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Lessons management

HANDBOOK 8

DISASTER RESILIENT AUSTRALIA
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AUSTRALIAN EMERGENCY MANAGEMENT HANDBOOK SERIES

Building a disaster resilient Australia

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AUSTRALIAN EMERGENCY MANAGEMENT HANDBOOK SERIES

Lessons management

 ISBN 978-1-921152-34-4

Edited and published by the Australian Emergency Management Institute, part of the Australian Attorney-General's Department

Editing and typesetting by Biotext, Canberra and Melbourne.

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History of the Manual/Handbook Series

The first publication in the original Australian Emergency Manual Series (Handbook Series) of mainly skills reference manuals was produced in 1989. In August 1996, on advice from the National Emergency Management Principles and Practice Advisory Group, the Handbook Series was expanded to include a more comprehensive range of emergency management principles and practice reference publications.

The Handbook Series has been developed to help the management and delivery of support services in a disaster context. It comprises principles, strategies and actions compiled by practitioners with management and service-delivery experience in a range of disaster events.

The series has been developed by a national consultative committee representing a range of state and territory agencies involved in the delivery of support services, and is sponsored by the Australian Attorney-General's Department. The series was expanded to introduce handbooks so that it would better align with the National Strategy for Disaster Resilience.

Details of the Handbook Series are available at www.em.gov.au.

Australian Emergency Management Handbook Series (2011–)

Handbook 1 *Disaster health*

Handbook 2 *Community recovery*

Handbook 3 *Managing exercises*

Handbook 4 *Evacuation planning*

Handbook 5 *Communicating with people with a disability – National Guidelines for Emergency Managers*

Handbook 6 *National Strategy for Disaster Resilience – community engagement framework*

Handbook 7 *Managing the floodplain: a guide to best practice in flood risk management in Australia*

Handbook 8 *Lessons management*

Australian Emergency Manual Series Principles and Reference (1996–2011)

Manual 2 *Australian Emergency Management Arrangements*

Manual 3 *Australian Emergency Management glossary*

Manual 4 *Australian Emergency Management terms thesaurus*

Manual 18 *Community and personal support services*

Manual 29 *Community development in recovery from disaster*

Manual 15 *Community emergency planning*

Manual 27 *Disaster loss assessment guidelines*

Manual 28 *Economic and financial aspects of disaster recovery*

Manual 8 *Emergency catering*

Manual 1 *Emergency management concepts and principles*

Manual 23 *Emergency management planning for floods affected by dams*

Manual 5 *Emergency risk management – applications guide*

Manual 43 *Emergency planning*

Manual 20 *Flood preparedness*

Manual 22 *Flood response*

Manual 21 *Flood warning*

Manual 44 *Guidelines for emergency management in culturally and linguistically diverse communities*

Manual 25 *Guidelines for psychological services: emergency managers guide*

Manual 26 *Guidelines for psychological services: mental health practitioners guide*

Manual 45 *Guidelines for the development of community education, awareness and education programs*

Manual 13 *Health aspects of chemical, biological and radiological hazards*

Manual 6 *Implementing emergency risk management – a facilitator's guide to working with committees and communities*

Manual 17 *Multi-agency incident management*

Manual 31 *Operations centre management*

Manual 7 *Planning safer communities – land use planning for natural hazards*

Manual 14 *Post disaster survey and assessment*

Manual 24 *Reducing the community impact of landslides*

Manual 12 *Safe and healthy mass gatherings*

Manual 41 *Small group training management*

Manual 46 *Tsunami*

Manual 16 *Urban search and rescue – capability guidelines for structural collapse*

Skills for Emergency Services Personnel Series (1989)

Manual 38 *Communications*

Manual 39 *Flood rescue boat operation*

Manual 37 *Four wheel drive vehicle operation*

Manual 35 *General and disaster rescue*

Manual 33 *Land search operations* (refer to website http://natsar.amsa.gov.au/Manuals/index.asp)

Manual 32 *Leadership*

Manual 36 *Map reading and navigation*

Manual 34 *Road rescue*

Manual 30 *Storm and water damage operations* (information may not be appropriate to all situations)

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This handbook is available on the Emergency Management in Australia website (www.em.gov.au).

This handbook will be updated in soft copy, so any proposed changes or other relevant publications can be brought to the attention of the editor (email empublications@ag.gov.au with the subject 'Lessons Management Handbook').

PREFACE

The purpose of this handbook is to provide guidelines and a national reference for the management of lessons across the national security environment. The steering committee involved in developing this handbook was coordinated by the Attorney-General's Department, and consisted of representatives from a cross-section of organisations and jurisdictions.

The principles and concepts outlined in this handbook have been brought together from agencies in the emergency management and counter-terrorism sectors to produce an all-hazards framework for lessons management. This handbook's goals include:

- to provide a shared understanding of key concepts, principles and frameworks used in Australia
- to provide national consistency in the terminology, management and documentation used in lessons management throughout Australia.

Managing lessons is integral to the continuous improvement of capability, as well as to the preparation of personnel to carry out their functions during actual events.

This handbook is designed to offer a series of considerations, checklists and prompts for lessons managers, and to provide a number of examples to illustrate different aspects of the lessons management process.

The approaches and formats used in the handbook can be adapted to suit specific organisational or jurisdictional requirements.

Mark Crosweller AFSM

Director-General

Emergency Management Australia

Attorney-General's Department

ACKNOWLEDGEMENTS

This handbook was written by a working group:

- Paul Margetts – Victoria Police
- David Patterson – Victoria Fire Services Commissioner
- Glen Mole – Fire and Rescue New South Wales
- Heather Stuart – New South Wales State Emergency Service
- Mark Ryan – Emergency Management Queensland
- Mark Thomason – South Australia Country Fire Service
- Geoff Cooper – Australian Army
- Mark Cuthbert, Dee Sayer, Jessica Whitby and David Port – Attorney-General's Department.

The handbook's development and production was funded by the National Emergency Management Projects (NEMP). The Australian Government established the NEMP grant program to fund emergency management projects of national significance. These projects support measures to strengthen communities, individuals, business and institutions to minimise the adverse effects of disasters in Australia. Projects funded through a NEMP grant are designed to improve the ability to prevent, prepare for, respond to and recover from disasters across social, economic, environmental and governance elements.

The following organisations provided additional input:

- Australian Centre for Army Lessons
- United States Center for Army Lessons Learned
- North Atlantic Treaty Organisation (NATO) Joint Analysis and Lessons Learned Centre (JALLC)
- New Zealand Ministry of Civil Defence and Emergency Management (organisational debriefing guide)
- Safety Wise Solutions (ICAM: incident cause analysis method).

Images: Australian Civil-Military Centre, 8th International Lessons Conference (left); Lessons Learned Branch, NSW State Emergency Services (top right); Strategic Emergency Management Assurance Team (SEMAT), Victoria Police (bottom right).

CHAPTER 1

INTRODUCTION

'Lessons management' is an overarching term that refers to collecting, analysing and disseminating experiences from operations, exercises, programs and reviews. A consistent approach to the management of lessons is an essential component for an organisation to become a learning organisation. Organisations are seen to be learning when their structures, systems and cultures are able to evolve based on past experiences.

Interoperability of lessons management systems across agencies, sectors and jurisdictions will facilitate information sharing and national analysis. Interoperability does not mean we all have to be the same, but it does mean that we can share information and understand each other. A common language and similar information systems can help aggregate information so that it is accessible, and can be analysed and interpreted. This will facilitate the horizontal and vertical exchange of information between sectors, agencies and jurisdictions – all of which will improve and promote national analyses.

The model for managing lessons used in this handbook consists of four steps:

1. collection
2. analysis
3. implementation
4. monitoring and review.

These steps are underpinned by continuous stakeholder engagement, as shown in Figure 1.1.

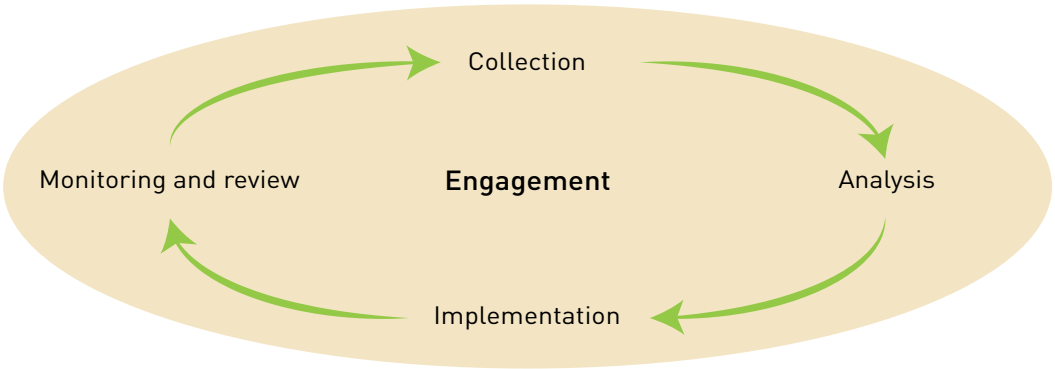


Figure 1.1: Lessons management process

1.1 Approach

This handbook provides a framework, general principles and factors to be considered when implementing a lessons management system within an organisation. It does not intend to repeat explanations of concepts, systems or processes that are covered in detail elsewhere (e.g. change management). A reference list is included for further reading.

1.2 Audience

This handbook is primarily aimed at the national security sector, which includes emergency management and counter-terrorism organisations. However, the principles can be used by any organisation. It will be relevant to all levels of an organisation, including:

- tactical operators
- supervisors, managers and leaders
- learning and development professionals
- knowledge and lessons practitioners.

> **Human beings, who are almost unique in having the ability to learn from the experience of others, are also remarkable for their apparent disinclination to do so.**
>
> Douglas Adams, author of ***The hitchhiker's guide to the galaxy***

1.3 Rationale

The scale, complexity and number of recent disasters, nationally and internationally, have heightened the need to consider the management of knowledge and lessons across the national security sector. Australia's national security depends on the sector's ability to be able to learn from experience, manage the knowledge gained, and develop learning organisations that can adapt to deal with current, emerging and unexpected threats.

The term 'lessons learned' is not well understood by the public and often misused. This results in significant perception and expectation management problems. Many issues that emerge during and after operations and exercises are not 'lessons' and cannot be 'learned.' Statements to the public such as 'we will learn all the lessons from this flood/bushfire/terrorist attack' can create negative perceptions of what is generally competent performance by national security agencies and often performance consistent with international best practice. The term can also create unrealistic expectations that on a catastrophic day, it is possible for every aspect of operations to run smoothly.

Box 1.1: 'Wicked problems'

Many of the recurring problems experienced during operations are 'wicked problems'.[1] Wicked problems are complex issues that go beyond the capability of any one organisation to understand and resolve; there is often disagreement about the causes of the problems and the best way to tackle them.

Wicked problems require innovative, comprehensive solutions that can be modified in the light of experience and on-the-ground feedback. There are a variety of intricate factors involved, which contribute to the overall problem. However, wicked problems, such as information management during crises, are never likely to be easily solved or learned.

For more information, visit www.apsc.gov.au/publications-and-media/archive/publications-archive/tackling-wicked-problems.

Commanders' decisions are judged the day after an event and potentially re-examined months later by reviews. Lessons may be identified after an event and some may be learned. Learning a lesson from the previous event does not necessarily better prepare us for the next event, as the situation could be very different. This may mean that we are actually worse off in dealing with the next bushfire or terrorist threat. Ideally, we need to be able to develop people and organisations that are flexible enough to take knowledge from previous events and use that to manage various situations, some of which may not have been faced before.

1 A wicked problem is one for which each attempt to create a solution changes the understanding of the problem. Wicked problems cannot be solved in a traditional linear fashion, because the problem definition evolves as new possible solutions are considered and/or implemented. The term was originally coined by Horst Rittel.

Adopting a lessons management approach builds an organisation's ability to develop, and may reduce public criticism and missed opportunities for improvements.

1.4 Benefits of a lessons management system

A national collaborative approach to lessons management will encourage adaptability and flexibility across the national security sector, and assist continuous improvement of people and organisations. Key to this is engaging and sharing within and across organisations and jurisdictions.

Not all organisations actively report lessons or share potential solutions with other organisations. This occurs for many reasons, including:

- operational pace
- resource shortages
- time constraints
- a lack of understanding of the importance of sharing information
- an assumption that lessons only relate to the organisation internally
- an absence of processes that facilitate sharing.

