



NOTICE TO OPERATORS 23-01

Subject :	Operator guidance for root cause analysis
Date :	18/07/2023
Reference :	OPSQRY:26922
Amends :	N/A
Applicability :	CAT operators, NCC operators, SPO operators

This Information Notice contains information that is for guidance and/or awareness.

Recipients are asked to ensure that this Information Notice is copied to all members of their staff who may have an interest in the information (including any 'in-house' or contracted maintenance organizations and relevant outside contractors).

Description :

OBJECTIF

This document aims to provide operators guidance for their root cause analysis process.

PROBLEM STATEMENT

It has been observed that the quality of the root cause analyses varies quite significantly between operators and contributes in some cases to recurrence of non-conformities, which can lead to compliance and safety issues.

Unfortunately on several occasions we see that the analysis of incidents or non-compliances is stopped once a surface cause has been detected, without drilling down to the root cause. In other occasions, the root cause is too quickly identified as "human error", without verification whether this "human error" was caused by e.g. a missing or unclear procedure, inadequate training / lack of training, management issues etc.

This document provides operators with the criteria that BCAA-OPS inspectors will use when assessing root cause analysis.

OBJECTIF OF A ROOT CAUSE ANALYSIS

The objective of root cause analysis is to identify the cause of a breakdown in an organisational system, which has resulted in an undesired event and to ensure that re-occurrence of the same or similar events or findings are minimised. In performing root cause analysis the operator should investigate all aspects of the process, procedures, environment, performance and any extenuating circumstances surrounding an event in order to disclose the underlying problem, in other words the root cause.

This will provide the organisation with the means to develop suitable corrective and preventive actions that when implemented, should help limit the opportunity for a recurrence of the event.

The ideal investigation process should be built up as follows:

Data gathering

The following steps are required before the root cause analysis can actually start:

1. *Determination of the circumstances and sequence of events.*

In this stage the leading questions are:

- *What* happened exactly (recording of the facts)?
- *Where* did it happen?
- *When* did it happen?
- *Who* was (or rather, which functions were) involved?
- *Which* material and/or documents were used?

A detailed description of the circumstances and the sequence of events, leading to the non-conformity must be made.

In this stage, however tempting it may seem, it must be avoided to jump to conclusions and determine solutions, as these solutions will often prove to be quick-fixes that will not address the underlying reasons (root causes) for the incident or occurrence in question.

2. *Collection of facts & figures (evidence)*

All and any data, facts and information that is related to the event must be gathered in order to be taken into account during the investigation. This includes documents, instructions and procedures used, pictures taken, crew rosters, training material and -records, etc.

It must also be determined which parties (departments, staff members and/or external parties) were responsible for or involved in the process that went wrong. Each of these parties should be contacted in order to obtain their version of the facts and/or event.

Compliance or non-compliance

Once the entire sequence of events has been established and all evidence has been gathered, all stages of this sequence of events must be checked against the applicable standard (manuals, procedures, work instructions, training material, etc.), in order to determine and record for each stage, whether

- a. the procedure, instruction or training is adequate, unambiguous and up to date, and
- b. what happened was in compliance with the relevant procedure, instruction or training, and
- c. the persons involved had access to, were current or were briefed on the procedure.

Be aware that this part of the exercise may disclose more than 1 non-compliance in 1 of more stages of the sequence of events.

Root cause analysis

Only once all non-compliances that led to the finding or event, have been disclosed and recorded, the actual root cause analysis can start. Each operator will use his own method for this as described in the operator's Compliance Monitoring Manual.

The role of the OPS Inspector (POI)

Prior to approving a Corrective Action Plan (CAP), the POI will ensure that the issue was sufficiently investigated by the operator and that the root cause was disclosed. If the proposed CAP does not address the root cause, it is unlikely that it will prevent recurrence of the finding and will therefore not be accepted by the POI.



Although it is impossible to issue rules to determine whether a root cause analysis is correct or not, the following points will trigger an incomplete or incorrect root cause analysis. When the proposed CAP mentions one of following statements as a root cause, it may be a signal that the root cause analysis is not complete or incorrect:

1. A re-phrased description of the finding or the event itself
2. A statement on What happened (sequence of events) rather than Why it happened
3. Human error
4. General statement not related to the root cause
5. Surface cause that needs to be investigated further

Example of each of these triggers are listed below. The last trigger, in which the investigation was stopped after having disclosed a surface cause, happens quite frequently. This is why there are 3 examples for this one.

