



# Decisions in the Emergency Services

Take a minute to think about the video just shown:

- What was going on? What Risks / Hazards were present - could you keep count?
- **Were you able to predict what was going to happen?**
- Did the decisions, strategies and tactics appear appropriate for the situation?
- **What resources were available – did personnel appear to possess required capability / were physical resources appropriately used or deployed?**
- Question: On what are you basing your decisions

# Implications of Decision Theory for Emergency Service Practice

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# Decisions in the Emergency Services

Emergency Services personnel are required to make decisions in rapidly evolving, high-risk environments

Consequences for poor decisions include:

- Catastrophic loss of life
- Permanent injury
- Damage / loss of critical infrastructure
- Environmental damage

# Decisions in the Emergency Services

Despite the importance of effective decisions

*'training in decision-making is rarely provided'*

Euan Ferguson 2002

# Overview of Decision Theory

*'The opinions of decision researchers are split, but prolific'*

Azars (1999)

So – there is some disagreement as to how firefighters and emergency services personnel make decisions.

We'll have a look at some of the key theories and findings anyway.....

# Overview of Decision Theory

## *Formal Decision Theory*

Has been around a long time.

Has been used by psychologists to describe human choice behaviour in a range of settings including purchasing and gambling.

For example – why you bought your car (and why it is red)

# Overview of Decision Theory

## *Formal Decision Theory*

Has led to the development of formal decision models based on the evaluation of a range of options.

### An example:

- Mission
- Information
- Develop options
- Analyse options
- Select preferred option

# Overview of Decision Theory

## *Military Decision Theory*

Has also been around a long time, but during the 20<sup>th</sup> century many different decision models were applied with Western services in particular developing formal and centralised doctrines.....

Over the past thirty years however some armed forces have done considerable research into human behaviour on dynamic high-risk battle fields.

They did not find much evidence of formal decision processes being applied. – They did find evidence of lots of bad decisions and.....

- poor / out of date procedures
- bad – mindless training that stifled independent decision-making

# Overview of Decision Theory

## *Recognition Primed (Intuitive) Decision (RPD) Theory*

Developed by U.S. psychologist Gary Klein whose initial research involved firefighters. Quick R.P.D. summary:

Firefighters in operational settings do not appear to consider options on the fireground – they see stuff and then do stuff.

The stuff they do – is *usually* correct – and appears to be the result of intuitive application of previous experience – They just know what to do!

Firefighters in dynamic situations only consider alternatives when the initial option doesn't work as expected.

# Recognition Primed Decision Making

Recognition Primed Decisions rely on:

1. Rapid recognition of the situation
2. Selection / recall of an appropriate course of action based on prior experience



**What was the situation?**

- Risks
- Tactics

**What visual cues did you see:**

**What happens next.....**



## *UK Research*

The British Fire Industry has over the past decade generated considerable research.

**Fire Authorities including London and West Yorkshire have collaborated with researchers to develop consistent operational doctrine, policy, procedure and decision-making models.**

Crichton and Flin (2002) have proposed that there is in fact a spectrum of decision methods and that people will use different styles depending on the situation. (We will look at this in a minute)

# *Australian Research*

Significant research conducted over the past decade.

Researchers include McLennan, Omedai, Holgate, Wearing & Reynolds.

Areas of research include:

- Application of computer simulations in wildfire settings
- Post Incident Review guidelines – The Human Factors Interview Protocol (HFIP)
- Review of Incident Command Decision processes
- Issues concerning decision-making in team settings

The challenge for us is accessing and applying the findings and recommendations of this research.

# Common Points

(Or what seems to be agreed)

1. All fireground decisions require the ability to develop *Situational Awareness*
2. A range of decision strategies may be applied by an individual depending on time, stress, risk and other factors

# Decision Making Spectrum

**Situational Awareness**



**Observation**

What is happening?



**Orientation**

What does it mean to me?

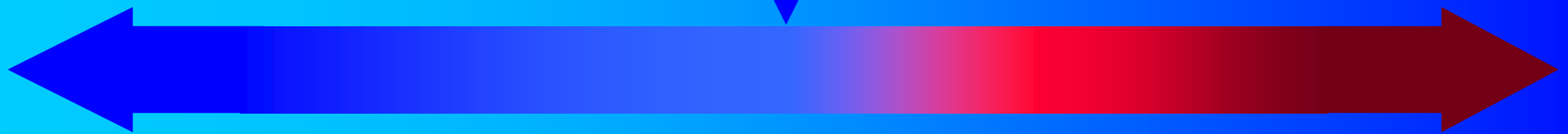


Low risk

High Time

High risk

Low time



Creative

Formal

Procedural

Value

RPD

intuitive

**Decision Spectrum**

Adapted from Crichton  
(2003)

