



# AIIG Meeting



# Organisational and Management Investigation (O&M)

## O&M Factors

Conditions which:

- Contribute to other unsafe conditions
- Negatively impact human performance; or
- Negatively impact the organization's ability to proactively identify and deal with these conditions.

## Why the investigation into O&M factors is important?

- Improving safety by going beyond “what” happened
- Explaining “why” an occurrence happened
- Examining organizational factors which will provide insights into safety key aspects
- Further, we need to examine an organization’s ability to prevent similar occurrences in the future

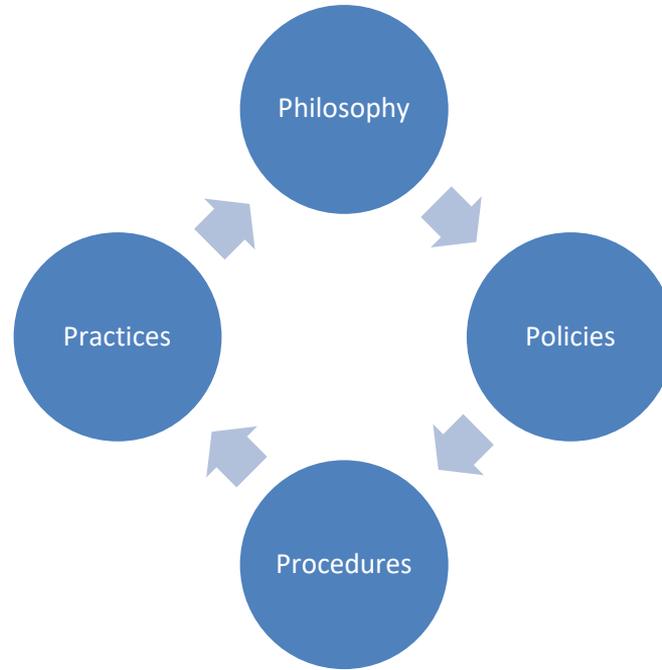
## O&M investigation challenges

- Scope
- Completeness
- Weak or missing links
- Potential for hindsight challenges
- Interviewing challenges
- Experience with management issues

