Research insights to avoid past pitfalls and build the future of IEM decision making

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Why Decision Making is Difficult

- high-stakes
- time pressured
- lack of information
- complexity
- dynamic situations
- political interference
- media scrutiny



Image: Chris Bearman

Ongoing Problems and Issues

- *“[They] utilized an indirect attack that involved setting backfires. This tactic would be considered questionable taking into account the environmentally hazardous conditions that were present and the close proximity to the city boundary.”*

- *“The strike team (perhaps the most inexperienced team at the fire) was placed in the potentially most dangerous section of a wildfire.”*

- *“During the afternoon there was poor situational awareness at all levels.”*



Image: Shepparton Council

Informing Operations Through Research

Australian National Operational Guidelines on Decision Making (ANOGs)

PART A: The IEM Decision Making Model, Pitfalls and Safeguards

PART B: The Handbook of Decision-Making in IEM: Guidance for Australian Fire and Emergency Services



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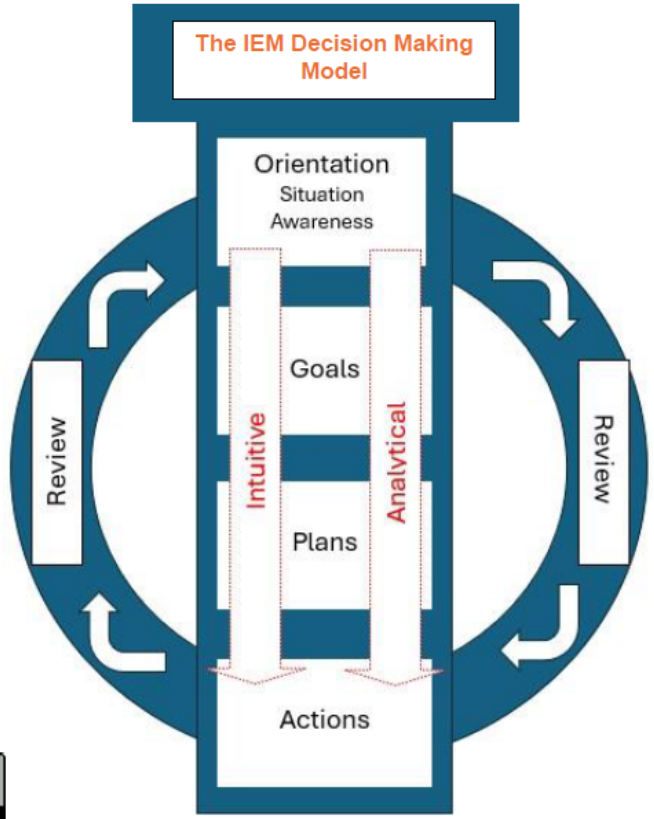


Figure 1: The IEM Decision Making Model. Bearman, Drummond, Hayes & Gyles (2025). Natural Hazards Research Australia (NHRA). Creative Commons licence CC BY-NC-ND. You can copy and distribute the material in any medium or format in unadapted form only, for non-commercial purposes only, and only so long as attribution is given is given to the authors and NHRA.

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Why Use ANOGs?

- evidence-based decision-making guidance based on the cognitive science of how the brain works
- general framework that can incorporate other decision-making models
- better supports IEM personnel, potentially reducing error
- supports a common decision-making language to describe, discuss and review
- easily incorporated into existing doctrine and training programs
- improves alignment and consistency in our operational approach to decision making
- improves inter-operability between agencies and services



Image: Owen Price

Explanation of the IEM-DM Model

Orientation (Situation Awareness)

Embedded in organisational knowledge and job roles

Situation awareness is based on

- What is happening now?
- What has happened in the past?
- What will happen in the future?
- What could go wrong?

Decision Making Pitfalls

Orientation (Situation Awareness)

- Not understanding how actions can change the situation - requiring update to situation awareness
- Fixation on getting all possible information at the expense of making a decision
- Lack of a common understanding / common operating picture across personnel
- Failure to recognise there will be blind spots

Safeguards Against Pitfalls

Orientation (Situation Awareness)

- Regularly update situation awareness, particularly as the environment changes
- Recognise there will be blind spots
- Don’t fixate on getting all possible information at the expense of making a decision
- Make sure everyone has a common understanding / common operating picture across personnel