In the private sector, organisations often put a dollar value on the benefit of lessons management. In the national security environment, the benefits of lessons management have been demonstrated by increased national collaboration and knowledge sharing to improve service delivery.

It is estimated that Fortune 500 companies lose $31.5 billion each year because they don't share knowledge.

Babcock 2004

The success of a nationally consistent lessons management system relies on effective engagement with all stakeholders. Benefits for the organisation include:

- better informed decision making
- increased efficiency in, and effectiveness of, service delivery

- improved risk management practices
- more efficient policy and program development processes
- greater engagement and collaboration with stakeholders
- greater confidence in projects undertaken
- improved capacity to innovate
- improved personal performance
- increased organisational knowledge.

Benefits for stakeholders include:

- greater opportunities to contribute directly to doctrine development
- more open and transparent lines of communication
- increased accountability within the organisation.

1.5 What is a learning organisation?

There are multiple definitions of what constitutes a learning organisation (see the glossary and references). The one adopted for use in this handbook is:

> *An organisation skilled at creating, acquiring, interpreting, transferring and retaining knowledge, and at purposefully modifying its behaviour to reflect new knowledge and insights. (Garvin 2000)*

1.6 What is lessons learned?

Lessons learned is used broadly to describe the act of learning from experience to achieve improvements. In an organisation, the idea of lessons learned is that, through a formal approach to learning, individuals and the organisation can reduce the risk of repeating mistakes and increase the chance that successes are repeated. This means reduced operational risk, increased cost efficiency and improved operational effectiveness.

Box 1.2: Lessons learned

'The purpose of a lessons learned procedure is to learn efficiently from experience and to provide validated justifications for amending the existing way of doing things, in order to improve performance, both during the course of an operation and for subsequent operations. This requires lessons to be meaningful and for them to be brought to the attention of the appropriate authority able and responsible for dealing with them. It also requires the chain of command to have a clear understanding of how to prioritise lessons and how to staff them.'

Source: NATO JALLC (2011).

Lessons can be derived from any activity. They are a product of operations, exercises, training, experiments and day-to-day work. During the course of our activities, most of us will recognise ways of doing things more easily or efficiently, and that we can pass this information onto our colleagues and successors to help them avoid problems and do better than we did before. The challenge facing any organisation is to build a culture within which we all feel comfortable and motivated to share our knowledge in a productive way.

1.7 What is a lesson and when is it learned?

Lessons learned embodies two interrelated concepts: the identification of the lesson, and the learning, or change that results. Identifying a lesson does not automatically mean it will be learned. In some models, the terms 'lesson', 'lesson identified' and 'lesson learned' are used interchangeably. This handbook differentiates between 'lesson learned' and 'lesson identified'.

A lesson is knowledge or understanding gained by experience (NATO JALLC 2011). The experience may be positive (a best practice) or negative (a gap in performance or doctrine). Successes and failures are both considered sources of lessons.

A lesson is clearly distinguishable from the terms below:

- **Observation**: A record of a noteworthy fact or occurrence as seen during an activity or operation; it is the evidence or data collected – that is, what is seen or discovered (observed). Observations can be positive or negative.

- **Insight**: A deduction drawn from the evidence collected (observations), which needs to be further considered. Insights provide guidance for future analysis and potential action. Insights can be positive or negative, and can contribute to reinforcing positive behaviour or changing practices. Insights may be developed when a single observation poses a high risk to the organisation or when a number of similarly themed observations have been collected.
- **Lesson identified**: A viable course of action based on the analysis of one or more insights or observations that can either sustain a positive action or address an area for improvement.
- **Finding**: In some models, this is a conclusion reached after analysis to identify the root cause. It is a clear, succinct statement that needs to be agreed to or accepted before considering solutions or recommendations. A finding defines the issue, not the solution.
- **Recommendation**: A viable course of action that addresses an insight or finding. It can either reinforce positive behaviour or address an area for improvement. A recommendation needs to be considered by a relevant authority to determine if it is accepted or rejected.
- **Lesson learned**: A lesson is only learned once the approved recommendation is implemented and embedded in the organisation. Depending on the changes required, it may take several years for the change to be institutionalised across the organisation. A full iteration of a lessons learned cycle would involve the identification of a lesson, an action proposed and agreed, and the solution implemented and tested/validated to ensure the desired behaviour is sustained across the organisation.

A 'lesson identified' is distinguishable from a 'lesson learned'; a lesson identified has only the potential to add value, and needs to be communicated and implemented for any benefit to be derived from it.

'Good practice' or 'best practice' is a form of lesson identified, where the analysis has identified conditions under which the positive experience occurred and recommends procedures or measures to ensure that conditions are repeated.

Many lessons lack the essential attributes to become learned. A high-quality lesson capable of effecting change should:

- concisely capture the context from which it is derived
- have a clear owner
- be supported by an implementation plan.

Box 1.3: Example – a lesson identified

A number of observations were collected from a range of fire incidents and grouped according to fire-pump capabilities, firefighter training, incident management, building compliance, fire behaviour and water supply. The observations were sent to the relevant experts for comment.

In relation to water supply, it was identified that careful review and monitoring of water supply sources, be they water mains, on-site tanks or booster systems, was required to be undertaken during an incident.

Therefore, the role of water supply officer was added to the incident management team for large events where water supply may be an issue.

A lesson is only learned when you can measure a change in behaviour. Obviously, this change in behaviour needs to be of a positive nature that improves performance. The United States Army, with more than 25 years of focused lessons learned experience still struggles with actually 'learning' lessons once identified. Even though there are many understandable reasons for this, you cannot give up. Other organisations complain that once you identify a lesson, it ends up in some database and you quickly forget it. The irritation of every lessons learned specialist is seeing important lessons collected, and never being shared or resolved. This takes time and effort and, in most instances, money. Often there is no obvious 'owner' of the lesson identified, and there is rarely a system set up to resolve the issue and implement corrective actions. Do not be discouraged. There are some very sound reasons why your organisation needs a lessons capability.

Establishing a Lessons Program, US CALL 2011

1.8 Who needs to learn lessons?

Everyone within an organisation needs to be involved in learning lessons for lessons management to be successful. Often it seems that people are under the impression that the presence of a lessons system frees them of their responsibility for organisational improvement and learning. This can be seen in attitudes such as 'I don't have anything to contribute', 'I don't need to learn anything myself' or 'it's not up to me to change the way we do business!'

A lesson is not learned until something changes in the way we operate, and the ones who need to change are the stakeholders affected by the issue. Lessons managers are not the stakeholders in learning the lessons. The organisation will not improve if the lessons managers are the only ones who have learned how to do something better. The stakeholders must be the ones who learn. Stakeholders are often the first, and sometimes the only, personnel who will be able to identify potential lessons, because they are the ones most closely involved with the issue. Unless these potential lessons are identified through a lessons process, it is unlikely that lessons managers will be able to discover their existence to even begin the learning process. Stakeholders need to be encouraged to share their potential lessons.

Lessons managers generally do not have the authority to implement major changes within an organisation. Often they can do no more than make recommendations. Therefore, true organisational learning only takes place when driven by managers or leaders who prioritise lessons, assign and track remedial actions, follow up to ensure their organisation has actually learned the lesson, and be the driving force for sharing lessons.

CHAPTER 2

PRINCIPLES OF KNOWLEDGE MANAGEMENT

Each organisation needs to shape or contextualise a lessons system for its own environment. This chapter provides some background information on broader knowledge management principles.

2.1 Knowledge and lessons management

Lessons management is only one element of knowledge management. Knowledge management is a systematic process by which knowledge needed for an organisation to succeed is created, captured, shared and leveraged (Rumizen 2001). Knowledge is more than just data or information. There are three types of knowledge (Center for Army Lessons Learned 2011):

- **Tacit**. Personal knowledge that resides within an individual based on experiences, ideas, insights, values and judgements.
- **Explicit**. Personal knowledge that is conveyed easily – for example, by using documents, emails and multimedia. This knowledge is easily codified.
- **Organisational**. The combination of data, information and collective knowledge of individuals in the organisation that enables an organisation to learn from experiences, innovate, make decisions, create solutions, perform tasks or change positions.

Knowledge management has an organisational focus, such as the continuous improvement of the organisation. Lessons management is an essential component of improvement. The management of lessons needs to be integrated into the organisation's activities and culture to promote learning, flexibility and adaptability, and continuous improvement. The challenge facing any organisation is to create an environment where all members of the organisation feel comfortable and motivated to share and adopt knowledge in a productive way.

There may be lessons that individual units or organisations are unable to correct internally. Mechanisms need to be in place to ensure that these lessons are brought to the attention of higher levels of management or other organisations.

2.2 Developing a learning culture: open culture vs blame culture

A learning organisation embraces mistakes as an opportunity to improve. There is an underlying expectation that people feel free to share and discuss their experiences, both positive and negative, with others.

The tendency to blame others after a major event breeds a culture that is resistant to creativity, innovative thinking and adaptability, and reduces the capacity of leaders, managers and practitioners to take informed risks when required. Organisations will benefit from an emphasis on transforming a culture of blame into a culture of learning.

> **We need to learn lessons without sacrificing the good will of responders.**
> Eburn & Jackman 2011

Many organisations explore strategies for building trust and openness, especially in organisations – such as aviation and health – that have a high level of social/public responsibility.

Observations need to be focused on the performance of systems and processes on a whole, rather than on an individual's performance, so that knowledge can be shared more effectively. This also requires that terms such as 'investigation', 'inspection' and 'assessment' are avoided in the lessons process. Being able to self-examine and self-criticise in an atmosphere where everyone can avoid blame is essential for an honest and open discussion and sharing process.

A balance must be struck between creating an open culture that understands that people will make mistakes, yet holds them accountable for unreasonable actions. Reckless or illegal behaviour, or deliberate misconduct must be identified and dealt with through the appropriate organisational systems. Lessons management systems need to have processes for referring inappropriate behaviours to the appropriate body, while at the same time capturing observations to ensure that such behaviours do not recur.

Figure 2.1 shows a flowchart outlining the ICAM (incident, cause, analysis, method) data collection tool for implementing a change culture (also see Appendix 1).

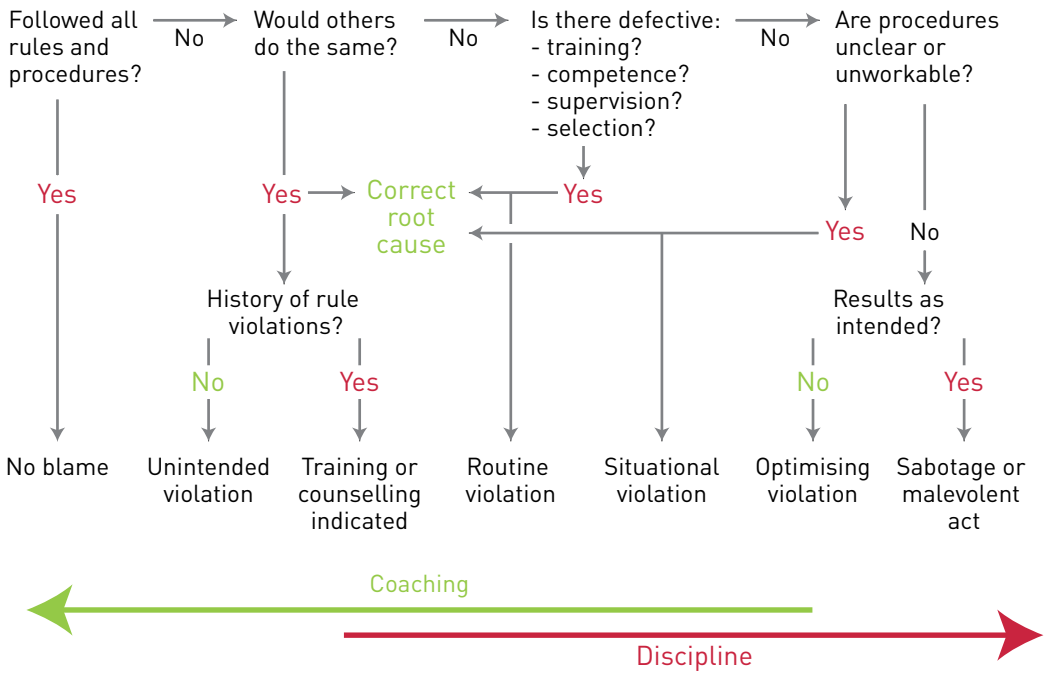


Figure 2.1: **ICAM Just culture model**

2.3 Change management

An integral part of lessons management is change management within the organisation. The change management process will be different for each organisation. Change management is covered in extensive detail outside this handbook (see the bibliography for a list of additional reading materials).