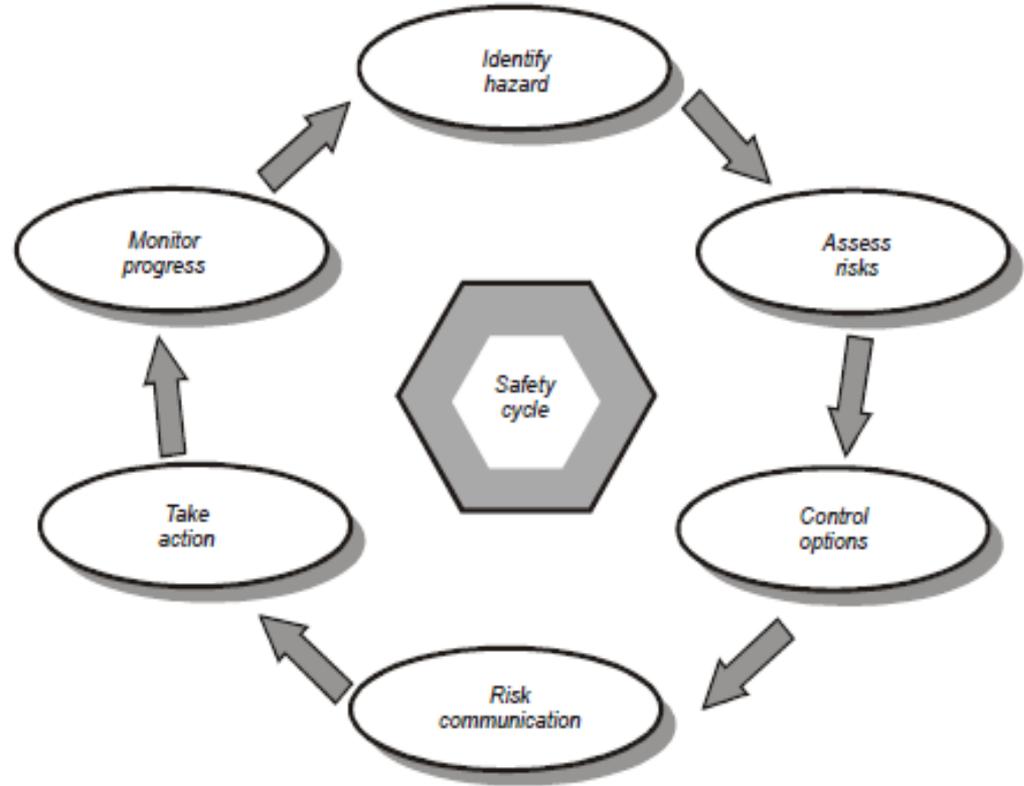
## AAIS Policy

- ✓ Investigation effectiveness depends on O&M factors analysis
- ✓ The scope of the O&M investigation is determined during the initial investigation scoping and revisions during the course of investigation
- ✓ James Reasons *epidemiological* analysis model can serve the O&M investigation
- ✓ As the resources would permit, the *total system approach* maybe applied where interlinks organisation-to-organisation SMS(s) or organisation-to-SSP are identified
- ✓ O&M relevant information shall be included in the Final Reports of accident and serious incident investigations (if determined in the scoping) at least those involving commercial or large aircraft

# What do good safety management and safety culture look like?



# Safety management cycle



## Two investigation phases

- ✓ **Phase 1 - Information and documents to collect.** Provides type of information that should be collected: Documentation, areas for interviews and things to look for in observations of actual operations.
- ✓ **Phase 2 - Starting Points: Possible Latent Conditions.** Provides a non-exhaustive list of the types of latent conditions that would be expected to increase risk or reduce an organization's ability to effectively manage risk.

## Five simple processes for the O&M investigation

Scoping the investigation

Determine the level of effort to be invested in investigating for O&M factors, document the decision and assist in planning the investigation

Information flow

To demonstrate the effectiveness of safety management by documenting the flow of information with respect to a specific hazard in the organization

O&M Factors Assessment Tool

To explicitly demonstrate the link between hazards (unsafe conditions) that were unmitigated or unaddressed and the unsafe O&M conditions/underlying factors identified

Safety Culture Assessment Tool

Develop a clear picture of an organization's safety culture (the organization's capability to foster safe work and effective safety management practices)

Quality Assurance Tool

To ensure that a compelling argument for change has been developed and presented in the analysis

Process	Scoping Tool
<b>Purpose</b>	To determine the level of effort to be invested in investigating for O&M factors, document the decision and assist in planning the investigation.
<b>Trigger</b>	Completion of initial field phase and any time new information results in a review of the scope of the investigation.
<b>Input(s)</b>	<ul style="list-style-type: none"> <li>• Preliminary interview data</li> <li>• Review of previous occurrence data</li> <li>• Knowledge of operator</li> <li>• Available resources for investigation</li> <li>• Initial sequence of events and underlying factors diagram (ISIM)</li> </ul>
<b>Outputs</b>	<ul style="list-style-type: none"> <li>• Decision – description of O&amp;M issues to be pursued.</li> <li>• Plan of action – description of next steps to investigate these issues.</li> </ul>
<b>Process description</b>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Complete scoping tool worksheet.</li> <li><input type="checkbox"/> Review worksheet and outputs with Regional Manager or Director of Investigations.</li> <li><input type="checkbox"/> Save worksheets in occurrence workspace.</li> </ul>

Process	Who Knew What? Analysis
Purpose	To demonstrate the effectiveness of safety management by documenting the flow of information with respect to a specific hazard in the organization.
Trigger	Hazard or risk identified that contributed to the occurrence or that presents a risk, and questions arise as to whether handling of hazard was reasonable.
Input(s)	<ul style="list-style-type: none"> <li>• Identified hazards (unsafe conditions from ISIM)</li> <li>• Safety management documentation (e.g. occurrence reports, database entries, company investigations, internal audits)</li> <li>• Documented procedures for reporting and acting upon hazards</li> <li>• Interview data.</li> </ul>
Outputs	<ul style="list-style-type: none"> <li>• Description of the management of the hazard, its effectiveness, its consistency with documented procedures and the decision as to whether this is indicative of a systemic problem.</li> </ul>
Process description	<ul style="list-style-type: none"> <li><input type="checkbox"/> Work through decision tree to guide your thinking.</li> <li><input type="checkbox"/> Complete analysis worksheet for each identified hazard to document results.</li> <li><input type="checkbox"/> Update ISIM safety analysis as required.</li> <li><input type="checkbox"/> Save worksheets in occurrence workspace.</li> </ul>

