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Reliance on Foreign Flight Simulators and the Oversight of Flight Crew Training in a Small Aviation State: Evidence from the Kyrgyz Republic

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Abstract

Small aviation States often lack national full flight simulators and therefore depend on foreign training centres for type rating and recurrent training of flight crews. This dependence creates a governance problem: the State of the Operator remains responsible for the quality of training, while the training itself takes place outside its territory and under the oversight of other authorities. This article examines this problem using the Kyrgyz Republic as a case study. Following a full reassessment of air operators, the number of valid air operator certificates in the country fell from 21 to eight, and in June 2026 all Kyrgyz-certified carriers were removed from the EU Air Safety List; however, the European assessment noted that recurrent training was not yet sufficiently consistent. The study combines a document analysis of International Civil Aviation Organization (ICAO) provisions, European Union Aviation Safety Agency (EASA) and United States rules and national regulations, a case analysis of recognised foreign simulators, and a structured risk assessment of oversight of training conducted abroad. The results show that national rules provide a mechanism for recognising foreign simulator qualification certificates and a compliance checklist for flight simulation training devices, but they do not differentiate recognition according to the issuing authority, do not define oversight tools for training sessions held abroad and do not link recognition to the specific tasks of approved training programmes. A risk-based recognition framework with three tiers, a set of oversight instruments (document review, observed sessions, remote audits, data exchange and bilateral arrangements) and a phased plan for national training capacity are proposed. The findings suggest that a small State can maintain effective oversight of training conducted abroad if recognition is treated as a continuing regulatory relationship rather than a one-time administrative ac.

Keywords: Aviation safety oversight, Flight crew training, Flight simulation training devices, Kyrgyz Republic, Regulatory recognition.

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1. Introduction

Simulator training is the core of modern flight crew training. Type ratings, operator proficiency checks, licence proficiency checks and upset prevention and recovery training are largely conducted in full flight simulators (FFS) qualified according to ICAO Doc 9625 or equivalent national standards (ICAO, 2015). A full flight simulator is a capital-intensive asset, and its operation is economically justified only when a sufficient number of crews are trained on the same aircraft type. Small aviation States with heterogeneous fleets and few crews per type rarely reach this threshold and therefore rely on foreign training centres.

The Convention on International Civil Aviation places responsibility for licensing and for the oversight of operators on the State of Registry and the State of the Operator (ICAO, 2006). Under Annex 6, the operator must establish and maintain a training programme approved by the State of the Operator, and simulator training forms part of that programme (ICAO, 2022b). When the simulator is located abroad, the regulator responsible for the operator does not supervise the device or the training centre directly. This creates a gap between legal responsibility and practical control.

The Kyrgyz Republic illustrates this problem well. Air passenger traffic at national airports reached 5.8 million in 2024 (Economist.kg, 2025). Between December 2025 and February 2026 all certified air carriers underwent a full reassessment, and the number of valid air operator certificates fell from 21 to eight (The Times of Central Asia, 2026). In June 2026 the European Commission removed all carriers certified in the Kyrgyz Republic from the EU Air Safety List in recognition of progress in safety oversight (European Commission, 2026). At the same time, according to published reports, the European assessment found that recurrent training and document control were not yet consistent enough (The Times of Central Asia, 2026). Because recurrent simulator training of Kyrgyz crews is conducted largely abroad, the quality of its oversight directly affects the sustainability of these achievements. Earlier research has also linked the shortage of simulator training to reduced flight crew motivation and weaker safety culture (Salmorbekova & Erasyl, 2025).

The aim of this article is to analyse how a small aviation State can ensure effective oversight of flight crew training conducted on foreign simulators. The research questions are: (1) what international and national provisions govern the recognition of foreign simulators; (2) what oversight risks arise from training abroad; and (3) what regulatory instruments can reduce these risks.

2. Regulatory Background

ICAO Doc 9625 provides internationally harmonised criteria for the qualification of flight simulation training devices (FSTDs) and recommends that States accept qualifications performed by other States on the basis of these common criteria in order to avoid duplicate evaluations (ICAO, 2015). Doc 9379 describes the functions of a licensing authority, including the approval of training programmes and training devices and the oversight of training organisations (ICAO, 2012a). Doc 9841 sets out requirements for the approval of training organisations, including their quality systems (ICAO, 2012b). The Safety Management Manual treats training as a risk control and requires changes in the training system to be subjected to hazard identification and risk assessment (ICAO, 2018).