An organisation's ability to change behaviour by implementing a lesson is ineffective unless that change can be observed and it can be determined that the lesson was learned – that is, that the corrective actions taken have improved the organisation's performance.

2.4 Unlearning

Sometimes before a lesson can be learned, old ways may need to be unlearned. Unlearning can be described as 'the process of reducing or eliminating pre-existing knowledge or habits that would otherwise represent formidable barriers to new learning' (Newstrom 1983).

> **The illiterate of the 21st century will not be those that cannot read and write, but those who cannot learn, unlearn and relearn.**
> Alvin Toffler

In a rapidly changing world, or emergency operation, individuals and organisations need to be flexible enough to use knowledge to adapt to emerging situations. Learning may be difficult but it is often unlearning that we really struggle with.

2.5 Communication strategy

A communication strategy will facilitate lessons sharing and stakeholder engagement throughout the lessons management model. Sharing lessons and making them available to everyone should be the goal of a lessons management program. Lessons can be shared through pathways such as:

- briefings
- bulletins
- reports
- emails
- websites
- databases
- wikis.

Lessons sharing reduces risks, improves efficiency and improves the cost-effectiveness of processes and operations.

CHAPTER 3

THE LESSONS MANAGEMENT SYSTEM

This handbook suggests a model for a lessons management system, consisting of four steps (see Figure 3.1 for how these steps work together):

1. collection
2. analysis
3. implementation
4. monitoring and review.

3.1 Collection

The first step in the lessons management system is the collection of observations. This phase of the model looks at the different ways to gather information that will be used in step 2, 'analysis'.

3.1.1 Collection opportunities

Potential opportunities to collect observations include:

- activities, such as observing an actual event or actions, or training events and exercises
- planning sessions and conferences
- submissions by an individual or a group
- reports, articles, documents and reviews
- after action reviews (AARs), post-event reviews or debriefs.

These collection opportunities can be classified as either active (where the lessons practitioner interacts with the participants to gather observations) or passive (where observations are collected from documentation or other media.)

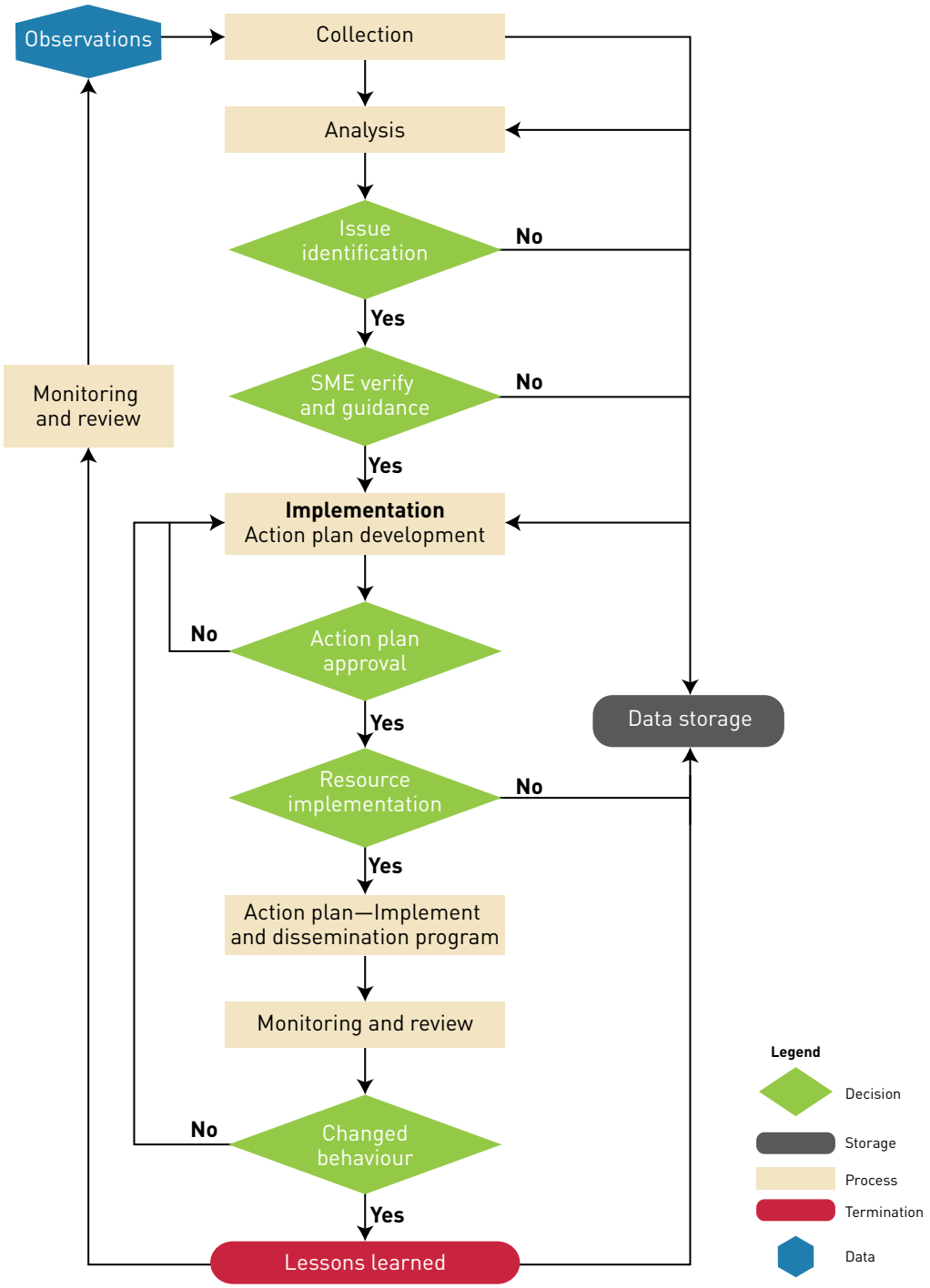


Figure 3.1: **Elements of a lessons management system**

Collection can be either targeted or general. A targeted approach focuses on collecting data on specific themes, questions or elements. A general approach allows for opportunistic collection of observations to discover themes that may not otherwise have been identified. Both approaches have disadvantages – the disadvantage of a targeted approach is that observations may be missed, while the disadvantage of the general approach is that it is not possible to focus on everything.

3.1.2 Collection planning

For an organisation to benefit the most from a lessons management system, it is important that it plans the data collection. Some activities (e.g. natural disasters) are unpredictable, so the lessons management process must be flexible enough to capture the unexpected.

For any collection activity, a collection plan should be developed to guide the collection of observations. This could be as simple as a list of topics or questions you are interested in exploring. Alternatively, a plan could provide much more detail. For large operations, the collection plan may need to include administrative detail for the overall task.

Topics that need to be considered in a collection plan include:

- scope
- targeting – who, what, why and when (for both participants and data collection team)
- organisational priorities and information needs
- legal ramifications and sensitivity
- security of information
- qualitative and/or quantitative data
- authority to collect
- appropriate method for situation.

At a minimum, a good collection plan will state:

- what you want to know
- who you are going to ask
- why you want the information
- what you intend to do with the information
- how you will collect the information.

Remember, the collection plan is only a starting point and can be amended as information is gathered. The plan needs to be flexible.

3.1.3 Tools and techniques

There are multiple ways of collecting data; some of the more widely used methods include:

- debriefs (see Appendixes 2 and 3 for more information)
- interviews, surveys or questionnaires
- observations
- facilitated discussions and facilitated learning
- real-time evaluations
- audio/visual recordings
- logs/documentation
- media reviews (social, print, electronic)
- accidents and near-misses investigations (e.g. using incident, cause, analysis, monitoring [ICAM] methodology)
- reports
- self-reporting
- data mining.

Information can be pulled into the process through direct collection efforts (e.g. debriefs) or it can be pushed into the process by organisations, units and individual submissions.

A good way to accelerate the collection effort is to motivate individual and organisational behaviour using a collaboration strategy that treats the information exchange as a mutually beneficial transaction between someone who has information and someone who needs the information. The return for participating in ongoing lessons management is that all players see a tangible result for their input to the process (e.g. a change in workplace practices). The return to the organisation is improved workplace practices, policies, plans, structures and, therefore, better outcomes.

Managing expectations throughout the process is important to ensure that people are willing to share information with a mature approach.

Appendix 4 contains examples of collection plans.

3.2 Analysis

Analysis processes are complex and involve a range of different theories and applications to derive findings. This step may require specialist skill. This handbook will provide an overview of the analysis process as it applies to this lessons model.[2]

Note that, before starting an analysis, the purpose, scope and parameters of the task need to be defined. A key goal of lessons analysis is to determine the root cause of the observations and insights. From here, lessons can be identified and appropriate courses of action to embed the lessons can be recommended.

The analysis step involves the review of the collected data (both quantitative and qualitative) to identify trends or themes that an organisation may use to define its learning opportunities. This informs possible solutions, strategy development and implementation options.

Lessons practitioners need to be aware that observations are people's perceptions. The analysis process needs to identify the factual evidence underlying these perceptions and identify the root causes of the situation.

2 www.safetywise.info/home.php

3.2.1 How to analyse

There are two broad approaches to analysis – deductive (top-down) and inductive (bottom-up). Deductive analysis begins with a theory or hypothesis that is tested by observations. If the observations support the theory, it suggests that that theory is correct. Inductive analysis involves the analysis of observations to find trends and themes. These trends and themes are then linked together to form a theory or hypothesis. Analysis in a lessons management process often uses a combined approach (NATO JALLC 2011).

Some analysis techniques that may be used include:

- incident pattern
- critical decision method
- network analysis
- behavioural analysis
- market (commodity) analysis
- value chain analysis
- thematic analysis
- strategic business analysis.

Refer to Appendix 5 for more detail.

3.2.2 Approach to analysis

This section outlines a basic approach to conducting analysis. It can be varied to accommodate an organisation's source material and requirements. As a minimum, your approach to analysis should include the following (see Figure 3.2):

- data coding
- grouping similarly themed observations to form an insight (or support an existing insight)
- analysing observations within an insight to identify the root cause

- developing treatment options and recommended actions
- verifying and/or authorising outcomes.

This process will provide organisations with focused reports backed by objective analyses. Staff conducting analysis must do so in a systematic and comprehensive manner, while maintaining focus on the organisation's requirements and bearing in mind realistic timeframes. When conducting analyses, it is vital to exclude all the irrelevant facts, support realistic possibilities and test the analysis with argument. The following subsections provide more detail about the steps in this approach.

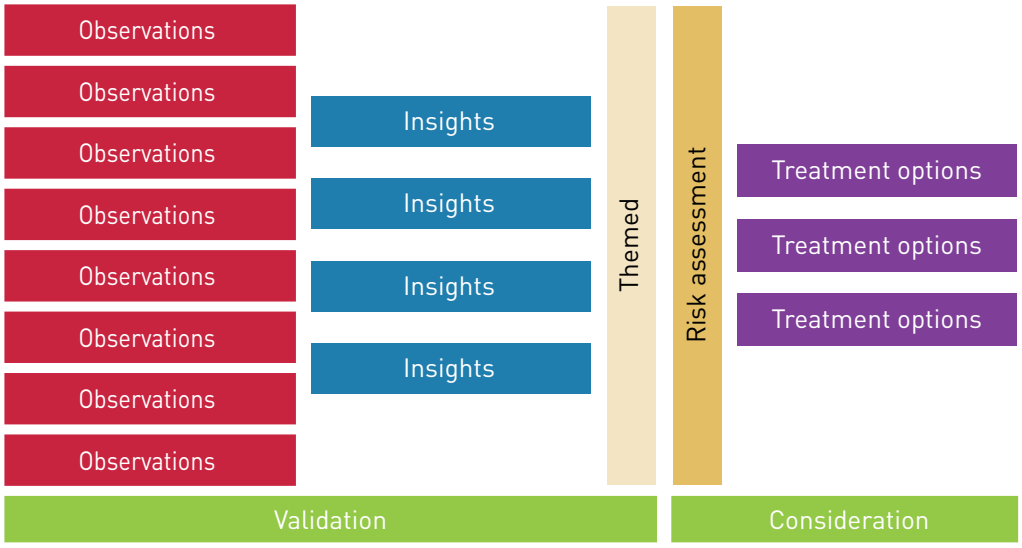


Figure 3.2: **Approach to analysis**

Data coding

Observations should undergo some form of coding so that themes and trends can be identified. It will also allow information to be extracted at any time. Using a common coding system can facilitate the exchange of information and lessons across agencies, sectors and jurisdictions. To assist in this process, it is recommended that the following coding classifications be used as a minimum:

- National themes, which are major, high-level descriptors of observations. These have been chosen because they are common to most agencies, operations and exercises. Refer to Appendix 6 for an example.
- Capabilities or lines of operation. which are used to describe the activities undertaken by an organisation. See a suggested list in Appendix 6.
- Elements of capability, which are the specific building blocks or enablers of all capabilities. Appendix 6 presents different approaches to classifying elements of capability.