Process	O&M Factor Assessment Tool
Purpose	To explicitly demonstrate the link between hazards (unsafe conditions) that were unmitigated or unaddressed and the unsafe O&M conditions/underlying factors identified.
Trigger	Completion of Who Knew What? Analysis with systemic issues identified. Completion of ISIM safety analysis with O&M issues as unsafe conditions or underlying factors.
Input(s)	<ul style="list-style-type: none"> <li>• ISIM safety analysis</li> <li>• Who Knew What? Analysis</li> </ul>
Outputs	<ul style="list-style-type: none"> <li>• Description of O&amp;M factor</li> <li>• Description of how the factor contributed in the occurrence</li> <li>• Description of how the factor increased risk</li> </ul>
Process description	<ol style="list-style-type: none"> <li>1. Complete an analysis worksheet for each identified O&amp;M factor identified as a contributing factor in the ISIM safety analysis.</li> <li>2. Complete an analysis worksheet for any additional O&amp;M issues identified as probable findings as to risk (i.e. ones that did not play a role in the occurrence and, as such, are not in the ISIM diagram).</li> <li>3. Update ISIM safety analysis as required.</li> <li>4. Save completed worksheets in occurrence workspace.</li> </ol>

Process	Safety Culture Assessment Tool
<b>Purpose</b>	Develop a clear picture of an organization's safety culture (the organization's capability to foster safe work and effective safety management practices).
<b>Trigger</b>	Completion of ISIM safety analysis with indications that safety culture may be an issue.
<b>Input(s)</b>	<ul style="list-style-type: none"> <li>• ISIM safety analysis</li> <li>• Who Knew What? Analysis</li> <li>• O&amp;M Factors Assessment Tool</li> <li>• Interview and other occurrence data.</li> </ul>
<b>Outputs</b>	<ul style="list-style-type: none"> <li>• Description of an organization's maturity with respect to safety management.</li> </ul>
<b>Process description</b>	<ol style="list-style-type: none"> <li>1. Using the worksheet provided, document specific examples where organizational norms are hindering or helping the organization to manage safety effectively.</li> <li>2. Prepare a conclusion statement that encapsulates the organization's safety culture.</li> <li>3. Take the analysis to the next level. What is the implication of your conclusion with respect to the level of oversight that is required for the organization? Is this level of oversight being provided?</li> <li>4. Update ISIM safety analysis as required.</li> <li>5. Save the completed worksheets to the occurrence workspace.</li> </ol>

Process	Quality Assurance Tool
<b>Purpose</b>	To ensure that a compelling argument for change has been developed and presented in the analysis.
<b>Trigger</b>	Draft review at any level or time (Investigator, IIC, or the AAIS management).
<b>Input(s)</b>	<ul style="list-style-type: none"> <li>• Draft analysis (report or other safety communication).</li> <li>• Other O&amp;M investigation worksheets developed in the course of the investigation</li> </ul>
<b>Outputs</b>	<ul style="list-style-type: none"> <li>• Decision to revise analysis or move to next level of review.</li> </ul>
<b>Process description</b>	<ol style="list-style-type: none"> <li>1. Use questions in worksheet to review analysis.</li> <li>2. Determine if modifications are required or if report is ready to proceed to next level of review.</li> <li>3. Use output to review conclusions with author (if applicable).</li> <li>4. Update analysis and ISIM safety analysis as required.</li> <li>5. Save worksheets to occurrence workspace.</li> </ol>

## AIS O&M investigation checklist

### Organizations <sup>1/2</sup>

- The SMS manual
- Latest managerial decisions
- GCAA latest audits and findings (including SMS audits)
- Training manual
- FDM reviews
- Hazards register
- Risk management (process, forms, records, and mitigation strategy assessments)
- Change in policy, procedure, equipment, etc.
- Safety data analysis

## Organizations <sup>2/2</sup>

- Internal audit/investigation reports and management
- Normal operations reports
- Assessment of external information
- Training feedback forms
- Safety survey format, results, and analysis.
- Internal safety investigation records
- Change management records
- Safety action group activities records
- Safety training and promotion

## SSP

- Latest copy of SSP
- SSP Coordination Group records
- SMS inspectors training
- Audits scheduling (including SMS)
- Audits findings management
- Hazards register
- State-level risk management
- Safety recommendations management



## Interviews

- The SMS post holders
- Operations post holder
- Training manager
- Other personnel in the organization for inferring organizational issues

## Analysis questions

- Detecting the hazards and risks that were related the development of the accident.
- Hazard and risk identification.
- Risk handling practices.
- Risk management.
- The handling of safety anomalies.
- Safety management system instructions.
- The adequacy of safety training.
- The effects of performance pressures.
- The effects of safety culture.
- Learning from experience.



Thank you for attending

Any Questions ?