In the European Union, requirements for FSTDs, their operators and competent authorities are contained in Commission Regulation (EU) No 1178/2011 (European Commission, 2011). Under EU law, EASA acts as the competent authority for the qualification of FSTDs located outside the territory of the Member States, which allows European operators to use qualified devices worldwide under a single standard. In 2026 the European framework was modernised by Regulation (EU) 2026/781 and CS-FSTD Issue 1, which introduced capability-based qualification through the FSTD Capability Signature and an optional task-to-tool methodology (EASA, 2026). In the United States, FSTDs are qualified under 14 CFR Part 60, and the qualification statement specifies the qualification level and the period of validity (Federal Aviation Administration, n.d.-a).

For the Kyrgyz Republic, ICAO Standards are binding through Articles 37 and 38 of the Chicago Convention, while EU and United States rules are not legally binding and serve as reference systems for recognition and harmonisation.

3. Materials and Methods

The study used three methods. First, a document analysis covered ICAO Docs 9379, 9625, 9841 and 9859, Annexes 1 and 6, Commission Regulation (EU) No 1178/2011, EASA publications on the 2026 FSTD framework, the Air Code of the Kyrgyz Republic (2015), Aviation Rules APKR-1 and APKR-6 Part I, the Flight Crew Training Instruction SCAA-OPS-GM-07 and the Instruction on the Certification of Aviation Training Organisations SCAA-PEL-WI-04. Only officially adopted documents were used.

Second, a case analysis examined publicly documented examples of foreign simulators used for training of Kyrgyz flight crews, including a national order recognising a foreign simulator and a foreign simulator qualification statement. No personal data of flight crew members were used.

Third, a structured risk assessment identified hazards associated with oversight of training abroad. Likelihood was assessed on a five-point scale (1 = extremely improbable, 5 = frequent) and severity on a five-level scale (A = catastrophic, E = negligible), following the risk matrix of the ICAO Safety Management Manual (ICAO, 2018). The assessment reflects expert judgement based on regulatory requirements and oversight practice and should be treated as indicative.

4. Results

4.1 National Regulatory Framework

The Air Code of the Kyrgyz Republic establishes that civil aviation activities are regulated by the aviation rules of the Kyrgyz Republic (Kyrgyz Republic, 2015). On the basis of the delegation of rule-making powers by Cabinet of Ministers Resolution No. 115 of 3 March 2023, the State Civil Aviation Agency (SCAA) adopted new APKR-6 Part I in September 2025, which uses the concepts of FFS and FSTD. The Flight Crew Training Instruction SCAA-OPS-GM-07, approved by Order No. 03-431 of 3 October 2025, defines FSTDs and simulator training and requires operators to provide conversion training for all flight crew members (SCAA, 2025).

Recognition of foreign simulators is carried out by orders of the SCAA on the basis of qualification certificates issued by foreign competent authorities. For example, the qualification certificate of a De Havilland DHC-8-400 simulator operated by a training centre in Hyderabad, India, has been recognised by the Kyrgyz Republic.

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The SCAA-PEL-WI-04 compliance checklist for FSTDs verifies the adequacy of the device for the approved course, the possibility of crediting training on the device, documented procedures confirming that the device represents the aircraft, and procedures concerning the instructor operating station (SCAA, 2026).

4.2 Patterns of Foreign Simulator Use

The case analysis identified several patterns (Table 1). Kyrgyz operators use simulators located in different countries and qualified under different regulatory systems, including those of the FAA and the European Union. The validity of a foreign qualification is limited in time; for example, an FAA statement of qualification for a Boeing 747-200 Level C simulator used for training is valid until 31 May 2027 and remains subject to the conditions of the latest FAA evaluation (Federal Aviation Administration, n.d.-b). The recognition order, however, is a one-time act and does not in itself provide for monitoring of later changes in the device's qualification status.

Table 1. Examples of foreign simulator use and the corresponding oversight issues

Aircraft type	Location and qualifying authority	Basis in national practice	Oversight issue
DHC-8-400	Hyderabad, India; foreign qualification certificate	Recognised by the Kyrgyz Republic	No requirement to report later changes in qualification status
Boeing 747	United States; FAA, Level C, valid to 31.05.2027	Foreign statement of qualification	Validity and conditions depend on FAA evaluations outside SCAA control
Boeing 737	Latvia; EU framework (Part-FCL)	Programme of an EU training organisation	Programme approved abroad must match the operator's approved programme

4.3 Gaps in the Oversight Framework

Comparison of the national framework with ICAO guidance and European practice revealed four gaps. First, recognition is not differentiated according to the issuing authority: a certificate issued under EASA or FAA rules, whose standards are close to Doc 9625, is treated in the same way as a certificate issued under a national standard whose equivalence has not been established. Second, there is no defined set of oversight tools for training sessions held abroad, such as observation by an SCAA inspector, review of training records or remote audits. Third, recognition is not linked to the specific tasks of the operator's approved training programme; the checklist checks the adequacy of the device for the course but not systematically against each training task, which the 2026 EASA task-to-tool methodology makes explicit. Fourth, there is no obligation for the operator or the foreign training centre to notify the SCAA of changes in qualification, deficiencies identified by the foreign authority or changes in the device configuration.