# An Alternate View:

Strategic

*Mostly Formal  
Analytical and  
Creative  
processes*

Tactical

Potential Risk

*Mix of Analytical  
and Dynamic  
processes*

Operational

*Mostly Dynamic  
processes:*

- RPD
- Value
- Procedures



**What was the situation?**

- Risks
- Tactics

**What visual cues did you see:**

**What happens next.....**



# Implications for Emergency Service Organisations

## Implications for:

- **Development of more skilful and safer Emergency Service personnel**  
(i.e. Training and development of personnel)
- **Development of more consistent decision making in both operational and corporate settings**  
(i.e. Consistent Doctrine, Policy and Procedure)

# Implications: Learning and Development

If the ability to size-up a situation and select an appropriate course of action is heavily dependent on experience (either real or simulated).....

*It is critical that potential officers begin to build the bank of experience and cue recognition skills that will be required to make decisions very early in their careers*

# Implications: Learning and Development

*'From where does the first cast at an option come from if there is no experience with the situation?'* Lewis 2005

Traditional 'technical' training that teaches how to – *but not why or when to* – will not develop decision-making (future officers).

Decision-making ability is best developed through *in context - train as you play* activities

# Implications: Learning and Development

Summary of Training and Development methodologies that develop skills consistent with decision-theory:

Methodology	Benefits
<b>Train as you play – Play Practice</b>	Develops contextualised learning and cue recognition while incorporating technical skills
<b>Simulation – Microworlds</b>	Increased ability to read dynamic high-risk environments, try out strategies and build experience under controlled conditions
<b>Pre-mortems &amp; Pre-plans</b>	Develop situational assessment skills, increase experience / memory bank for RPD. Brunacini is pushing this 'front end' training
<b>Mentoring &amp; Apprenticeship</b>	Maximises 'shared' experience and learning. Shared cue recognition provides greater understanding of situational cues
<b>Post-mortems, Debriefs, Reflective Practice (eg Lessons Learned)</b>	Reflection deemed essential to set experiences in memory and facilitate RPD
<b>Increased Knowledge Base</b>	Develops ' <i>learned</i> ' experience Facilitates environmental cue recognition Increases 'on-tap' knowledge

# Implications: Training and Development

We are often told we should provide *train as you play* scenarios

*But – What game are we playing?*

*Is there consensus on the key skills required to manage incidents?*

# Implications: Consistency of Decision-making

ESOs often use shared values, policies and procedure to foster consistent decision-making.

One implication from decision theory is that these tools can be double edged and may decrease *or increase risks depending on the way in which they are developed and applied*

# Shared Value Systems

Shared Value systems provide a strategy for reducing decision time where training restrictions are present

Values such as *save life* may trigger a near instant decision

Care must be taken that value based decisions do not override risk assessment.

Recommendation: Dynamic Risk assessment and evaluation must be indoctrinated with the value set

# Policy and Procedure

Experience is used more commonly than procedure in dynamic high-stress environments (Klein 2003)

To be applied successfully, procedures must be:

- simple and concise
- easily understood
- consistently adopted and applied
- outline a process (like a recipe)
- current
- regularly practiced in realistic settings (Chrichton and Flin 2003)

# Policy and Procedure

Procedures are effective when they accurately present a course of action based on expertise for use by less experience personnel (Chrichton and Flin 2002)

Procedures are less effective when they stifle independent decision-making and promote 'mindless' behaviour (Pfeffer and Sutton 2000)

Policies and Procedures should not be developed for each and every potential incident .....

# Doctrine and Decision-making

Effective decision-making on the fire-ground requires:

- A shared and well understood Incident Management framework. (Crichton and Flin)
- A simple and easily understood procedural framework (Arbuthnot)
- A common philosophy and approach to incident management (doctrine)

# MFS Applications

The MFS is implementing a number of initiatives, these include:

- Development of a simple decision-model for operational and corporate situations (common decision framework)
- Providing all personnel at SO and above basic Decision-making training
- Provision of AII Ms training to ensure clear definition and understanding of Incident Management roles
- Increasing the train as you play element of all core training
- Aligning Promotions assessments to decision-making behaviours
- Contextualising operational Units of Competency

# MFS Applications

## Incident Management Program – Aligned to Unit Supervise Response:

- Design of program started with desired behaviours not from an incident type
- Uses Vector
- Participation is as a crew
- All personnel get the opportunity to sit in the hot-seat
- Activities increase in difficulty so individuals can get on board at an appropriate level for them

# Some Questions for you:

1. What happens when:
  - Organisations cannot develop (or lose) experienced (expert) personnel?
  - Training does not prepare for decisions?
  - 'real life' experience is gained infrequently?
2. How do we ensure Organisational quality, consistency and accountability?
3. Should we rely on procedures, indoctrinate values or develop decision makers

Thank you!