

The ATSB Investigation Model

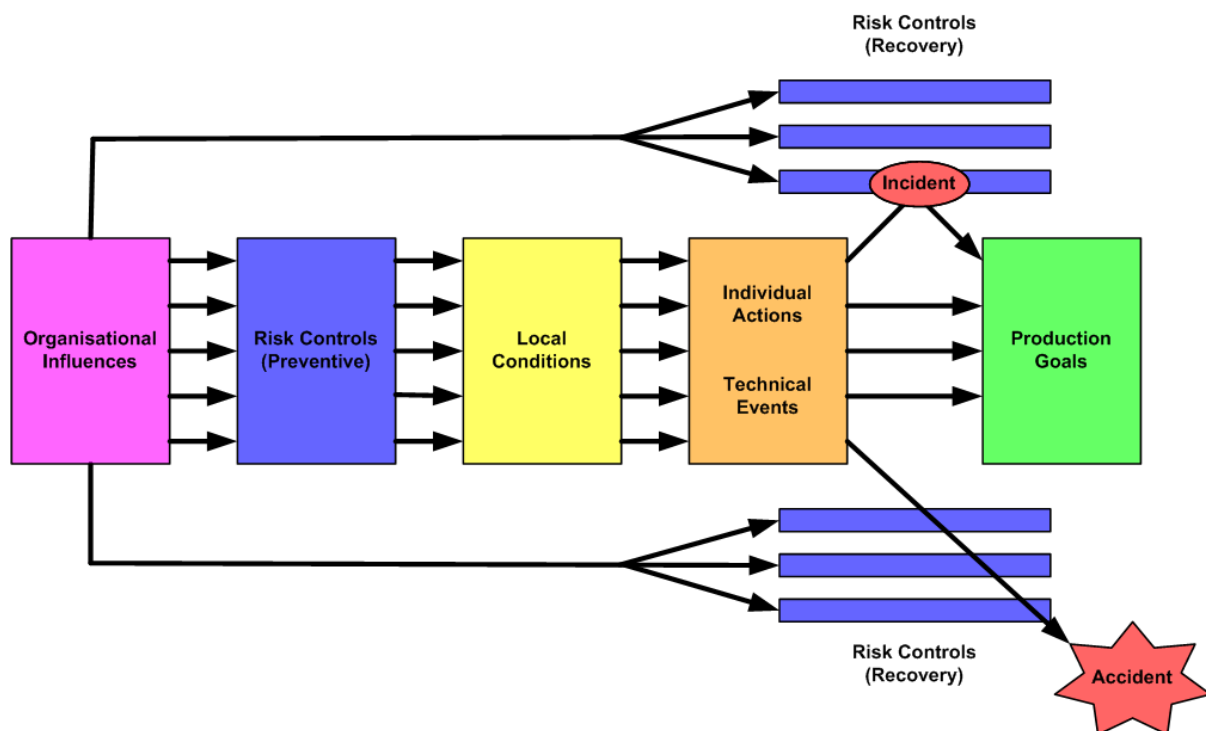
The ATSB Investigation Model provides a general framework to guide data collection and analysis activities during an investigation.

The model is based on the premise that an organisation is trying to achieve its production goals, while at the same time ensuring safe operations.

The goals of a particular organisation might be to transport people or cargo, or to carry out maintenance activities, for example.

The model helps to explain how the individual actions of an operator are typically influenced by the context in which they are operating. That is, by,

- local conditions
- risk controls
- organisational influences



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In the ATSB Investigation Model, events or conditions that increase risk are termed Safety Factors. If it can be established that a Safety Factor was likely to have contributed to the accident or incident, then it is termed a Contributing Safety Factor.

Individual actions

Individual actions are observable behaviours performed by operational personnel. Operational personnel include pilots, train drivers, ship's masters, air traffic controllers, cabin crew, maintenance personnel, and others.

Individual actions that increase risk are sometimes called 'unsafe acts' or 'active failures'. However, it is best to avoid using terms that sound judgemental, and can imply blame or liability. The term 'individual action' is more neutral.

A fundamental principle of safety investigation and human factors is to encourage managers, regulators, designers and investigators to look beyond the individuals and examine the system and the underlying reasons for the individual actions. It is important to view individual actions as events that should not be reproduced under similar conditions in the future, rather than consider them 'failures' of the individuals involved.

Local conditions

Conditions associated with the immediate context or environment in which individual actions occur.

Local conditions are sometimes called 'local hazards' or 'local threats'. Again, the term 'local conditions' is more neutral. Local conditions include characteristics of the individuals and the equipment involved, as well as the nature of the task and the physical environment.

The categories of local conditions in the ATSB Investigation Model are,

- personal factors
- knowledge, skills, experience
- task demands
- social environment
- workspace environment
- physical environment
- weather conditions

Risk controls

Risk controls are measures put in place by an organisation to facilitate and assure safe operations.

Risk controls prevent hazards resulting in losses. They are sometimes called 'defences' or 'barriers'.

The categories of risk controls in the ATSB Investigation Model are,

- equipment
- facilities / infrastructure
- procedures
- training and assessment
- people management

Risk controls can be viewed as the outputs of the organisation's safety management system. There are two main types of risk controls:

- preventive controls
- recovery controls.

Preventive risk controls are measures to minimise the likelihood of undesirable local conditions, individual actions and occurrence events. Preventative risk controls includes measures such as standard operating procedures, training, work rosters, and equipment design.

Recovery controls are measures to detect and minimise the adverse effects of local conditions, individual actions and occurrence events. Such 'last line' risk controls include detection and warning systems (eg, TCAS, GPWS), containment and protection systems (eg, PPE, crashworthiness), and escape and rescue systems (eg, emergency exits and lighting).

Organisational influences

Organisational influences are the conditions that establish, maintain or otherwise influence the effectiveness of an organisation's risk controls.

The categories of organisational influences in the ATSB Investigation Model are,

- safety management processes
- organisational characteristics
- regulatory influences

Source: ATSB Human Factors Training Manual (2018).

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Applying the ATSB Investigation Model

The ATSB Investigation Model is simply a framework to encourage an investigation to consider all the possible contributing safety factors that may have influenced an occurrence sequence. Sometimes it won't be clear whether a particular contributing safety factor should be coded as a local condition, risk control, or organisational influence. Poor training can be example of that. The answer is that it doesn't matter which heading it is coded under. The purpose of the model is to help *identify* contributing safety factors to improve safety, not to *code* them as an end in itself.

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