Many national security or emergency management agencies in Australia are currently using PPOSTT (People, Process, Organisation, Support, Technology and Training) as their preferred model. Appendix 7 shows that many international models essentially list the same elements.

Organisations may need to add coding classifications specific to their activities such as:

- functional areas
- corporate areas
- unique identifiers.

Grouping similarly themed observations to form an insight

Once coded, similar observations can be grouped to form insights. Insights are patterns in observations that require further analysis or investigation. Alternatively, an insight may be identified when a single observation is rated as a high to extreme risk requiring immediate action.

Not all observations from an activity will immediately become an insight. This usually occurs where an agency or individual does not see an event or problem to be significant or prevalent enough. It may, however, translate into a trend with the aggregation of observations over time to become an insight. To determine which insights are relevant and can contribute to an analysis, other external agencies may need to be consulted.

Analysing observations within an insight to identify the root cause

Insights are analysed to determine their causal factors. This is undertaken using root-cause analysis tools. Simple tools such as the '5 whys technique' (Ohno 1988) can help answer 'who, what, when, where and why'.

This step focuses on identifying the root cause of events rather than simply addressing their symptoms, and can prevent problems from recurring or provide guidance to ensure that positive actions are sustained. The analysis should be conducted in conjunction with a subject matter expert to ensure the analysis is valid.

Developing treatment options and recommended actions

Following the analysis and identification of root causes, options for addressing the situation should be developed. These may include ways to address gaps in performance or ensure that high performance is maintained.

Verifying and/or authorising outcomes

A report should be provided to the relevant authority in the organisation that outlines the insight and the recommended actions identified in the previous step. This authority should confirm the actions recommended and the implementation plan.

The report's contents will vary according to organisational needs. As a general guide, analysis-based reports may include some of the following:

- overview of the activity
- brief summary of the method of sourcing information
- summary of insights
- some engagement and validation
- recommendations for further action, if required.

A lesson is said to be identified once the relevant authority in the organisation has accepted the report and recommendations.

At this stage, you should also identify performance measures that will determine if the required changes have been implemented, and if they are effective and long lasting. Initial measures should be taken at this stage to establish a benchmark before implementation. One measure of success of the lessons management will be the decline in similarly themed observations over time.

3.3 Implementation

Once the analysis is complete, consider how to implement the lesson(s) identified – do practices need to be changed or be sustained?

WARNING: You need to be aware of what to expect when implementing lessons in an organisation, how to engage people and how to learn the lessons. Knowledge or awareness of lessons management processes will assist in ensuring success of the process.
Implementation of improvements and sustaining the resulting change is a difficult process.
National Security Knowledge and Lessons Management Working Group (2012)

This section will discuss some issues that are commonly confronted when introducing lessons management and outlines some strategies that may improve the likelihood of success. An understanding of contemporary change management practice may also be useful in this process (see Section 2.3).

Some guiding principles in implementing a lessons management system include:

- have an action plan for implementation, but be prepared to adapt this if necessary
- have executive support – this is critical for successful implementation (but acceptance of the change needs to come from the bottom up)
- recognise that gaining commitment from people is vital to the success of the model.

3.3.1 Engaging others in the lessons implementation process

It is important to consider how people will be affected personally by changing a process or system that they are comfortable with. The uncertainty of change can provoke strong emotions in people. (Note, however, that not all lessons identified will result in change. Some may require sustaining a current practice.)

People are generally the most critical resource, supporter, barrier and risk when managing lessons within an organisation, and they may:

- not be aware of how the lesson was identified
- feel that it is not their priority
- not agree that the outcome of the lesson is relevant to them
- disagree about how the lesson identified should be implemented
- feel there is a criticism about the way they do things
- feel that they have done this before and nothing changed, or feel that duplication of effort without extra productivity may occur.

3.3.2 Communication with your target audience

Communication should take place throughout the lessons implementation step with everyone involved. Early communication and consultation, while the implementation is still in the planning stage, will assist in getting people interested and prepared to participate in the lessons management process.

Stakeholders will have different levels of involvement. At various stages of the implementation they can be informed, consulted or collaborated with, or be active participants. Stakeholders should be provided with as much information as possible, including baseline data and the objectives of the outcome, and should be involved in determining solutions.

Lessons implementation will be more successful and more people will be committed to the change if they believe it will improve things. The 'what's in it for me?' test helps to identify useful motivators. Encouraging informed debate and discussion about the need

for implementing lessons can help to motivate change. People tend to move away from a problem and towards an improved state.

3.3.3 Using a pilot

It is often a good idea to begin with a pilot (i.e. a small trial of the lesson identified), which can be undertaken in an area that is keen to be involved. Using people in an area who are enthusiastic about learning the lesson will increase the chances of success and pave the way for a positive broader rollout. These people are often referred to as project champions, because they have the ability to not only implement the lesson, but to also promote the process to the rest of the organisation.

The pilot can highlight any barriers to the implementation of lessons as well as provide valuable learning in successful implementation strategies. The information and outcomes achieved from a pilot can redefine the approach used in implementing the lesson.

3.3.4 Tips for an implementation plan

Sharing lessons and prioritising information are both important for a successful implementation plan. These are discussed on the following pages; Box 3.1 includes some additional tips for a successful implementation plan.

Sharing lessons

Sharing lessons within and among organisations ensures everyone benefits from the knowledge gained. Lessons can be shared through many avenues, such as briefings, bulletins, reports, emails and websites. Sharing lessons and making them available to everyone should be a primary goal of a lessons management system, because it can reduce risk, improve efficiency and increase the effectiveness of processes and operations. Data sharing between lessons managers and other learning organisations is also encouraged. The guiding principle in executing a sharing strategy is to get the right information to the right person at the right time. It is imperative to make sure the information you disseminate is accurate and correct. It is often a challenge to be able to get the right information quickly to those who need it the most.

Box 3.1: Tips for an implementation plan

- Have a defined communication strategy that includes using a variety of media to reach people.
- Be consistent about sharing information.
- Involve stakeholders in the planning process.
- Support people with training and opportunities to practise and embed the changes.
- Listen to and act on questions, feedback and concerns.
- Have a shared vision about lessons management.
- Learn about the target audience.
- Identify the decision-making authority.
- Consider the barriers to implementing lessons and cater for them when developing strategies.
- Expect to need varying strategies; the implementation of the lessons is not necessarily going to be uniform across the organisation.
- Establish measures of effectiveness for the lesson and conduct initial measurements against these before implementation to set benchmarks.
- Determine action items involved in implementation, and identify persons responsible for these and the required timelines.
- Provide feedback on progress to stakeholders.
- Report the success of the implementation.

Box 3.2: Why don't people share?

- It's not convenient.
- They do not know what they know.
- They do not know the value of what they know.
- They believe knowledge hoarding is job security.
- They do not get credit for it.
- They do not have the time.
- They do not know how.
- They do not know who is interested.
- Sharing of issues sometimes leads to additional work to fix.

Lessons management systems must have the ability to share and disseminate information to be effective. The system must also be able to determine which information is important or urgent, and how rapidly it must be passed to individuals or other

organisations that could benefit from the knowledge. The system should have a process and medium to do this, and may need to have the ability to handle both classified and unclassified material.

Prioritising information

A key part of a lessons management system is identifying and sharing priority lessons quickly. This requires an ability to analyse information from collections, determine urgency or priority, and gain permission from management to share – all as rapidly as possible. The challenge in this process lies in the fact that the faster you need to get the information out, the more risk you assume by not conducting a thorough analysis to make sure you are drawing the correct lessons.

An example of one way to construct a rapid sharing process is depicted in Figure 3.3. In this example, the lessons learned system has created timelines for sharing that are tied to the urgency of the information and a medium to disseminate that information. The terms immediate, urgent and routine would need to be defined specifically to meet the needs of the organisation(s).

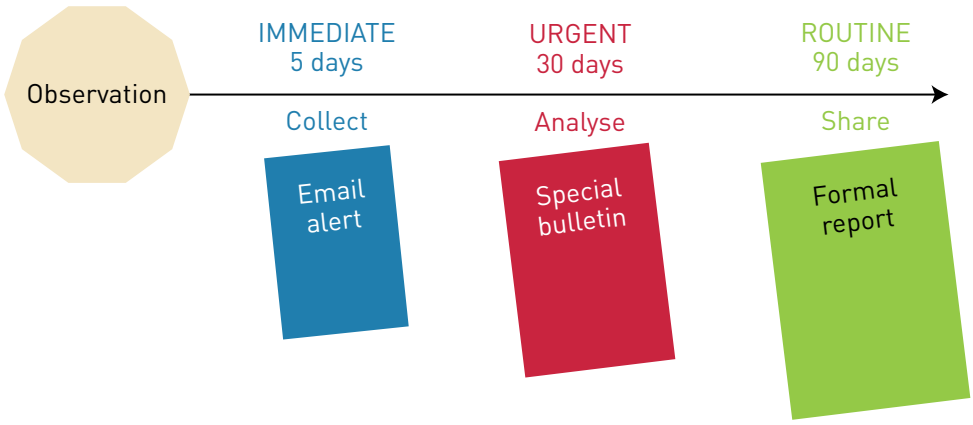


Figure 3.3: The rapid sharing process

For example, an 'immediate' need to share a particular lesson may be to prevent the injury or death of an operator. If shared rapidly, information should continue through the analysis process and eventually be formally vetted, archived and become a part of the

issues-resolution process – if it rises to that level of importance. You can publish lessons of less priority as articles, reports, bulletins and so on.

3.3.5 Barriers to implementation

An effective lessons management process must ensure that the most significant lessons are institutionalised and practised. However, the following barriers often prohibit an organisation from effectively implementing a successful lesson management process:

- Lack of leadership, authority and/or management, and commitment to the learning process. It is vital that an organisational culture that fosters the value of knowledge sharing exists. Such a commitment will aid in alleviating the natural resistance of individuals and/or organisations to share their lessons. The goal is to move from a culture of punishing mistakes to one of not repeating them.
- The quantity and quality of lessons available. Lessons, if poorly managed and coded, may result in a convoluted and ineffective repository of observations that offer little or no value to those intending to benefit from them. Refined skills in the management of succinct observations, insights and recommendations will ensure that quality lessons are identified.
- Inadequate resources devoted to lessons management. An effective lessons management process requires significant ongoing resource commitment and support.
- Lack of application in a broader context. Lessons are often identified in multi-agency environments, but generally can only be learned within single organisations unless mechanisms are in place to collaborate and synchronise multi-agency efforts. Organisations need to take responsibility for learning their own lessons. Multi-agency activity is only as strong as the weakest link.
- Lessons learned from the past do not alone guarantee greater future success. Individuals, organisations and processes need to be flexible enough to take what has been learned from past situations and adapt to meet new challenges. Lessons are potentially most valuable if they can be extracted from specific past circumstances and applied to broader future situations.

3.4 Monitoring and review

This step focuses on establishing or confirming the success or outcomes of implementation activities.

How the lessons management model will be monitored and reviewed needs to be considered at the outset. This also includes an agreement with managers on how, when and what information needs to be passed up through levels of management. There are several ways to determine if lessons management is effective. Quantitative and qualitative measures can be used to assess:

- changed behaviour or culture
- increased operational effectiveness
- better resource efficiency
- improved safety
- improved community outcomes
- increased compliance with policy, processes and procedures.

Monitoring the effectiveness of the implemented lessons needs to be carried out as outlined in the implementation plan. The results of this monitoring can indicate if implementation is on track or if changes need to be made to the plan.

3.4.1 Reporting

Implementation reports may vary in style, composition, organisational requirements and target audience. As a minimum, they should include data against the established benchmarks and action items within the implementation plan. Consider using progress reporting and the development of reporting templates.