4.4 Risk Assessment

Table 2 presents the main hazards associated with training abroad. None of the risks is in the intolerable region, but four fall in the region requiring mitigation.

Table 2. Risk assessment of oversight of flight crew training on foreign simulators

Hazard	Likeli-hood	Severity	Risk index	Mitigation
Device used after expiry or downgrading of its foreign qualification	3	C	3C	Notification obligation; verification before each training cycle
Device configuration differs from the operator's aircraft	3	C	3C	Differences list; task-based acceptance; differences training
Programme delivered abroad deviates from the approved programme	3	C	3C	Programme alignment check; review of training records; observed sessions
Inconsistent quality of recurrent training between centres	3	D	3D	Standardised reporting; evidence-based indicators of check results
Equivalence of a foreign national standard to Doc 9625 not established	2	C	2C	Tiered recognition; additional evaluation for non-equivalent standards

4.5 Proposed Risk-Based Recognition Framework

On the basis of these findings, a three-tier recognition framework is proposed. Tier 1 covers devices qualified by authorities applying standards equivalent to Doc 9625 and having a robust oversight system (for example, EASA and the FAA); recognition is granted on the basis of documentary review, with periodic verification. Tier 2 covers devices qualified by other ICAO Contracting States whose standards are based on Doc 9625; recognition requires, in addition, a review of the latest evaluation report and an on-site or remote assessment against the SCAA-PEL-WI-04 checklist. Tier 3 covers devices whose qualification basis is not equivalent; recognition requires a full evaluation by the SCAA or is refused.

The framework is supported by five oversight instruments: (1) an obligation of the operator to notify the SCAA of any change in the qualification status, configuration or deficiencies of the device; (2) task-based acceptance, in which each task of the approved programme is matched to the capabilities of the device; (3) review

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of training and checking records after each training cycle; (4) observed sessions and remote audits on a risk basis; and (5) arrangements for data exchange with the foreign authority, preferably through bilateral agreements or memoranda of understanding. In the medium term, the dependence on foreign devices can be reduced by developing national capacity: a shared training centre at the national aviation institute with a flight and navigation procedures trainer and low-cost procedure training devices, which would allow crews to arrive at foreign simulators better prepared and reduce repeated sessions.

5. Discussion

The findings show that the main weakness of the current system is not the absence of rules but the treatment of recognition as a one-time administrative act. In a dynamic environment, where the qualification of a foreign device can be downgraded, its configuration changed or the training programme modified, a one-time act cannot guarantee that training continues to meet the approved standard. Treating recognition as a continuing regulatory relationship, supported by notification obligations and risk-based oversight, aligns the national practice with the logic of safety management systems and with ICAO guidance on avoiding duplicate evaluations while maintaining State responsibility (ICAO, 2015; ICAO, 2018).

The proposed tiered approach also respects the limited resources of a small authority. Concentrating oversight effort on devices whose qualification basis is less certain is more efficient than applying the same procedure to all devices. Data exchange with foreign authorities and evidence-based indicators, such as first-attempt pass rates in proficiency checks, can provide information at low cost.

The issue has a human dimension. Frequent travel to foreign centres, limited availability of simulator slots and the absence of opportunities for additional practice affect flight crew workload and motivation (Salmorbekova & Erasyl, 2025). Strengthening national training capacity therefore contributes not only to compliance but also to safety culture.

The study has limitations. It is based on publicly available documents and a limited number of cases, and the risk assessment reflects expert judgement. Future research could quantify the costs of foreign training and analyse check results by training centre.

6. Conclusion

The State of the Operator remains responsible for flight crew training even when it is conducted abroad. In the Kyrgyz Republic the existing mechanism of recognising foreign simulators by order and the FSTD compliance checklist provide a basis for oversight, but recognition is not differentiated by issuing authority, is not linked to training tasks and is not supported by notification and oversight instruments. A three-tier risk-based recognition framework, five oversight instruments and the development of a shared national training centre are proposed. For small aviation States, effective oversight of training abroad depends on treating recognition as a continuing regulatory relationship.

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