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WORKING PAPER

ASSEMBLY — 41ST SESSION

EXECUTIVE COMMITTEE

Agenda Item 26: ICAO Civil Aviation Training and Capacity Building

PROPOSAL FOR THE QUALIFICATION OF VIRTUAL REALITY DEVICES FOR THE EDUCATION AND TRAINING OF THE NEW GENERATION OF AVIATION PROFESSIONALS

(Presented by Venezuela (Bolivarian Republic of) and supported by Panama and the Dominican Republic²)

EXECUTIVE SUMMARY

At present, the aviation industry is undergoing changes with the incorporation of new technological tools to improve its processes, including in the training sector, which was affected by the pandemic and changes in the global economy. The changes have led to the adoption of virtual learning which makes continuous capacity-building possible. The use of virtual reality represents an opportunity to improve the quality of existing learning resources, providing online scenarios that allow classes to be given at redefined distances and offering total immersion, thus improving the learning experience.

Action: The Assembly is invited to:

- take note of the information described in this working paper;
- encourage the development of documentation to enable States to establish standards, including certification and methods to be used for virtual reality devices applicable to the education and capacity-building process; and
- States and industry to support ICAO in the development of Standards and Recommended Practices related to the implementation of virtual reality devices in education and capacity-building processes.

<i>Strategic Objectives:</i>	This working paper relates to all Strategic Objectives of ICAO
<i>Financial implications:</i>	N/A
<i>References:</i>	- Annex 1 – <i>Personnel Licensing</i> - Doc 9868, <i>Procedures for Air Navigation Services – Training</i> - Doc 9941, <i>Training Development Guide: Competency-based Training Methodology</i> - Doc 9625, <i>Manual of Criteria for the Qualification of Flight Simulation Training Devices, Volume 1 – Aeroplanes</i>

¹ Spanish version provided by Venezuela (Bolivarian Republic of).

² Member States of the Latin American Civil Aviation Commission (LACAC).

1. INTRODUCTION

1.1 Current operational training imparts knowledge to trainees through instructors, presentations and incidental demonstrations. Traditional methods of instruction lack certain elements that promote knowledge retention. Conventional training is also typically unidirectional and lacks the interactivity that practical, on-the-job training provides.

1.2 Tools and devices are now available that provide knowledge stimulation through the virtual interaction of a workstation, ensuring the development of the required knowledge, skills and aptitudes in a practical and bidirectional way.

2. DEVELOPMENT

2.1 In recent years, including during the pandemic, ICAO has promoted the improvement of Global Aviation Training (GAT) and has strengthened the development of the TRAINAIR PLUS competency-based training programme preparation methodology. As a result, aviation training has followed the path of virtualization and today we have access to face-to-face, virtual and online courses in the TRAINAIR PLUS Electronic Management System (TPeMS).

2.2 Virtual Reality (VR) is an environment of lifelike scenes and objects generated by computer technology, which creates in the user the sensation of being immersed. This environment is viewed through devices known as Virtual Reality (VR) glasses or viewers.

2.3 VR is now a medium used in a variety of scenarios and kinds of instruction (Engineering, Medicine and also Aviation) with highly positive results but still without proper regulation for its reliability in quality instruction.

2.4 The Aviation Training and Education Directory (ATED) has in its catalogue an online course on Digital Transformation in Aviation (DTA EN) which analyses the technological innovations to be considered with the use of technologies and tools. VR could have an impact on the organization at all levels and the efficient use of such technologies could provide a significant improvement in safety.

2.5 The benefits of implementing VR in training are:

- a) Reduction in long-term costs for the implementation of high-quality instructional strategies based on branching methods;
- b) Elimination of travel and logistics for transporting instructors and staff to specific training areas;
- c) Increases creativity and innovation;
- d) Allows the user to be in situations outside a given physical space;
- e) Allows the user 360° immersion without distraction; and
- f) Rapid extraction of data from training activities that help to identify weaknesses or areas of improvement in regard to the trainee, separate from the workplace.

3. CONCLUSION

3.1 It is recommended that supporting documentation be established for States on the implementation and operationalization of virtual reality training, thus fostering innovation and creativity in the TRAINAIR PLUS programme with a clear reference framework.

3.2 The use of virtual reality devices in aviation training will allow a number of benefits in terms of learning and the development of teaching resources, using entertaining techniques for the acquisition of competences.

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