## Aviation Root Cause Analysis – Processes for Validation

Sofema Aviation Services (SAS) www.sassofia.com considers the best practices and challenges related to the validation of initial root cause assessments for mitigation effectiveness.

### Introduction

The RCA process typically involves a detailed investigation of the incident or accident, the identification of contributing factors, and the development of corrective actions to prevent the recurrence of similar incidents.

Whilst the goal of root cause analysis is to develop effective corrective actions that can prevent similar incidents from happening again in the future, to ensure that the corrective actions are effective and the root cause analysis process is working properly, validation of the analysis is crucial.

Following up on the corrective actions developed as part of the RCA process is essential to ensure that the necessary changes have been implemented and are effective in preventing similar incidents from occurring.

- The follow-up process typically involves monitoring the implementation of corrective actions, assessing their effectiveness, and making any necessary adjustments.

### Validation

Validation of RCA in aviation involves the review and assessment of the RCA report by a third-party (Typically Members of the Quality Assurance or Safety Departments) or other independent party to determine the accuracy and completeness of the analysis.

- The validation process typically involves an evaluation of the RCA team's methodology, the data collected, the analysis conducted, and the conclusions drawn.
- The primary objective of validation is to ensure that the RCA report provides an accurate and comprehensive understanding of the incident or accident's root causes and identifies effective corrective actions to prevent similar incidents from occurring in the future.
- To effectively validate an RCA report, the validation team should have a clear understanding of the RCA process, regulatory and organisational norms, as well as the specific incident or accident being investigated.
- The validation team should also have the necessary expertise and experience to assess the RCA report's technical accuracy and completeness.

### Primary Categories to Support Identification & Validation

- Human factors
- Procedures and policies

- Training
- Communication
- Decision-making
- Leadership and management
- Equipment and maintenance
- Design and manufacturing
- Weather and environment
- Air traffic control
- Runway safety
- Ground handling
- Security
- Emergency response

By using the above categories as a guide, aviation organizations can ensure that their RCA process is comprehensive and that all necessary corrective actions are developed and implemented.

**Using KPI's as Part of the Root Cause Validation Process**

- A systematic approach to validation that involves identifying key performance indicators (KPIs) that can be used to measure the effectiveness of the corrective actions.
- Some examples of KPIs that can be used to validate the effectiveness of root cause analysis and corrective actions include:
    - Reduction in the frequency of incidents or accidents
    - Reduction in the severity of incidents or accidents
    - Reduction in the number of non-compliances with safety regulations
    - Improvement in safety culture and employee engagement
    - Improvement in safety-related communication and reporting

Note - Validation of root cause analysis is an ongoing process that requires continuous improvement and refinement.

- The validation process should be incorporated into the overall safety management system and should involve all stakeholders, including management, employees, and external regulators.
- By implementing an effective validation process, aviation organizations can ensure that their root cause analysis process is working as intended and that corrective actions are being implemented and sustained.

**Next Steps**

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