



SMS RPBO WORKSHOP GAUTENG

From Insight to Action: Advancing Aviation
Safety with SMS & RBO



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SAFETY CULTURE VALUES



**RISK PERFORMANCE
BASED OVERSIGHT**

Overview of Risk Based Oversight

Understanding Risk-Based Oversight

Risk-Based Oversight (RBO) is an approach adopted by the **SACAA**,

- Focusing on evaluating an organisations management of the risks associated with aviation operations.
- Its main goal is to ensure that safety measures align with an organisation's specific risk profile, thus enhancing overall safety in aviation.
- By concentrating on high-risk organisations, regulators can allocate resources more efficiently and effectively.

This results in a proactive safety culture, ultimately leading to safer skies for all.



Most Important to Remember

RISK-BASED OVERSIGHT (RBO):

Does not issue findings, is focused on just culture, does not affect the certification process it focuses on:

A way of performing oversight, where:

- planning is driven by the combination of risk profile and **safety/ security performance**; and
- execution focuses on the management of risk, in addition to ensuring compliance.



SMS & RPBO Link

What SMS provides

SAFETY MANAGEMENT SYSTEM (SMS)

Safety Performance
Indicators (SPIs)

Hazard Reports and
Risk Assessments

Audit and Investigation
Outcomes

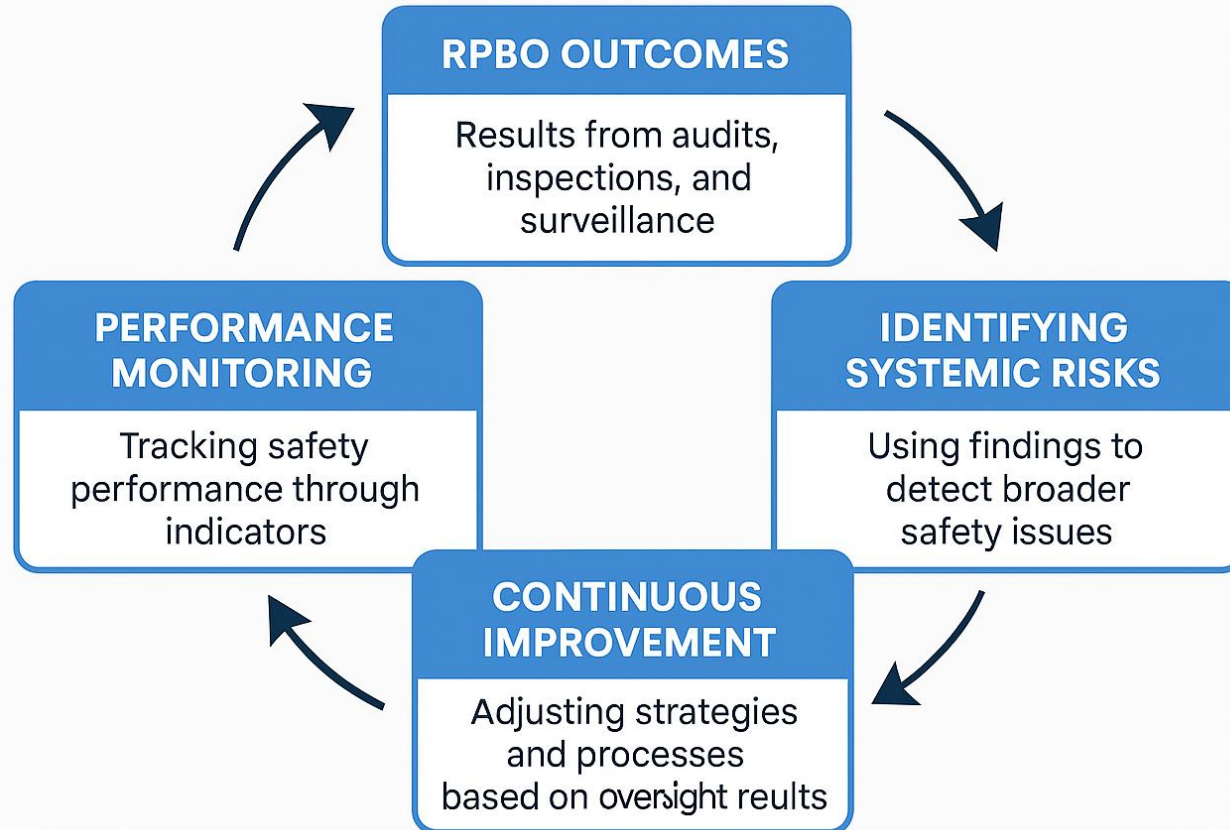
Corrective and Preventive
Actions (CAPAs)