EXAMPLES of unacceptable root cause analysis:

1 - A re-phrased description of the finding or the event itself	
<i>Finding or event</i>	Initial flight training was not described in the OM-D.
<i>Suggested Root Cause</i>	Training happens but OM-D lacks the correct text.
<i>Suggested Preventive Action</i>	OM-D will be corrected as required.
<i>Comments</i>	<i>The suggested root cause is simply a description of the finding itself, using different wording. It does not provide the reason why the OM-D lacks this important information. The suggested preventive action is only a corrective action that addresses the current finding but not the reason why this mishap occurred. As a result, similar events can happen again.</i>

2 - A statement on what happened (sequence of events) rather than why it happened	
<i>Finding or event</i>	Contrary to section XXXX of the OM-D, the CBT does not contain any information on the criteria for crew planning during winter operations.
<i>Suggested Root Cause</i>	The crew planning department did not take into account the new criteria for crew planning during winter operations.
<i>Suggested Preventive Action</i>	CBT developer has been contacted in order to correct the CBT accordingly.
<i>Comments</i>	<i>The suggested Root Cause is actually part of the sequence of events. It does not disclose</i> <ul style="list-style-type: none">• <i>Why nobody forwarded the updated criteria.</i>• <i>To which function this task belongs.</i>• <i>Whether a procedure exists for these type of changes.</i>• <i>Whether a Management of Change was performed.</i> <i>As the root cause is still unknown, no preventive action has been put in place to ensure that in future, any CBT is systematically updated according to updated procedures or criteria.</i>



3 - Human error	
<i>Finding or event</i>	During numerous flights, the interval of 60 minutes for in-flight fuel checks (as required in the OM part A) was exceeded.
<i>Suggested Root Cause</i>	Human error.
<i>Suggested Preventive Action</i>	A reminder to the crew stating that the 60 minute interval is a "good habit" rather than a mandatory procedure.
<i>Comments</i>	<i>Should the non-respect of this procedure be a one-off occurrence, "human error" could have been an acceptable root cause. However the issue was observed on numerous flights, performed by different crew and has already been subject to a finding in the previous year. It is therefore necessary to dig deeper and disclose the root cause of this apparently general behaviour that developed into a trend.</i>

4 - General statement not related to the root cause	
<i>Finding or event</i>	No evidence could be provided that the pilot's training via CBT, was logged as duty time.
<i>Suggested Root Cause</i>	Continuous improvement process
<i>Suggested Preventive Action</i>	Instruction has been given to the TRG department via mail.
<i>Comments</i>	<i>The actual root cause has not been identified. The investigation should have disclosed whether this was due to:</i> <ul style="list-style-type: none"><i>a) Non-respect of the procedure</i><i>b) Outdated procedure</i><i>c) Lack of procedure</i><i>d) Etc.</i> <i>If the root cause would have been b) or c), recurrence of the event can easily happen when new staff is hired who cannot fall back on a correct procedure.</i>

5a - Surface cause that needs to be investigated further	
<i>Finding or event</i>	The yearly ERP exercise was not performed.
<i>Suggested Root Cause</i>	There has been a change in the ERP notification procedure (new system to be used) and this change requires thorough training for ERP participants before actual ERP exercise.
<i>Suggested Preventive Action</i>	The training must be performed before the exercise can be scheduled.
<i>Comments</i>	<i>The following questions should have been answered in order to disclose the root cause:</i> <ul style="list-style-type: none"><i>• Why was training not foreseen prior to implementation of the change in the ERP notification procedure?</i><i>• Why did the Management of Change not indicate that there was a requirement for training prior to the implementation of the change?</i>



5b - Surface cause that needs to be investigated further	
<i>Finding or event</i>	The Document Compliance Checklist included the amendments of October 2019 of the EASA Easy Access Rules, but did not show the amendments after October 2019 and no ED Decisions.
<i>Suggested Root Cause</i>	The regular checks on updated regulations were limited to the publication of the Easy Access Rules, which may result in missing out on regulatory amendments that are effective before the Easy Access Rules are published.
<i>Suggested Preventive Action</i>	The checks will be recorded in the documentation compliance checklist including the date of the last check.
<i>Comments</i>	<i>It should have been investigated why the intermediate amendments were not picked up and implemented.</i>

5c - Surface cause that needs to be investigated further	
<i>Finding or event</i>	The authority was not notified via the new reporting system within 72 hours of the occurrence.
<i>Suggested Root Cause</i>	The procedure was not followed.
<i>Suggested Preventive Action</i>	The relevant staff member received a reminder.
<i>Comments</i>	<p><i>Without disclosure of the reason why the procedure was not followed, there is a possibility that the same happens again.</i></p> <p><i>The right questions to ask, in order to be able to address the root cause, are:</i></p> <ul style="list-style-type: none"><i>• Has the updated procedure been issued?</i><i>• Is the latest revision of the procedure available at the right place?</i><i>• Has this revision been notified to all staff involved?</i><i>• Did all staff members receive training on the new procedure (if required)?</i><i>• Has the old revision officially been withdrawn?</i><i>• Did all staff members acknowledge that they read and understood the procedure?</i><i>• Does staff consult the procedure on-line or do they use a printed version of the (outdated) procedure?</i><i>• Is there a discipline issue with the staff involved?</i>

Queries :

Any queries or requests for further guidance as a result of this communication should be addressed at the following e-mail addresses :

- For CAT : ops.queries@mobilit.fgov.be,
- For NCC : ncc.ops@mobilit.fgov.be,
- For SPO : spo.ops@mobilit.fgov.be.



Cancellation :

This Information Notice shall remain in force until withdrawn or amended.

For the BCAA,

Remko DARDENNE

Head of Air Operations Department