.   Introduction

The European research and development programme, SESAR, is developing "solutions"i (i.e. deliverables including concept definitions, validation results and material supporting implementations) that are now being deployed in Europe. One example is remote tower operations (RTO), the provision of aerodrome air traffic services (ATS), including air traffic control (ATC) and aerodrome flight information services (AFIS) based on digital ATS data, including out of the window view and information sharing.

A digital tower module is equipped with equipment similar to that at a conventional air traffic control tower. Systems and equipment at the airport are connected to the equipment in the digital tower module, i.e. a 'tower' where aerodrome ATS is based on digital information only. Cameras located at the airport provide a visual presentation of the airport and its vicinity that is displayed on screens located in the digital tower module, thus allowing air traffic control officers (ATCOs)/AFIS Officers (AFISOs) to have continuous watch over their area of responsibility. Aerodrome ATS are expected to be provided in the same way as from a conventional tower with no particular change in the service provided. ATCOs/AFISOs will use working methods similar to those which they are used to.

Several tower modules may be located in a remote tower centre (RTC), a centralised facility where aerodrome ATS is provided to one or more aerodromes. This can be compared to an area control centre (ACC) where ATS is provided to many sectors or approach functions.

This paper provides the CANSO position on the provision of aerodrome ATS based on digital ATS information.

2.   Background and Context

The basic driver for the Single European Sky (SES) is, together with objectives for safety and environmental sustainability, to make European aviation more efficient and cost effective. Opening up the ATM market for competition is one way to achieve these goals. Deregulation of ATC at airports has occurred in several European countries.

Providing aerodrome ATS from remote locations provides flexibility and a more efficient use of resources while ensuring continued access to airports. Such a solution has been in operation in Sweden since April 2015 with good results both from a safety and a capacity point of viewii. Several other air navigation service providers (ANSPs) are also involved in implementing remote provision of ATS.

A remote ATC solution for a medium sized airport has been successfully demonstrated within the framework of the SESAR Large Scale Demonstration at Budapest Airportiii in a parallel runway environment and at Malpensa and Lineteiv airports and Cork and Shannonv airports where remote tower operations have been successfully tested.

High demand for continuity of service at airports drives the development of contingency solutions for situations when the conventional tower is not available.

One possibility is to provide ATC from remote locations using data from sensors at the airport. An example is London Heathrow Airport, which has had an approved remote aerodrome ATC contingency facility since 2009.

3. Change of Functional Systems

ATM/ANS within the EU is regulated by Regulations 1035/2011 (service provision) and 1034/2011 (oversight), Implementing Rules of the EASA Basic Regulation 216/2008, as well as by Regulation 550/2004 (the so-called "Service Provision Regulation") under the Single European Sky framework.

ANSPs are required to establish a management system that includes change, safety and quality management.

The regulation defines *"functional system as a combination of systems, procedures and human resources organised to perform a function within the context of ATM"*. The introduction of aerodrome ATS based on digital information is considered to be a change of 'functional system', thus the EU regulation requires safety assessment and approval from the Competent Authority to ensure that the service provided is safe. This includes a complete life cycle management of all constituents included in the system.

Aerodrome ATS based on digital information does not impose any changes to the service provided to airspace users.

4. Opportunity to expand the provision of aviation services

Aviation connects Europe with the rest of the world, and also different parts of Europe. Aviation is especially important for remote areas where other means of travel are not feasible due to lack of infrastructure, long distances and small populations. A typical airport in these remote areas might only have a few flights a day, which makes it very cost-inefficient to provide aerodrome ATS.

Digital ATS data and information sharing open up the possibility to provide aerodrome ATS from remote locations. Airports can be operated avoiding costly physical tower buildings and the burden of having and retaining ATC/AFIS staff located at the airport. Aerodrome ATS is made available from a RTC during hours when the airport is opened for traffic.

Deregulation of ATM service provision at airports could lead to the frequent change of service providers. As a consequence, staff employed by the old service provider might have to move when a new service provider is assigned. Solutions based on remote services provision offer flexibility to switch between airports while ensuring a stable social situation for the employees.

Substantial costs can be saved by not having to construct a conventional tower at an airport. This is the case when new airports are built, but also when existing tower buildings have to be replaced. Also, integrating digital tower technology in existing conventional towers can save costs compared to constructing further towers.

Aerodromes that previously could not have ATC services, due to cost issues, can find in the remote tower concept an interesting solution to increase their services. While in its infancy, the concept of 'multiple towers' could bring further cost

savings and efficiency gains. ATC for multiple runways at different airports or full aerodromes could be merged as workload or movements permit. This could enable aerodromes to increase operating hours or provide flexibility through the use of shared resources at a RTC.

