



WORKING PAPER

ASSEMBLY — 41ST SESSION

TECHNICAL COMMISSION

Agenda Item 30: Aviation Safety and Air Navigation Policy

30.3 Relevant Outcomes of the High-level Conference on COVID-19, Safety Stream (HLCC 2021)

USING INNOVATION AND TECHNOLOGY TO ENHANCE TRAINING AND IMPROVE CURRENT PROCESSES AND PROCEDURE (INCLUDING, LICENSING, CERTIFICATION, AUTHORIZATION AND APPROVALS)

(Presented by the African Civil Aviation Commission (AFCAC) on behalf of 54 Member States²)

EXECUTIVE SUMMARY

This paper presents the need for States to consider means of enhancing and improving training on existing procedures and processes taking into account the positive rapid changes in technology. The recent disruptions arising from the pandemic highlighted two challenges. The first is that during such disruption, prolonged absence from training can affect the capacity level required for regulatory entities to conduct their duties. The second challenge during the restart and recovery phase is to find a sustainable economic means to continue with regulatory duties both internally and externally, including licensing, certification, authorization and approvals. Disruptive phases leave organizations and individuals stagnated either in an on-going process or unable to apply for the aforementioned activities. The current model for such activities is predicated on physical meetings, exchange of physical documents and in most cases traveling. Given the high availability of technology and innovation, some of these methods will need to be revised to adapt to social and environmental changes. Using innovation and technology based on the computer-based training (CBT) and other virtual platforms concept and expansion of table/desk-top to address the challenges and expressed concerns by organizations and individuals on improving how we manage continuous training and licensing, certification, authorization and approvals of organizations and individuals.

¹ English and French versions provided by AFCAC.

² Algeria, Angola, Benin, Botswana, Burkina Faso, Burundi, Cabo Verde, Cameroon, Central African Republic, Chad, Comoros, Congo, Côte d'Ivoire, Democratic Republic of the Congo, Djibouti, Egypt, Eritrea, Equatorial Guinea, Eritrea, Eswatini, Ethiopia, Gabon, Gambia, Ghana, Guinea, Guinea-Bissau, Kenya, Lesotho, Liberia, Libya, Madagascar, Malawi, Mali, Mauritania, Mauritius, Morocco, Mozambique, Namibia, Niger, Nigeria, Rwanda, Sao Tome and Principe, Senegal, Seychelles, Sierra Leone, Somalia, South Africa, South Sudan, Sudan, Togo, Tunisia, Uganda, United Republic of Tanzania, Zambia and Zimbabwe.

<p>Action: The Assembly is invited to:</p> <p>a) to request ICAO to develop procedures and processes for the conduct of virtual table-top exercises for licensing, certification, authorization and approvals; and</p> <p>b) request ICAO to include in the work programme of the Personnel Licensing Panel to review pertinent documents including Doc 9379, <i>Manual of Procedures for Establishment and Management of a State’s Personnel Licensing System</i> and Doc 8335, <i>Manual of Procedures for Operations Inspection, Certification and Continued Surveillance</i>.</p>	
<p><i>Strategic Objectives:</i></p>	<p>Safety, Air Navigation Capacity and Efficiency</p>
<p><i>Financial implications:</i></p>	<p>Cost benefit analysis by each State</p>
<p><i>References:</i></p>	<p>Assembly Resolution A40-25: <i>Implementing Aviation Training and Capacity-Building Strategies</i> Assembly Resolution A40-27: <i>Innovation in aviation</i> Doc 8335, <i>Manual of Procedures for Operations Inspection, Certification and Continued Surveillance</i> Doc 9379, <i>Manual of Procedures for Establishment and Management of a State’s Personnel Licensing System</i> Doc 9859, <i>Safety Management Manual</i> Doc 9868, <i>Procedures for Air Navigation Services – Training</i> Doc 10160, <i>HLCC 2021: High-Level Conference on COVID-19 Report</i></p>

1. INTRODUCTION

1.1 The pandemic has shown gaps in our aviation system, which was most evident when it came to maintenance and continuation of training of airmen, aviation personnel and conduct of activities related to training organizations. States were faced with a unique situation in which they were drastically limited in their options in a world which limitation is not part of the equation. Training and oversight activities are based on specific frequencies, in which ICAO through research and publication have determined to be times when a set of skills and activities related to those skills need to be reinforced. These ‘reinforcement’ techniques relied heavily in using devices and attending training organizations sometimes outside of the home State.