Safety Culture Indicators

**AUTHORITY RISK
& PERFORMANCE-BA-
SED OVERSIGHT
(RPBO)**



HOW RPBO OUTCOMES FEED INTO SMS



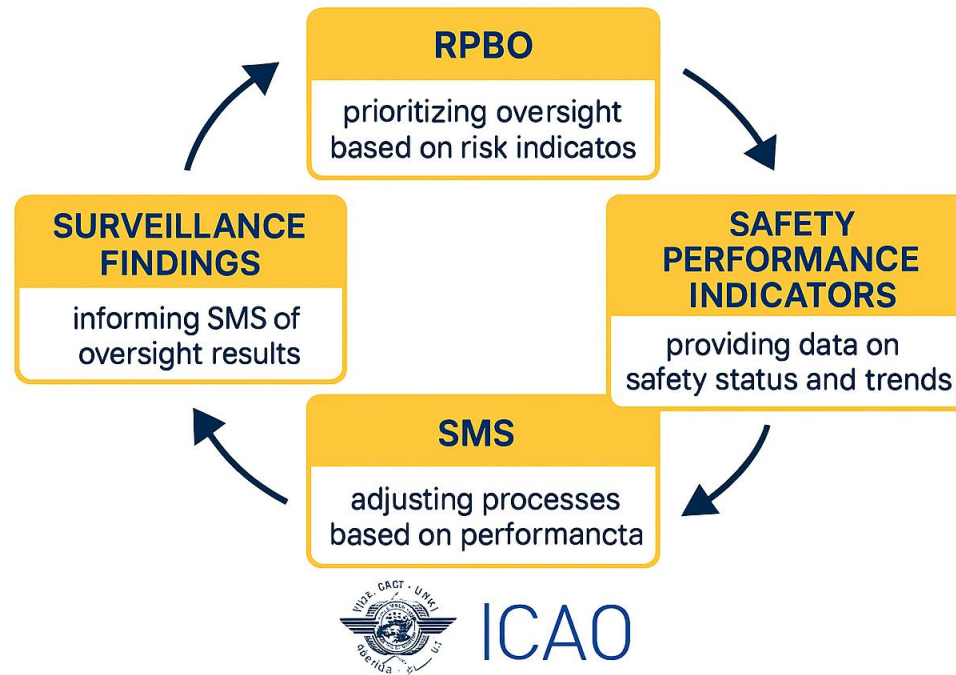


International Examples

Successful SMS & RPBO integration

RPBO-SMS INTERACTION IN CAAT

CIVIL AVIATION AUTHORITY OF THAILAND



Successful SMS & RPBO integration

1. Shared Data-Driven Approach

- CAAT moved from a compliance-based model to a **performance-informed, risk-based oversight** approach.
- RPBO relied on **risk profiling and performance indicators**, which were drawn from SMS data (hazard reports, safety performance metrics, and trend analysis).
- This integration allowed oversight planning to be **targeted and proportionate**, focusing on high-risk areas rather than applying uniform checks.

2. Feedback Loop Between RPBO and SMS

- RPBO findings (from audits and surveillance of training organizations and examiners) fed back into SMS processes by:
 - Updating hazard registers and risk assessments.
 - Informing corrective actions and continuous improvement plans.
- Conversely, SMS outputs (risk assessments and safety performance indicators) guided RPBO in prioritizing oversight activities

Successful SMS & RPBO integration

1. Digital Integration

- CAAT adopted tools like **EMPIC** for licensing and surveillance, enabling real-time data sharing between RPBO and SMS.
- This digital link ensured that safety performance data was immediately available for risk-based decision-making.

2. Inspectorate Competency

- SMS principles were embedded in inspector training, so inspectors could interpret safety performance data and apply it in RPBO planning.
- This competency shift was critical for successful implementation because RPBO depends on understanding organizational safety culture and performance—not just compliance.

Challenges Faced

- - Inconsistent application of risk criteria
- - Limited automation in planning
- - Gaps in inspector training and data interpretation





RESOLVING RPBO CHALLENGES



INCONSISTENT APPLICATION OF RISK CRITERIA

- Standardized risk framework and scoring tools
- Cross-functional calibration workshops

LIMITED AUTOMATION IN PLANNING

- Digital oversight platform for risk-based scheduling
- Dashboards for trend analysis and planning

GAPS IN INSPECTOR TRAINING AND DATA INTERPRETATION

- Competency-based training on risk-based oversight
- Mentorship and continuous learning programs



ICAO



Lessons Learned

- - Digital tools are critical for scalable RBO
- - Inspector training must evolve
- - International collaboration accelerates standardization



Unsuccessful SMS & RPBO integration



What went wrong



FAA used a **performance-based oversight model**, which emphasizes:

- Delegation of certification tasks to manufacturers (Organization Designation Authorization – ODA).

- Reliance on historical performance and compliance records.

Boeing was considered a **low-risk, high-performance organization**, leading to:

- Reduced direct FAA involvement in detailed design reviews.

- Greater autonomy for Boeing engineers in certifying critical systems like MCAS.



What went wrong

Impact on the 737 MAX Incidents

1. Underestimation of Emerging Risks SMS Link Failure

- RPBO relied heavily on Boeing's past compliance record.
- New system complexity (MCAS) was not flagged as high-risk early enough.

2. Delegation Without Adequate Oversight RPBO Failure

- FAA delegated much of the certification work to Boeing under ODA.
- Critical safety assessments were not independently verified.

3. Insufficient Data-Driven Risk Reassessment SMS RPBO Link Failure

- RPBO lacked mechanisms to dynamically adjust oversight when new hazards emerged.
- FAA did not fully integrate operational feedback into risk profiles before certification.



Resolving the Challenges



FAA revised RPBO practices to:

- Increase **direct involvement in certifying safety-critical systems.**
- Require **independent validation of manufacturer risk assessments.**
- Strengthen **data-driven oversight** and reduce reliance on historical performance alone.



Resolving the Challenges

Restructuring for Safety

Boeing restructured safety and engineering teams to improve independence and accountability at top levels.

Promoting Safety Culture

Boeing encouraged open reporting of safety concerns without fear, fostering a strong safety culture.

Enhanced FAA Oversight

FAA improved inspector training and reinforced oversight personnel's independence to ensure rigorous safety checks.

Embedding Safety Values

Organizational values now deeply integrate safety, supporting continuous improvement and reducing oversights.





THANK YOU



SAFETY CULTURE VALUES



RISK PERFORMANCE
BASED OVERSIGHT