5. CANSO Positon

CANSO recognises that

- The concept and solutions to provide aerodrome ATS from places not located at the respective airport is a reality and that it will evolve during the coming years

- Solutions based on digital ATS information allow ANSPs to develop their services in a cost-efficient way with sufficient or even increased levels of safety; to expand services; increase opening hours; and ensure improved continuity of services

- Aerodrome ATS might be provided as single remote (to one aerodrome at a time), multiple remote (to more than one aerodrome at a time) and remote contingency (providing ATS in contingency and continuity situations from a remote location)

- Providing aerodrome ATS remote from the physical airport allows for flexibility when these services are procured in a competitive market[1]

- Co-locating several remote tower modules in a centre has positive social effects for staff like avoiding one-person operations and related fatigue problems, higher flexibility in rostering, and more efficient refresh training

- Remotely provided ATS could be very useful during emergency situations where people cannot physically operate (i.e. earthquake, fire, war, etc.)

- Digital tower technologies are applicable and present benefits to both small and large movement airports, and also for airports of both small and large physical size

- It is essential to keep an open mind towards different approaches and solutions for ATS provision utilising digital ATS information as different operational environments require and advocate very different solutions

- EASA and EUROCAE have published supporting material[vi] and are evolving regulation and standards related to remote aerodrome ATS

- ICAO is amending the Procedures for Air Navigation Services – Air Traffic Management (PANS-ATM, Doc 4444) to include provisions for 'visual surveillance' supported by electronic means.

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[1] Following the decision of each State

CANSO therefore fully supports:

- The provision of remote aerodrome ATS based on digital information

- Those ANSPs that want to implement remote aerodrome ATS

- The further development of the concept of remote provision of aerodrome ATS including system solutions.

CANSO recommends those ANSPs that want to provide aerodrome ATS based on digital ATS data to

- Support activities that utilise services based on digital ATS and information sharing

- Coordinate with airport operators to identify potential airports and services where digital ATS solutions might provide added value

- Involve from the very beginning operational and technical staff that will be affected by the change through social dialogue and best practice in change management

- Establish an early dialogue with the approving regulator (NSA/CAA), unions, airport operators and airspace users

- Consider cyber security issues related to the increased cyber threat due to increased dependency on digital ATS data

- Harmonise and streamline services through sharing experience with other ANSPs

- Develop an accurate safety and security assessment including human factor assessment to identify and mitigate any possible hazard

- Embrace the principles of Just Culture

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CANSO – the Civil Air Navigation Services Organisation – is the global voice of air traffic management (ATM) worldwide. CANSO Members support over 85% of world air traffic. Members share information and develop new policies, with the ultimate aim of improving air navigation services (ANS) on the ground and in the air. CANSO represents its Members' views to a wide range of aviation stakeholders, including the International Civil Aviation Organization, where it has official Observer status. CANSO has an extensive network of Associate Members drawn from across the aviation industry.

References

[i] SESAR Solutions
"Single medium": http://www.sesarju.eu/sesar-solutions/high-performing-airport-operations/single-remote-tower-operations-medium-traffic

"Two low density" Multiple mode of operations: http://www.sesarju.eu/sesar-solutions/high-performing-airport-operations/remote-tower-two-low-density-aerodromes

"Contingency" operations: http://www.sesarju.eu/sesar-solutions/high-performing-airport-operations/remotely-provided-air-traffic-service-contingency

[ii] https://www.canso.org/sweden-first-world-remotely-operated-air-traffic-management

[iii] Large Scale Demonstration report (additional to the ones published under "Single medium" above)
Budapest LSD: http://www.sesarju.eu/newsroom/brochures-publications/budapest-20

[iv] http://www.sesarju.eu/newsroom/all-news/italian-partners-demonstrate-benefits-remote-tower-technology

http://www.sesarju.eu/newsroom/brochures-publications/lsd0203-racoon

http://www.sesarju.eu/sites/default/files/documents/events/demowkshp/Demo_project_workshop_presentations_-_Session_2.pdf?issuusl=ignore

[v] https://www.iaa.ie/news/2017/02/02/iaa-confirms-remote-towers-trial-a-success

[vi] EASA
EASA Guidance Material on the implementation of the remote tower concept for single mode of operation: https://www.easa.europa.eu/document-library/agency-decisions/ed-decision-2015014r

Requirements on Air Traffic Controller licensing regarding remote tower operations: https://www.easa.europa.eu/document-library/agency-decisions/ed-decision-2015015r

EUROCAE ED-240 (MASPS for Remote Tower Optical Systems)