Ideally, the results will be shared with all stakeholders, and therefore require different styles of communication for different audiences. Reporting helps develop a learning culture that is inclusive and sets the standards for implementing future lessons within the organisation.

3.4.2 Conclusion

Monitoring and review should be an ongoing component of lessons management. The key is to know what you are measuring and validate that the changes have actually resulted in improvement. Change may be validated through exercises, training and operational activity. A lesson has been truly learned when the observation no longer occurs.

3.4.3 Debriefing

One of the most critical steps in the lessons management process is collecting stories and experiences from people involved in the event. This collection is not limited to post-activity and can occur before or during an event. The timing and method for data collection needs to be considered while planning for the engagement activity.

There is a wide range of terms used in Australia and internationally to describe these collection activities. Terms in common use include:

- interviews
- debriefs
- post-event analysis
- post-operation review
- after action reviews (AARs)
- facilitated learning analysis.

In Australia, most of these terms can mean different things to different agencies or individuals. Many agencies will conduct debriefs at the end of an operation or shift. Some agencies will conduct similar activities and call them AARs (see Box 3.3).

In addition to debriefing, the information collection may include surveys, group discussions and observations from evaluators, observers or other parties. Other methods might include facilitated learning analysis or accident prevention analysis (US Forest Service 2011).

Box 3.3: Warning about language

Lessons managers need to be aware that organisations and individuals use terms and techniques inconsistently and sometimes interchangeably. There are no agreed definitions to delineate the terms. Lessons managers need to be aware of their own organisation's procedures and terminology, and be aware that other agencies will continue to use different procedures and terminology.

In this handbook, debrief is used as the overarching, generic term to refer to the range of activities designed to collect information or observations to inform lessons identification.

Critical incident stress debriefs and psychological debriefs are particular types of debriefs, but are beyond the scope of this handbook, which provides general considerations for debriefs and after action reviews. References and links to further details are included in the bibliography.

Organisations have models that use a variety of methods to find and record observations, including:

- informal debriefs, which are ongoing throughout the incident
- AARs, which are are informal (or formal) debriefs held immediately after the incident
- formal debriefs (or internal organisation debriefs)
- multi-agency or state debriefs, which are formal debriefs for larger incidents across jurisdictions and/or organisations that may require an independent facilitator.

Table 3.1 outlines some differences between formal and informal debriefs.

Table 3.1: Characteristics of formal and informal debriefs

Formal debriefs	Informal debriefs
Are facilitated by an objective outsider	Are conducted by those closest to the activity
Take more time	Take less time
Use more complex review techniques and tools	Use simple review techniques
Are scheduled beforehand	Are conducted when needed
Are conducted in meetings or other 'formal' settings	Are held at the event's site
Require a more standard and thorough report	Can be covered by a less comprehensive report

Debriefing is more than simply producing a report at the end of a meeting. It is a part of a process of learning and has a powerful influence on the organisation. It educates and motivates people by sensitising them to do the right thing. It can prevent future confusion on organisational priorities and philosophies, and drives home the main point of lessons management – that we learn from our mistakes.

One of the aims of debriefing is for staff to communicate the experiences they had during the event so that observations can be identified. In some instances, the informal debrief process will identify work practices that can be modified immediately. However, these lessons need to be captured for broader consideration and implementation. The debrief process should be guided by an organisational protocol that encourages learning and allows for the development of solutions.

Debriefs are not about apportioning blame; they focus on improving the elements of capability that include people, process, organisation, support, technology and training (PPOSTT). It is important that all participants understand the elements of capability, and how sharing information and experiences will assist individuals and the organisation to learn from an incident. In relation to the capability of people, it is normal for mistakes, errors and lapses to occur. This is normal and inevitable human behaviour. It is important that the debrief remains focused on gathering observations for the lessons management process and is not used to apportion blame (see Section 2.2).

3.4.4 When and how to debrief

Organisations wishing to adopt a lessons management approach need to develop suitable guidelines to determine which circumstances debriefs may be required in – including, but not limited to:

- an informal debrief to be held after every incident, event, exercise or training session
- formal debriefs to occur when
  - significant injury has been sustained by responders or the public, or safety was compromised
  - substantial resources were engaged

  - significant operational shortcomings or unforeseen events occurred
  - significant damage to property occurred
  - recovery issues have been raised
  - as otherwise required by standard operating procedures or business requirements
- a multi-agency debrief to be sought for all incidents or events that required a multi-agency response.

The debrief guideline or procedure should include a template to ensure that debriefing processes are followed consistently (example templates can be found in Appendix 3).

Many organisations have developed methods for organisational debriefing. This includes structuring the sequence of the meeting (e.g. opening, sharing and discussion, closing) and clarifying roles of participants (the initiator, the planner, the leader, other participants). For a detailed analysis of one such approach, see Appendix 3.

3.5 Other considerations before and after the event

3.5.1 Before the event

If there is time before an event, consider holding a before action review (BAR). Ask the team to reflect on the following questions:

- What are our intended results and measures?
- What challenges can we anticipate?
- What have we or others learned from similar situations?
- What will make us successful this time?

The responses to these questions align the team's objectives and set the stage for an effective debrief meeting following the action. Further consider breaking a sizeable event down into chunks, holding BARs and AARs to develop a feedback loop.

3.5.2 After the event, before the debrief

Consider the audience for the final report and therefore who needs to be at the debrief and what needs to be covered. It helps to create a distribution list (participants, management, the rest of the organisation, etc.) to determine who the audience will comprise.

3.5.3 After the event

Post-event activity will include preparing reports, undertaking organisational debriefs, reviewing plans and arrangements, and documenting and implementing lessons.

3.5.4 Stakeholder considerations

In addition to providing organisational debriefing opportunities for the agencies involved, consider the community's need for debriefing. This may take the form of public meetings, focus groups or other community meetings to discuss what lessons community members have identified from an event. Feedback from community meetings can be factored into organisational analysis. Such a process may also highlight areas of further work to be done to resolve underlying recovery issues.

CHAPTER 4

OTHER CONSIDERATIONS

There are a number of other factors that should be considered when setting up and operating a lessons management system, such as empathy, sensitivity, legal issues and governance.

4.1 An empathetic approach

To create an atmosphere conducive to learning lessons, an empathic approach should always be used when collecting observations. When analysing performance, it is important to identify the specifics of the event that may have acted as enablers or inhibitors of certain decisions and actions, along with the corresponding stressors. The ability to do this requires empathy, which is an important leadership trait and a cornerstone of good communication and emotional intelligence. It allows the lessons practitioner to appreciate and understand the perspective of the other person.

In a debrief setting, if facilitators or analysts develop an empathetic approach to the process, it will substantially address any inclination towards hindsight bias and maintain objectivity. Tips to maintain empathy include:

- avoid naming individuals; instead, use positions /rank or roles
- be generic when it comes to sources, but specific when it comes to observations
- do not focus only on problems (the negative). Good lessons management should also collect information on what is working well (the positive) and identify practices that should be sustained.

4.2 Sensitive issues

There will be times when the lessons management process leads to the disclosure of sensitive information that may pertain to personal, ethical or safety issues. At the outset of any data collection activity, lessons practitioners should advise participants that they are only interested in identifying what can be improved or sustained, not who was involved.

In instances where sensitive issues arise, the lessons practitioner needs to be aware of the organisation's policies and procedures to deal with them. Sensitive information that is collected is to be treated in a confidential manner.

4.3 Legal issues

It is inevitable that after any major event, or any event that leads to a death, there will be a formal legal investigation. This may be an investigation by police, who are required to prepare a report for a coroner, a further investigation by police if they suspect that criminal conduct was involved (for example, where it is suspected that a fire was started by arson or a terrorist-related event), formal coronial inquests or inquiries, a Royal Commission or other post-event inquiry, and occasionally litigation where someone alleges their losses were caused by another's negligence. Just because someone is asked to explain what happened, and what their response was, does not mean that there is any wrongdoing, but the police, the coroner, the Royal Commission and courts need that evidence if they are to understand what happened. These proceedings may provide the opportunity to identify systemic gaps or deficiencies as well as deal with the particular circumstances at hand.

People involved in the lessons process may also be called upon to provide statements or evidence to these inquiries. Further reports and notes produced as part of the learning process may be subject to 'discovery' (which means they would have to be given to the other party in litigation) or 'subpoena' (which means they would be produced to a court).

Those involved in the lessons process should, generally, not be concerned how the material may be used in legal proceedings. There are rules of evidence, including rules that restrict the use that may be made of confidential material, as well as rules of law that define how such material may be used and what is relevant to a particular case. It is beyond the scope of this handbook to discuss those rules in detail but it is clear that, during the debrief or lesson identification process, one cannot know, in advance, if the material might be relevant to any subsequent proceedings. Anyone who is issued a formal caution, either before or after a debrief process, should seek independent legal advice before taking further part in the process or answering further questions.

As a lessons manager your role is focused on identifying the lessons that can be learned for future application – you are not responsible for speculating or determining potential liability arising from a particular incident. It is important that debriefing accurately captures lessons. Identifying lessons from a particular incident may well demonstrate that the response reflected good practice or that the lesson could not have been identified before this event.

As part of the process to identify potential lessons, participants should be reassured that their agency wants to identify the true lessons to support continuous improvement. Further, if participants become involved in subsequent legal proceedings, they should approach their agency about legal advice and assistance. The agency may decide to support participants by providing legal assistance for any subsequent legal proceedings, provided there is no evidence of deliberate criminal conduct or deliberate neglect of duties by the participant.

4.3.1 The privilege against self-incrimination

A person does not have to answer questions from a police officer or a judge if they fear that the answer may be used to prove that they have committed a criminal offence. It is unlikely that material disclosed during a debrief process would be evidence of criminal conduct but it may lead to further police investigation. Where police suspect that a person may have committed an offence, they must warn the person, before asking any further questions, that 'you do not have to say or do anything, but anything you say or do may be taken down and used as evidence' (or words to that effect, depending on the jurisdiction). If the privilege is available in legal proceedings, a similar warning will be given by a judge, coroner or Royal Commissioner if a question has the potential to incriminate a witness. Anyone who is issued a formal caution, either before or after a debrief process, should seek independent legal advice before taking further part in the process or answering further questions.

4.3.2 Legal process as part of the lessons management process

Some legal processes – in particular, formal coronial inquests (into deaths) and inquiries (into fires or disasters), and special inquiries such as a Royal Commission – are intended to collect data and identify potential lessons. These inquiries are, however, limited by their terms of reference and they may make recommendations that can only be implemented at a whole-of-government or policy level.

Subject to any direction from government, Royal Commissions and coronial inquiries should be seen as another tool for the collection of observations and as an independent analysis of the response and outcomes to any particular event. They should be seen as complementing and assisting, not substituting for, a lessons management system.

4.4 Governance

It is recommended that there are policies and procedures to support lessons management for your organisation. Governance is required to provide structure and accountability within an organisation for effective management of lessons.

CHAPTER 5

CONCLUSION

The national interoperability of lessons across the national security sector is a long-term vision for Australia, due to the growing interest in lessons management. High-level buy-in for cultural change, and the development of more interactive and collaborative relationships across the sector are essential to creating the conditions for sharing lessons more productively.

The *National Strategy for Disaster Resilience* has identified that sharing knowledge, including lessons learned from previous events, is important in promoting innovation and best practice. However, identifying lessons is simply not enough. Adapting our systems and approaches requires constant evaluation of capabilities, and the implementation and sharing of findings across the community. Information on lessons learned – from local, national and international sources – is accessible and available for use by governments, organisations and communities undertaking risk management planning and mitigation works. The information and approaches suggested in this guide are the first steps towards this adaptation.

We would like to keep this handbook up to date with the latest concepts, procedures, best practice and innovation in lessons management, so that it remains current and a useful resource for everyone managing lessons. If you have any best practice examples or suggestions about how to improve the handbook, please email them to aemi@ag.gov.au.

