IV. Conclusion

CDO is applicable to a range of airspaces and is endorsed by Eurocontrol and the Federal Aviation Administration (FAA) due to the benefits in efficiency and cost savings in fuel, emissions, workload, and noise [16]. However, in order to optimize CDO for operators, ANSPs require a CDO performance measure that identifies whether a CDO was performed in a predictable and efficient manner, like that of which is provided by aircraft automation. Generally, FMS downlinked trajectory data is not available to ANSPs to determine whether an aircraft descended in such a manner. Therefore, the methodology adopted in this study specifically utilises data accessible to ANSPs, in the absence of FMS downlinked trajectory data, and can be easily adapted by any ANSPs that aim to evaluate and optimise CDOs in their airspace.

An application of a managed descent performance measure showed how ANSPs can evaluate and optimize for CDOs according to the operator's preferences, as opposed to conventional CDO measures. The benefits of the managed descent measure were described in a case study of Australian airports before and after the onset of the COVID-19 pandemic. This provided insight on CDO performance in both low and high traffic scenarios. The study found that even during low traffic demand, the managed descent measure shows a larger optimization margin (60%) as opposed to using the conventional CDO measure (30%). The benefit of this measure is further demonstrated when considering an airport-by-airport basis, where the differences in the operational context can provide further information on where ANSPs can concentrate efforts to optimize CDO for aircraft operators. Through CDO implementation guidelines [11] and development in measuring CDO performance, such as managed descents, ANSPs can optimize services in current and future scenarios to maximize the benefits of CDO to the aviation industry.

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