Myth 1: Decision making is a one-off choice

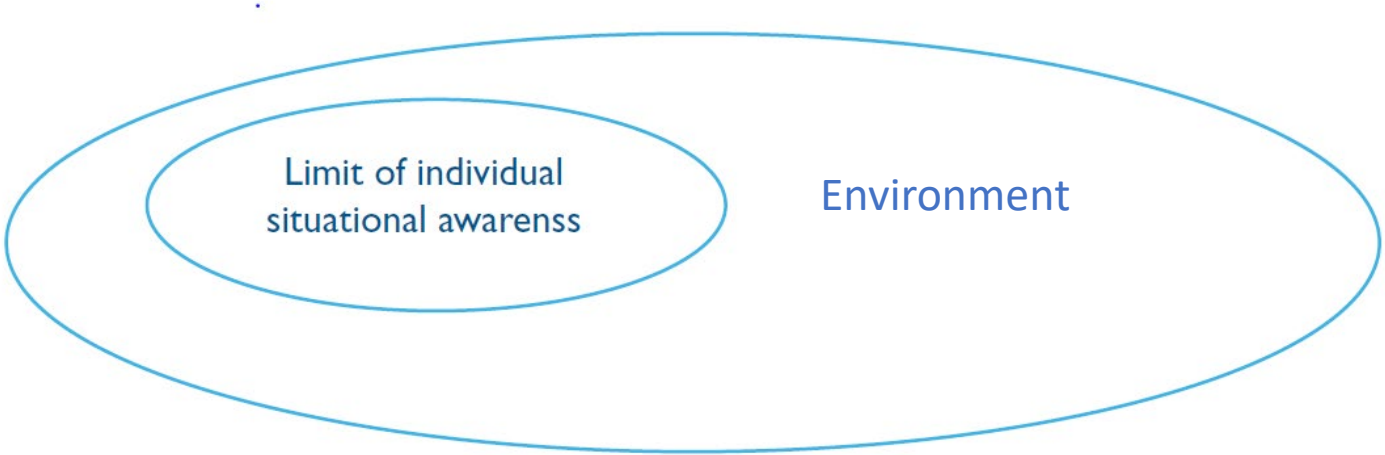
- DM is a process of reaching a judgement or choosing an option or course of action to meet the needs of a given situation

- In work contexts DM is not a single one-off event
- DM is an intervention in an ongoing stream of events
- In this context DM can be thought of as guiding the emergency towards a better outcome



Image: Madrusen, Creative Commons

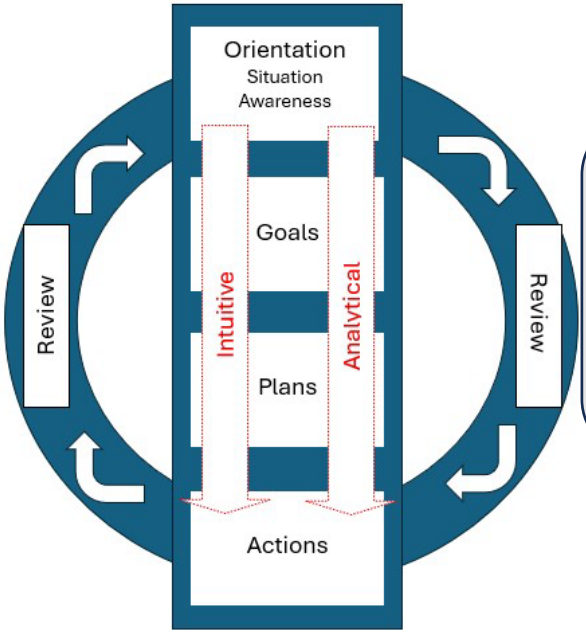
Myth 2: We should be able to see everything



Myth 3: DM should be conscious and deliberate

Intuitive decision-making

- Is fast and instinctive.
- It's based on expertise.
- It operates at a sub-conscious level
- It operates all the time



Analytical decision-making

- Is a deliberate and conscious process.
- It is time consuming and deliberate.
- It uses cognitive resources.

Impact & Utilization

- *“Using these resources has measurably improved how we prepare for complex incidents. The guidance is practical, easy to apply under pressure, and has strengthened decision consistency across our teams.”*

  Paul McGuiggan**,** Deputy Commissioner, NSW Fire & Rescue

- *“During heightened operational activity, senior staff and incident controllers have expressed how the workshop changed the way they make decisions and their thought process. If that is not success, I don’t know what it is.”*

  Daniel Austin, Deputy Commissioner, NSW SES

- *“This represents a significant and enduring contribution to the Australian emergency management sector.”*

  Sandra Lunardi, Manager of Workforce Development, AFAC



Image: Fiona Smallwood Unsplash

Key Take Aways

The guidelines:

- provide a model of decision making based on the cognitive science of how the brain works
- better support IEM workers and can reduce error
- help better explain and record how decisions were made
- provide ‘plug and play’ figures that supplement operational doctrine, training and individual performance
- support a national decision-making approach to improve inter-operability between agencies and services.



Image: iStock

More Information

www.naturalhazards.com.au/decision-making

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