5.1 Other benefits

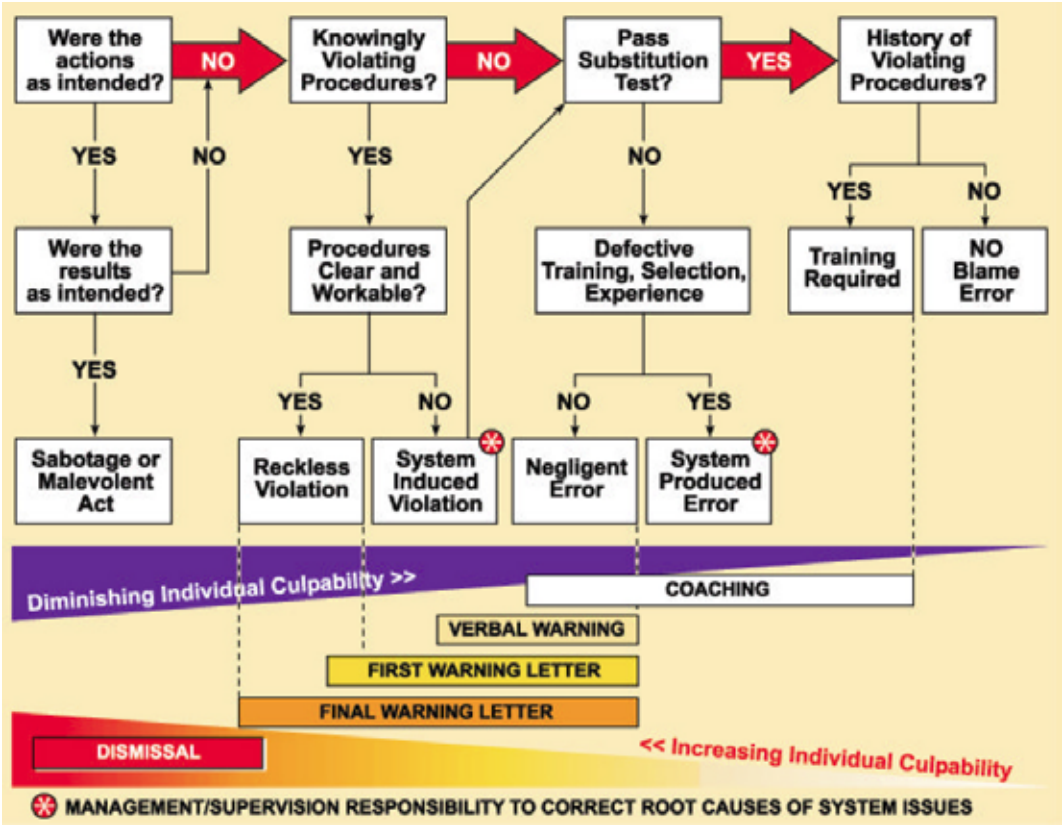
During the development of this guide, the working group identified a number of other benefits from collaborating on lessons management in a multi-agency or multijurisdictional context. These benefits could not have been realised through individual agency activity. The benefits include:

- leveraging off other organisations' (including the Australian Defence Force) capabilities and approaches to adapt and improve our existing tools and approaches
- considerably adding to knowledge sharing through the use of a community of practice
- dveloping a common understanding of terminology

- recognising that individual agencies have a valuable role to play in contributing to the development of national themes and lessons
- fostering a mutual understanding of coding and classification to support the exchange of information across agencies and sectors.

APPENDIX 1

INCIDENT, CAUSE, ANALYSIS, METHOD (ICAM)



Source: Reproduced with permission from Safety Wise Solutions (2013)

Figure A1.1: ICAM (incident, cause, analysis, method) errors flowchart

APPENDIX 2

AFTER ACTION REVIEW FACILITATION

There are several after action review (AAR) facilitation techniques, some examples of which are outlined below.[1]

Setting up an AAR discussion

'This is not a critique, not meant to assign blame. It's an open, honest and professional discussion.'

Restating a point

This is used to summarise a point that a participant made that may have not been clear to everyone. For example, 'So you're saying you think the lighting should have started higher up the ridge, and that would have prevented...'

Handling the upwards delegation of blame

Participants will often blame the system for being broken, which causes failures at their level. So you could say, for example, 'OK, I agree, but that's out of our hands. We still have to live with the fact that this issue places us at increased risk. So what can we work on at our level to improve?'

Bringing out the opinion of the 'quiet ones'

Some people don't participate very much during an open discussion, but they are usually listening closely and, when asked, can contribute good insights. For these types of people, try waiting until a bit later in the AAR and then ask them, by name, an open-ended question. For example, 'Well, Ken, you were up on the road, what was your perspective on this?'

Interrupting a dominant member of the group

Some people naturally like to talk. There is also a tendency for a leader to give all the answers. Interrupt them tactfully with a comment such as, 'I'm concerned we're going too deep into this issue without getting any additional input. Let's hear from...'

1 Techniques prepared with assistance from Mark Smith, Mission-Centered Solutions.

Handling a group that is in denial

One or more people think, for example, that communications went fine and are not discussing the issues. To encourage discussion, you could:

1. Act somewhat surprised. 'Really? Interesting. Are there any other thoughts on how communications went today?'
2. Spur discussion with one of your own observations. 'OK, I saw a couple of messages that didn't get passed to the guys on the road. What was the plan there?'
3. Press a bit firmer. 'OK, what I'm hearing is that you would do this exactly the same way again?'
4. Finally, do one of two things. If the issue is minor, let it pass. If the issue is important, then you may have to make the point blank observation yourself. 'OK. You're saying communications went fine. I saw two specific instances where we were right on the edge of the fire break and that message did not get to either Mike or Susan. You're telling me that is not a problem? What would have happened if we didn't get those extra resources?'

Pursuing an issue to its root cause

Asking 'why' five times is a good technique to make sure that you are really getting to the root cause of an issue. 'So...the drip torches weren't ready because they didn't get filled. And we've heard they didn't have fuel because the fuel cans were on the other vehicle. What caused that to happen?'

Using 'negative polling' to ask questions

This is an effective way to get quick agreement/consensus. It is faster than making sure everyone agrees. 'Is anyone opposed to moving on to question 3 now?' or 'Does anyone disagree that that was the plan, yet this is what really happened?'

Building up or eliminating ideas

This technique merges complementary pieces from different ideas or highlights agreement on pieces of an idea when the total idea is not agreed upon. 'So is there anything you could add to that suggestion to make it work for you?' or 'What could we change to make it work better?'

Avoiding win–lose decisions

Look for a win–win situation with the group. 'Does it have to be one way or the other? Could we agree to both?'

Asking open-ended questions

This allows for a variety of possible responses while inviting involvement and participation. 'Why do you think that happened?' or 'What could we do differently next time?'

APPENDIX 3

AFTER ACTION REVIEWS AND DEBRIEFINGS

Sample after action review card[2]

Department of Sustainability and Environment

Debriefing your crew:
The After Action Review Process

Victoria
The Place To Be

CFA

What is an AAR?

Local debriefing using the After Action Review (AAR) process is a way to debrief your crews back at the Station, workcentre or staging area at the end of a shift, tour of duty, fire or incident.

By identifying and addressing the issues as soon as possible after an event, we are able to deal with them immediately while the details are still fresh in our minds.

The AAR is the primary tool for incorporating the action's or day's events into the learning cycle, helping us to improve our performance.

AAR:

- Provides practice for crew communication and for conflict resolution between team members.
- Provides a place to establish, emphasise, and reinforce group norms.
- Provides a forum for determining the reasons for crew successes and failures.
- Assists in establishing a common crew perception of the events of the day.
- Is not a critique, the emphasis is on the issues NOT personalities.

1. What was planned?
What were the goals and objectives?

- Incident action plan
- Crew incident goals
- Other crew goals
- Individual goals
- Additional un-stated goals.

2. What really happened?
Discover the events of the day through your crew members' eyes. Collectively, the crew probably knows what happened, but each individual may not.

3. Why did it happen?
Find the root causes behind identified performance successes and failures. It is important to remember, the AAR focuses on the WHAT not Who.

4. What can we do better next time?
Once you have identified the root causes, develop remedies that concentrate on improvement strategies.

A local debrief using AAR does not replace other kinds of formal debrief that might be held sometime after the incident, but is a valuable tool to identify key issues.

Version 1 - 2008-09

2 Reproduced with permission from Country Fire Authority & Department of Sustainability and Environment Victoria (2008–09)

Four simple steps

1. Conduct an AAR at the end of the shift/tour or fire. You may choose to use the form below for your record.
2. Implement any improvements that are within your responsibility.
3. If there are key issues that can be immediately actioned by others, communicate these through the chain of command or via the staging area as you leave the fireground.
4. Note any other key issues for input to a formal debrief (if held) or submit these to your supervisor for consideration.

What was planned?	What really happened?	Why did it happen?	What can we do better next time?

Incident _____ Date _____ Prepared by Contact details ____

Shift _____ Agency Phone _____

Email _____

Extract from organisational debriefing[3]

Part 2: Post-event Debriefing Processes

Post-event activity will include preparing reports, undertaking organisational debriefs, reviewing plans and arrangements and documenting and implementing lessons.

As well as providing organisational debriefing opportunities for the agencies involved, consider the community's need for debriefing. This may take the form of public meetings, focus groups or other community meetings to discuss what lessons community members have identified from an event. Feedback from community meetings should be factored into organisational debriefs. Such a process may also highlight areas of further work to be done to resolve underlying recovery issues.

2.1 Reporting

The purpose of reporting is to maintain accountability and transparency, to keep the wider community informed, to gain support and assistance and to record an account of response/recovery efforts, including lessons identified. For details on post-event reporting, see Part 6 of *Recovery Management: Director's Guideline for Recovery Management* [DGL4/05].

2.2 Organisational debriefing

Post-event learning is an essential aspect of both the planning process and successful recovery[1]. Events occur on an infrequent basis and it is 'important to document any lessons identified from managing incidents and to change current procedures and plans and provide reasons for any changes, so that they can be referred to in future incidents, which may not be managed by the same team. Many of the lessons identified in managing an incident have value for others working in the field'[2].

2.2.1 Ground rules when undertaking organisational debriefing

It is vital that debriefing is carried out in a manner conducive to promoting organisational learning and encouraging a no-blame culture. Arney[3] (2000) suggests using ground rules when debriefing. Debriefing should:

- be conducted openly and honestly
- pursue personal, group or organisational understanding and learning
- be consistent with professional responsibilities
- respect the rights of individuals
- value equally all those concerned.

2.2.2 Types of organisational debriefing

Three types of organisational debriefing can be used to promote post-event learning. They can be held at different times for example at the end of each shift, following the end of the response, after the transition from response to recovery, throughout the recovery activity (such as at three-monthly intervals) and following the exit strategy.

1 Section 2.2 adapted from Norman, (2003) *Organisational Debriefing* (Working Paper) Coventry Centre for Disaster Management, England

2 Eagles, E, Goodfellow, F, Welsh, F, Murray, V, (2003) *Environmental and Public Health*, HMSO, London

3 Arney, (2000) *Structured Debriefing* (Course Notes)

3 Produced by the New Zealand Ministry of Civil Defence & Emergency Management (2006). Reproduced with permission.

1 The hot (or immediate post-event) debrief

Key features

- Held **immediately after the incident response or shift is completed**.
- Allows a rapid 'off-load' of a variety of issues and concerns.
- Should address key health and safety issues.
- Provides an opportunity to thank staff and provide positive feedback.
- May be facilitated by a number of people from within the organisation.
- A number of hot debriefs may be held within an organisation simultaneously following an incident. Each department/unit may wish to hold their own hot debrief to identify key issues within their locality.

2 The internal organisational debrief

Key features

- Should be **held within four weeks of the incident**. If the incident continues to be managed over the medium to long-term it may be necessary to hold regular internal organisational debriefs at key milestones.
- Should involve the same key players within the organisation that were involved in the response to the incident.
- Should address organisational issues not personal or psychological issues.
- Should look for both strengths and weaknesses as well as ideas for future learning.
- Provides an opportunity to thank staff and provide positive feedback.
- May be facilitated by a range of people within the organisation.

3 The multi-agency debrief

Key features

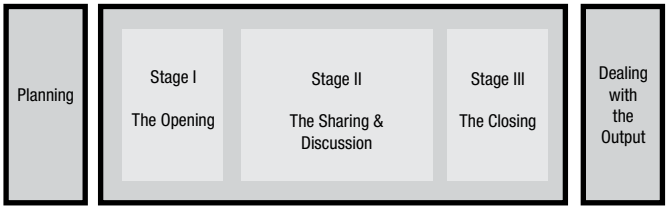
- Should be held **within six weeks of the incident**. If the incident continues to be managed over the medium to long-term it may be necessary to hold regular multi-agency debriefs at key milestones.
- Should focus on the effectiveness of inter-agency coordination.
- Should address multi-agency organisational issues not personal or psychological issues.
- Should look for both strengths and weaknesses as well as ideas for future learning.
- Provides an opportunity to thank staff and provide positive feedback.
- May be facilitated by a range of organisations such as Police, Local Authority or Fire Service.
- May form part of tiered debriefing process, eg local authorities in a region affected by an emergency may undertake an internal debrief initially; followed by local authorities in the region contributing to a multi-agency CDEM Group debrief; followed by CDEM Group representatives contributing to a debrief of government agencies at national level or a debrief between affected CDEM Groups and agencies involved in the National Crisis Management Centre.

