

23rd COSCAP SOUTHEAST ASIA STEERING COMMITTEE MEETING (SCM/23)

(22-23 April 2026, Bali, Indonesia)

Discussion Paper 05 (DP/05)

Agenda Item 3: Updates from Member States

(Presented by Thailand)

SUMMARY

This paper presents reflections on the continued sharing and responsible use of safety data and safety information to enhance safety intelligence and support effective safety oversight.

The paper recognizes that occurrence reporting systems remain the primary source of safety information for safety management and regulatory actions. At the same time, data analysis experience indicates that additional independent and system-wide data sources, including those enabled by automation and advanced technologies, can expand visibility into certain safety domains, such as air navigation interference, geographic patterns, and environmental hazards that are not always observable through reported occurrences alone.

The paper does not promote any specific technology or commercial arrangement. It aims to encourage collective reflection among COSCAP-SEA States on how the exploration and use of additional safety data sources can contribute to improved safety outcomes, while maintaining appropriate governance and Just Culture principles.

1 INTRODUCTION

- 1.1 Effective safety management and oversight require a comprehensive understanding of the operating environment, recognizing that not all safety-critical conditions result in discrete and reportable events.
- 1.2 Occurrence reporting systems provide essential insight into operational experience and human-system interaction and remain the primary foundation of safety management and regulatory analysis.
- 1.3 However, certain safety phenomena such as air navigation performance degradation or complex conflict geometry in congested airspace, may be intermittent or geographically distributed. Such conditions are not always immediately perceived as reportable occurrences by frontline personnel.



- 1.4 Consequently, States are exploring the use of supplemental data sources to provide earlier safety signals or warnings and to support more proactive safety management and Risk-Based Oversight (RBO).
- 1.5 The State acknowledges the support of data providers that have made independent data available to States for exploratory and learning purposes. In particular, trial access to near-real-time safety information has enabled experience in system-level visibility and has informed the reflections presented in this paper.

2 Discussion

- 2.1 Practical application confirms that independent data sources can provide a broader perspective than traditional occurrence reporting alone. By enabling FIR-wide visibility in near real time, these sources support the State to identify risk areas and allocate regulatory resources with greater precision.
- 2.2 Independent data sources may also provide additional operational parameters (e.g. altitude, position, waypoint information, and time-based profiles) that are not always captured in occurrence reports, thereby enhancing the contextual understanding of operating conditions.
- 2.3 Observations from trial use indicate variations between the volume of system-detected events and the number of official reports received, suggesting that automated data can expand visibility in areas where human perception or reporting triggers may be limited.
- 2.4 The use of anonymized and aggregated data enables "cohort benchmarking" among States with similar traffic profiles. Such comparative analysis supports:
 - a) The identification of regional trends and differences between detected safety signals and reported occurrences across safety domains;
 - b) The differentiation between localized and systemic safety issues; and
 - c) A shared understanding of exposure patterns without revealing individual operator performance.
- 2.5 Independent data sources have also demonstrated potential value in specific safety domains, including:
 - a) Navigation interference awareness: differentiation of potential jamming or spoofing environments through position integrity and consistency indicators;
 - b) Predictive conflict patterns: identification of airspace locations with recurrent conflict geometry, supporting the review of airspace design or ATC procedures; and
 - c) Environmental hazard awareness: identification of turbulence hotspots, supporting strategic awareness of passenger and crew injury risk.
- 2.6 At the same time, data analysis experience confirms that authoritative safety management relies on validated, contextual, and traceable reports. Independent data sources are therefore most suitable for awareness, learning, and preventive dialogue, rather than for compliance monitoring, enforcement, or regulatory decision-making.
- 2.7 The trial experience has also identified limitations in the interpretation of certain system-detected events. For example, discrepancies have been observed between detected event representations and information contained in occurrence reports, including instances where multi-aircraft interactions were reflected as single-aircraft events in independent data. Repetitive detection of the same operational event may also occur due to signal-based characteristics, which, if not carefully interpreted, could lead to



misunderstanding of event frequency or safety significance. These observations highlight the necessity of validation against reporting systems and have been communicated to the data provider as part of continuous system feedback.

- 2.8 The effectiveness of these initiatives depends on robust governance arrangement. Any expansion of data sharing must strictly adhere to Just Culture principles to ensure that automated monitoring reinforces, rather than undermines, the trust that sustains existing reporting systems.
- 2.9 The integration of these innovative data sources enables States to bridge information gaps where traditional occurrence reporting has limited reach. This transition toward multi-source data integration represents a practical step in advancing from traditional oversight toward proactive risk management.

3 ACTION OF THE MEETING

- 3.1 Note the information presented in this Discussion Paper;
- 3.2 Encourage COSCAP-SEA States to explore the use of additional safety data sources, including those enabled by automation and advanced technologies, to support safety intelligence and support effective safety management and oversight; and
- 3.3 Encourage COSCAP-SEA to organize regional workshops or technical exchanges, in coordination with relevant partners where appropriate, to support Member States in enhancing capability in the application of safety data intelligence and additional data sources for proactive safety management.

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