1.2 The pandemic and its associated effects have drastically changed currency time-lines, thus making aviation personnel unable to be rostered for duties. This caused a domino effect- lack of available current staff, leading to a reduction in safe operations, and in some cases a halt, which leads to reduction in revenue, eventually the dissolving of a task.

1.3 In addition to organizational environmental impacts, an individual’s mental abilities, cognitive complexities, and physical abilities diminish the more time they spend away from performing those skills.

1.4 Another causality tied to training is maintaining or initiating the activities as recognised in ICAO Critical Element- 6 (CE-6) Licensing, Certification, Authorization and Approvals. Traditionally, the system requires a series of in-person meetings, exchange of documentation, on-site inspections and travel. Disruptions can delay the processing time or all activities during a certification process due to stringent protocols established by a State.

1.5 The survivability of some States is dependent on the continuous operation of aviation organizations. The inability to maintain certification and approvals will mean a reduction in the ability for the organization to function and will be liable to findings by the regulator. This is an unwanted position for both the operator and the regulator and can increase anxiety in an already dire situation.

1.6 The only way forward is to slow down the deteriorating situation disruptions by using alternative means of conformance and compliance. Some of which are already being used by many States and which can be used on a long-term basis.

2. DISCUSSION

2.1 The issue of training can be addressed in five (5) stages taking advantage of already implemented methodology of CBT format:

- a) **Stage 1: Conduct a Gap Analysis:** A proven tool, this can be used to determine which areas, including human capacity, are critically lacking for training. ICAO Doc 9859, *Safety Management Manual* (SMM), Part I - Chapter 2; 1.4.4 and supporting references will allow for self-audit against a set of best practices. After completing the gap analysis, the safety management system (SMS) team and the training department will prepare an SMS implementation plan that addresses the weaknesses;
- b) **Stage 2: Review Instructor/Trainer qualification:** Most aviation organizations have qualified trainers and instructors. Based on the outcome of the Gap Analysis, the appropriate instructor/trainer can be assigned to do the training;
- c) **Stage 3: Initially focus on in-house reviews:** With the attitude of complacency, “a general relaxation of vigilance results and important signals [are] missed, with the individual only seeing what he, or she, expects to see.” Based on this theory, training should initially focus on laws & regulations, technical guidance material such as checklists and all tools that personnel need to implement their job functions. This will reduce over confidence and self-reliance;
- d) **Stage 4: IT interaction and virtual development:** This is the critical part of the stages and implementation will be dependent on the technological capacity of each organization. With numerous meeting platforms, delivery has options that can be tailored to an organization. The other option is for the organization to develop its own teaching delivery method that will be reliable and controlled by the organization. The latter is preferable as it is more cost effective; and
- e) **Stage 5: Measurement and evaluation of results:** The work of States does not end with the application of training. This step is essential to keep the entire strategy working properly and bringing the desired results to the State. It is essential to develop control mechanisms to verify the performance of employees in activities, seeing if they are achieving the expected effects, what needs to be improved and what is working. This helps the state to constantly improve training and justify – especially with data – the investments made in the strategy.

2.2 To address the issue of CE-6 licensing, certification, authorization and approvals can be done using table/desk top methodology also known as operational-based exercises. These exercises include drills, functional exercises (FE), and full-scale exercises (FSEs). [They] can be used to validate plans, policies, agreements, and procedures; clarify roles and responsibilities; and identify resource gaps. Operations-based exercises are characterized by actual reaction to an exercise scenario, such as initiating communications or mobilizing personnel and resources.

2.3 Regulatory agencies can adopt this practice incorporating live video feeds. The regulator and the operator can set up meeting in different locations with the certification teams based on a defined schedule of events (SOE). A camera is set up and meeting is conducted as normal through the aid of the camera. Items that require inspection such as class room and class room equipment, and demonstration of aircraft cabin emergency equipment and procedures can be done live with the proper set-up and agreement from both sides.

2.4 This is also applicable for some licensing activities related to skill. For example, airmen oral testing, maintenance engineer's demonstration of troubleshooting, and/or repair or alteration using electrical circuit diagram, inspection of an aircraft system or component(s) using drawings/blueprints and/or system schematic. It can be adaptable to the environment.

2.5 Virtual training is a common practice and adaptability by the regulator should be a seamless process in which IT will become a central plant. The same can be said about the use of Desk/Table top audits. To add the live video feed being practiced during audits by some States as a mitigation for the continuation of activities.

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