2.3 Process of organisational debriefing

A number of methods are already used within the CDEM sector for undertaking organisational debriefs[4] (see **Part 3**). One method used effectively by a number of organisations following the February 2004 Flood and the Eastern Bay of Plenty flood in July 2004, as well as internationally is a method for Structured Debriefing developed by John Arney in 1998. *Structured Debriefing* is flexible model for learning through reflection by sharing experiences, gathering information and developing ideas for the future. The process is provided in this section for those wishing to develop a method for organisational debriefing.

[4] Section 2.3 adapted from Arney (2000) *Structured Debriefing* (Course Notes)

Figure 1: Process for Debriefing



2.3.1 Planning your organisational debrief

- Four roles exist within structured debriefing. One person can lead all four or the tasks can be broken down into separate roles.
  - Initiator – the person who requests and is ultimately accountable for the debriefing process.
  - Planner – the person who plans the debrief based on key areas and questions.
  - Leader – acts as facilitator for the debrief.
  - Participants – attend and participate in the debrief.
- Before arranging an organisational debrief consider the key areas and questions outlined in the table below:

Table 1: Key areas & questions

Key Areas	*Questions*
Purpose	• What is the purpose (aim) of the debrief? • What event is being reviewed? • What period of time is to be covered?
Authority Issues	• What additional role does the initiator (the person who requested a debrief) wish to adopt? • Will anyone in a position of authority be taking part or wish to be present? • Confirm the level of disclosure or confidentiality of debriefing material required by the organisation.
Participants	• Are the participants aware of the debrief? • Are they all willing to take part? • What experience have they of debriefing? • Consider questions they may ask.
Numbers	• How many people were involved in the event? • How many people are keen to take part in the debrief?
Time	• What is the minimum and maximum time available for the debrief? • When does the debrief have to be completed? • Is some sort of social gathering (if appropriate) planned at the end of the debrief eg morning tea, BBQ etc?
Location	• Where is the best place in the circumstances?
Leader	• Who will lead the debrief? • What experience does the leader (person facilitating) have of debriefing?
Resources	• What maps, charts, photos, reports etc should the facilitator and/or participants have access to both before and during the debrief?

- Once these key areas and questions have been considered, a debriefing plan (see **Annex A**) can be compiled. The time required for the debrief will depend on the number of participants attending.
- A list of key considerations and hints for best practice when debriefing is provided in **Annex B**.

2.3.2 Pre-debrief

(a) Dissemination of information
- Send invitations to all those involved
- Confirm attendees and then set the timeframes for the session based on the number of people attending eg does the session need to be an hour or three hours?
- Confirm venue, set-up and duration of meeting
- Create an agenda or programme

(b) Setting up the room
- Ensure room is set up with enough seats, refreshments, etc.
- Using three different colours of sticky notes eg blue, pink and yellow, put three blue and three pink sticky notes on each chair. Hold onto yellow sticky notes for later.
- Print out in poster size or write up on whiteboard:
  - ground rules for debriefing
  - debriefing aims
  - the three key prompt questions

2.3.3 Stage I: The opening

(a) Introduction

Like meetings, facilitating a debrief involves providing:
- a welcome to participants
- an overview of the reason for the debrief eg following a flood, train derailment etc
- an overview of the aim of the debrief
- an overview of the method for debriefing, including potential actions following the debrief ie notes will be written up and given to the person initiating the debrief and a process developed for addressing lessons identified
- an opportunity for participants to introduce themselves and their role in the event
- details on the discoverability and transparency of debriefing documentation (also see section 1.2)
- an explanation of how and why the debrief facilitator was appointed.

(c) Review

Provide an explanation of the prompt diagram which should be based on the event or issue being explored in the debrief. A prompt diagram could be a hand-drawn diagram on a white board or a large piece of butchers paper or something created on computer and printed in A1 or A2 size. The prompt diagram may depict key milestones, key decisions, timelines, etc. Two examples of prompt diagrams are provided in **Annex C**.

(d) Ponder

Ask the participants to take 2-3 minutes to consider the first two prompt questions eg

(i) What, for me, were the negative aspects of the emergency/event?

(ii) What, for me, were the most positive parts about the emergency/event?

Participants should write three answers to the first question on the three blue sticky notes and the three answers for the second question on the pink sticky notes.

2.3.4 Stage II: The sharing and discussion

- Once the participants have finished writing down their answers, ask them one at a time to volunteer a brief explanation (about 20 seconds) of their three answers to the first question and then place the blue sticky notes on the relevant place on the prompt diagram. Please note: It is optional for people to verbally share their experiences with the group.
- When everyone who would like to give their answers to the first question has spoken, ask them to volunteer a brief explanation (about 20 seconds) of their three answers to the second question, one at a time. Place the pink sticky notes on the relevant place on the prompt diagram.
- When everyone who would like to give their answers to the second question has spoken, the leader (facilitator) then asks if anyone has any additional comments to make before the leader summarises the main points raised.

2.3.5 Stage III: The closing

- Ponder: Give each of the participants one yellow sticky note and ask them to take 2-3 minutes to consider the final (two part) question:
  - For me the most significant thing I have learnt during this event has been ……., and
  - If I was involved in the response/recovery/function of another disaster I would……
- Once the participants have finished writing down their answers, ask them one at a time to volunteer a brief explanation (about 20 seconds) of their answer and then place their yellow sticky notes on the relevant place on the prompt diagram.
- When everyone who would like to give their answer has spoken, the leader then summarises the main points raised and again reiterates what actions will be taken following the completion of the debrief - ie that the notes will be written up and given to the person initiating the debrief and a process developed for addressing lessons identified. All participants are then thanked for their contribution as well as their attendance and the debrief is then closed.
- Consider the suitability of social functions to continue building relationships developed during the event. The function could involve for example, food, refreshments, sports, games, or site visit follow-up.

2.3.6 Dealing with the output

- The leader then types up the notes under the heading of each of the three questions used in the debrief. The comments are grouped into key areas raised eg some or all of the following may be key issues: communications, teamwork, human resources, planning, activation, staff welfare, coordination, etc. This forms a summary of the debrief – an example of an organisational debrief summary is provided in **Annex D**.
- These notes are then handed over to the initiator of the debrief. It is the initiator who is responsible for developing the actions and activities for post-event organisational learning.
- The leader should provide details of to whom the debrief documentation will be distributed, for example the initiator and all participants. The initiator may also have to distribute the documentation to additional stakeholders (in the case of an internal debrief this may include managers and the chief executive or in the case of a multi-agency debrief, external organisations. In all cases, the initiator must:
  - keep an accurate distribution list and any comments received;
  - ensure distribution of documentation to all participants; and
  - ensure participants are clear on to whom they can distribute the document within their own organisation or externally - for example *not for general distribution or for distribution to managers only or for general distribution*.

2.4 Actions and activities for post-event organisational learning

Once organisational debriefing has been completed, a number of activities should be undertaken, including:

2.4.1 Notes from organisational debriefing

Following the debrief, the collection of comments should be compiled into a single **internal** document. It is these notes that provide the basis for identifying lessons from the event. Debriefing sessions and the subsequent notes must be treated as confidential to promote a no-blame culture and ensure staff feel able to share their experiences openly and honestly.

2.4.2 An organisational report

An organisational report should be completed after the hot debrief and internal organisational debrief have been completed. It should:

- summarise the sequence of events
- identify the individuals involved
- describe the actions of staff
- provide an accurate timeline
- remain factual, concise, objective and blame-free.

2.4.3 Identifying lessons from the event

An organisational report should allow an organisation to:

- demonstrate where the response was effective and where it was not
- establish why this was the case at corporate level – objectively
- recommend ways to improve future response
- resist a critique of individual actions
- encourage a no-blame culture.

2.4.4 Reviews

A review analyses the plans and arrangements in place at the time of the event. It compares them against what was done and how things did or did not work. The report can provide findings and recommendations and be undertaken by a single organisation or as part of a multi-agency review. Reviews can also focus on particular areas of plans or arrangements such as communications or standard operating procedures. They can also address the response and recovery activity in its entirety up until a particular point in time. Therefore it is important to identify terms of reference as well as aims and objectives of any review.

The review process can be carried out by someone within the organisation. More often it is conducted by an independent person/team to provide objectivity. This person will need to have a defined scope for operating, and will need access to appropriate people within the organisation.

2.4.5 Developing an action plan

By developing an action plan, lessons from the event can be identified and focused reviews undertaken. A named individual should be responsible for completing each action within an agreed timeframe. Review dates should be set and progress should be documented. An action plan:

- identifies the work activities/programme needed to address the findings, recommendations and lessons against a timeframe

- should also identify any amendments, changes or additions to the emergency management plans (eg CDEM Group plans) against a timeframe
- includes a programme of identified training and exercising as appropriate
- aligns with any changes required of other planning documents such as the CDEM Group, Long Term Council Community Plans (LTCCPs), district plans or regional policy statements, national policy documents, strategies or other documentation.

2.4.6 Lessons learnt?

Have the lessons been learnt? Learning from an event requires a genuine process – the lessons must have been identified, the action plan completed and the CDEM Group plan tested and validated by exercising. Only when past mistakes are not repeated can the lessons be considered learnt.

Post-event Checklist

✓	**CDEM Stakeholders should:**
	hold an appropriate organisational debriefing following an event
	undertake a review of plans and arrangements to promote organisational learning
	develop reports and action plans as necessary to address identified lessons and/or gaps
	identify suitable training and exercising following the debriefing process to validate new arrangements

APPENDIX 4

EXAMPLES OF COLLECTION PLANS

A data collection plan sets out a means for evaluators to ensure that they are:

- observing the correct activities
- in the right place at the right time
- covering all the information required to report against the objectives, standards or measures
- being made aware of any relevant standards or measures that need to be applied to performance
- provided with copies of templates or tools for recording data, information and observations.

Centre for Army Lessons collection plan used post-Cyclone Yasi

General Collection Plan Jun 11 – Op YASI ASSIST

Preamble

Welcome and introduce interview team

Reason for interview: Information will be used in a pre-deployment handbook; we want to focus on advice you can give to others that may provide similar support in the future.

How the interview works: I'll ask questions; we are after both good and bad experiences; can you provide e.g.; explain acronyms; no jargon; your point of view.

Interview is confidential.

Do you have any questions?

Questions

What was your role?

What pre-deployment training did you do?

Important elements

Supporting documentation

What was missing?

What were your typical tasks on this deployment?

Major shortfalls

Tactics / Techniques / Procedures – used, developed, good/bad

Searching

What were the main threats on this deployment?

Overcome and protect

What equipment worked well on your deployment?

Personal equipment

Personal protective equipment

Trade specific

Emergency relief specific

Logistic support

What lessons did you learn about /liaising/working with other agencies (civilian, other Services, other government, Non-Government Organisation)?

Advice for planning/conduct

What welfare support did you have on this deployment?

Length of time away

Food and housing

Family support

Upsetting/disturbing

What advice can you provide about using communications on this deployment? How did they go? Any tips?

What type of training was undertaken on the deployment? How often/type? Successful?

Was boredom an issue? If so, how was this overcome?

What improvements can you suggest for the chain of command?

Briefed before deploying

Prepared

Task clearly outlined

Hand over take over

What three pieces of advice would you provide to someone deploying in a similar role to yourself?

Example collection plan[4]

VICTORIA POLICE

SEMAT
A

Effective Control
All Hazards - aide memoire

To be completed by the Police Emergency Response Coordinator, representative or SEMAT (EMMV 3.6)			
This document has been compiled with reference to the Emergency Management Manual of Victoria to assist Emergency Response Coordinators in determining whether 'effective control has been established in response to an emergency incident'. It is recommended that reference is also made to the 'Controller's Principle Accountabilities' and the 'Responsibilities of Incident Controllers' contained in the EMMV.			
Date:	**Time:**	**ERC/SEMAT (name/s):**	
Incident commenced: **Date:** **Time:**	**Current shift:**	**Incident type:**	
Incident Control Centre (ICC) location:			**Ph:** **Other:**
Incident Name:			**Level 1, 2 or 3** (circle)
Control Agency:			
Incident Controller: (Selection method i.e. Endorsed/Mentor Program/Hierarchical appointment)			**Agency:** **Tel:** **Other:**
Deputy Incident Controller (if appointed):			**Agency:** **Tel:** **Other:**
Safety Officer: *(How has the Safety Officer established liaison with the Health Commander?)*			**Agency:** **Tel:** **Other:**
Public Information Officer:			**Agency:** **Tel:** **Other:**
Emergency Response Coordinator: (Field, Municipal or Regional)			**Agency:** **Tel:** **Other:**

SEMAT December 2012 – Version 1.8

1

4 Reproduced with permission from the Victoria Police – SEMAT (2012)

VICTORIA POLICE

SEMAT **A**

Effective Control All Hazards - aide memoire

1. Situation:	Yes	No	Comment/report
1. a) Is the incident situation displayed for all ICC staff?	☐	☐	
1. b)When was the situation last updated (date & time)			
1. c)SEMAT ACTION - Record the situation as displayed: (a printed copy or photograph will suffice)			
2. Community Information and warnings			
2. a) Is there a plan to warn communities as per the warnings matrix? • Advice • Watch and Act • Emergency Warning			
2.b) Who is responsible for implementing the community warnings plan?			
2. c) What types of community warnings are being used? How are they being escalated and authorised? (some examples include) • Emergency Alert • SEWS • Media • Agency websites • Community meetings • door knock social internet (face book, twitter etc)			
2. d) How is the timeliness of 'all clear' messages being managed			
2. e) Which community or communities are next to be affected and in what time frame?			
3. Incident Action Plan (IAP)			
3. a) Has an IAP been developed? When was the current version issued? Does the IAP include a clearly set out: • Purpose (why are we doing things) • Method (how we are doing things) End state (the desired outcome from what we are doing)			
3. b) Have risks been documented? How are risks being communicated? How is action being taken to mitigate the risks? (examples, but not limited to) • Weather forecast • Fire danger rating • Evacuation *(also see section 6 of this document)* • Relief Centres • Vulnerable communities • Access/egress • Span of Control			

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2

VICTORIA POLICE

SEMAT
A

Effective Control
All Hazards - aide memoire

3. c) Is the State Controller's intent reflected in the IAP? • Protection of life • Community information and warnings • Protection of critical infrastructure • Protection of residential property • Protection of assets supporting livelihood • Protection of environment and values	
3. d) What standing plans have been engaged to inform the development of the Incident Action Plan (IAP)? (examples include, but not limited to): • Municipal Emergency management Plans (MEMP) • Regional Emergency Management Plan (REMP) • specific facility evacuation plans • flood response sub plans • integrated fire management plans • township protection plans • critical infrastructure plans • business continuity plans • site specific emergency plans (hospitals/schools/aged care)	
3. e) Does the IAP include the need for Traffic Management Points? How is access control being managed?	
3. f) What is the worst case scenario for this incident?	
3. g) What is the most likely scenario and duration?	
4. Incident Management Team (IMT)	
4. a) To what scale are the functions within the IMT currently established?	
4. b) Are regular IMT meetings being held? • Frequency? • Agenda? • Minutes? • Tasks allocated with timelines? (SMART)	

VICTORIA POLICE

SEMAT
A

Effective Control
All Hazards - aide memoire

• Was it an effective meeting? (eg. How are meetings structured? Properly controlled, able to be heard, opportunity to speak, action items and responsibility documented) (SEMAT ACTION - Observe an IMT meeting, obtain minutes)	
4. c) How does the IMT have communication with: • Municipal Emergency Coordination Centre (MECC) • Regional Control Team • Emergency Management Team	
4. d) Are personnel with local knowledge part of the IMT? (What is their role?, has consideration been given to using a community member?))	
4. e) Is any expert knowledge required for the incident? (such as) • Specialist hazardous material knowledge • Engineering • Fire behaviour • Geo-technical engineering • Cultural advisors (Note whether they have been requested or on site)	
4. f) Are all ICC personnel identified by tabards?	
5. Activation of Emergency Management Team (EMT)	**Yes** ☐ **No** ☐
5.a) Has the Incident Controller activated an Emergency Management Team?	
5.b) Are EMT meetings being held? • How are they being conducted (face to face/teleconference/other) • Frequency • Location • Which agencies attended/participated (SEMAT ACTION – Observe an EMT meeting, obtain minutes)	
5. c) Are Recovery commanders and managers represented at EMT meetings? Who by?	
5 d) How is Impact Assessment being managed?	

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4

VICTORIA POLICE

SEMAT
A

Effective Control
All Hazards - aide memoire

6. Evacuations	
6. a) How is the Incident Controller managing the Decision and Warning Phases of Evacuations?	
6. b) Has a Victoria Police evacuation manager been appointed?	
6. c) Is the evacuation manager co-located with the Incident Controller and linked to the Health Commander?	
6. d) Does the Evacuation Manager have access to VP Form 682 (Evacuation Guidance Document) and VP 682a (Evacuation Return Plan)	
6. e) How are the Withdrawal, Shelter and Return phases of evacuation being managed?	
6. f) How are evacuated and displaced persons being recorded, tracked and kept up to date with changes to the situation?	
7. General Observation	
7. a) Which agencies have Emergency Management Liaison Officers (EMLO) integrated into the IMT structure?	
7. b) How are the EMLOs contributing to the effectiveness of the IMT? (What do they see their role is?) SEMAT Action: Engage with EMLO personnel.	
7. c) Facilities considerations: • Dedicated or Temporary facility • Access Control/Security arrangements • IT/Communication points • Breakout facilities • Meeting rooms • Briefing area • Meals/respite area • Adequate toilet facilities • Parking capability • Site induction for new staff • Redundancy/business continuity arrangements	

APPENDIX 5

ANALYSIS TECHNIQUES

This appendix outlines some analysis techniques.

Incident pattern

Incident patterns are used to identify patterns of activity across a series of incidents linked by theme (thematic), location (spatial) and time (temporal). Understanding the commonalities and differences between incidents will assist in identifying emerging trends and causal factors.

Network analysis

A network analysis examines links between entities, the significance of each link and the roles played by entities within a network. Network analysis assists in identifying strengths and weaknesses of networks and opportunities for intervention or disruption.

Behavioural analysis

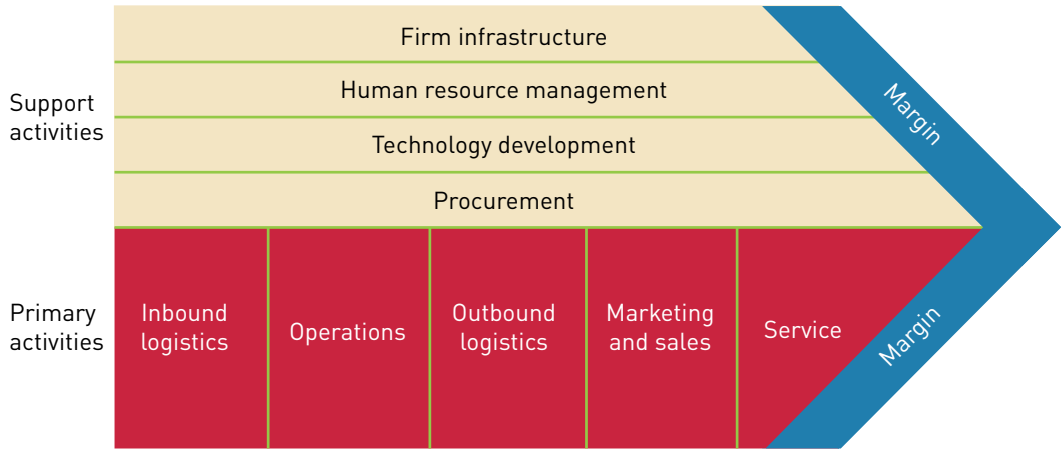
A behavioural analysis is used to try to understand the factors that influence a person's behaviour. Consideration should be given to their background, personal circumstances, individual characteristics, or other risk and protective factors. This technique can be applied to understand how the dimensions of the operational environment impact on human behaviour.

Market (commodity) analysis

A market analysis is used to examine the existing and future market in a particular environment, to understand the supply and demand for particular commodities and services. Understanding the nature of the organisation's market – including activity, price and availability – assists in identifying customer expectations and business opportunities, as well as helping to predict activity, such as business opportunities and service demands.

Value chain analysis

Michael Porter used the term 'value chain' in his book *Competitive advantage: creating and sustaining superior performance* (1985). The value chain analysis describes the activities the organisation performs and links them to the organisation's competitive position. Value chain analysis describes the activities within and around an organisation, and relates them to an analysis of the competitive strength of the organisation. Therefore, it evaluates which value each particular activity adds to the organisation's products or services. This idea was built upon the insight that an organisation is more than a random compilation of machinery, equipment, people and money. If these things are arranged into systems and systematic activities, then it will become possible to produce something for which customers are willing to pay a price. Porter argues that the ability to perform particular activities and to manage the linkages between these activities is a source of competitive advantage.



Note: The term 'margin' implies that organisations realise a profit margin that depends on their ability to manage the linkages between all activities in the value chain. In other words, the organisation is able to deliver a product or service for which the customer is willing to pay more than the sum of the costs of all activities in the value chain.

Source: Reproduced with permission from Porter (1985)

Figure A5.1: The basic model of Porter's value chain

Porter distinguishes between primary activities and support activities. Primary activities are directly concerned with the creation or delivery of a product or service. They can be grouped into five main areas: inbound logistics, operations, outbound logistics, marketing and sales, and service. Each of these primary activities is linked to support activities, which help to improve their effectiveness or efficiency.

There are four main areas of support activities: procurement, technology development (including research and development), human resource management and infrastructure (systems for planning, finance, quality, information management, etc.).

Critical decision method

The critical decision method (CDM) is a retrospective interview strategy that applies a set of cognitive probes to actual non-routine incidents that required expert judgement or decision making. It relies on a type of protocol analysis for recalled events, where these retrospective protocols are less disruptive to operational activities and applicable to a wider set of naturalistic tasks.

It is a technique used as part of ongoing work to improve the quality of human performance in decision-making tasks in a variety of contexts, including such things as the development and implementation of technologies to aid decision making, the design of instructional curriculums/training, and the design of systems to automate critical task functions.

This method was developed from the basic tenets of cognitive task analysis (commonly used in psychology, training, and workplace health and safety) to capture the kinds of knowledge and experience involved in real-world decision making and problem solving.

This methodology is useful for the elicitation of knowledge and experience to derive lessons, as well as for post-event investigations or research, because it looks at the actions taken, the decision points and the processes involved. In other words, it takes a rounded view of the situation. When added to the contextual information, it allows a holistic understanding of what went on and why.

The CDM involves case-specific, multitrial retrospection structured and guided by probe questions. A CDM session is organised around the account of a specific event or incident

from the participant's experience. The participant is then guided in the recall and recounting of this incident and its context, using three information-gathering sweeps back through the incident. A verification of the timeline and decision points is used to help structure the interview into meaningful segments, and the progressive deepening of the questioning leads to a comprehensive, detailed and contextually rich account of the incident. 'What if?' queries can be used to identify potential errors, alternative decision or action paths, and the differences between experts and novices.

The methodology

The CDM interview requires an initial step, that of guiding the participant to recall and recount a relevant incident. The interviewer then conducts three additional information-gathering sweeps through the incident: timeline verification and decision point identification, progressive deepening and 'what if?' queries.

First sweep: incident identification and selection

In accordance with the goals of the project, the interviewers or elicitors will have decided ahead of time on an opening query, such as 'Can you tell us about a time when you were part of a demonstration or protest of some sort?' Once the participant identifies a relevant incident, he or she is asked to recount the episode in its entirety. The interviewer acts as an active listener, asking few (if any) questions, and allowing the participant to structure the incident account themselves. The participant's account, solicited in this non-interfering way, provides a framework and structure that the elicitor will use throughout the remainder of the interview.

Second sweep: timeline verification and decision point identification

In this phase of the interview, the elicitor attempts to construct a timeline of the incident. The participant is asked for the approximate time of key events and turning points within the incident. The elicitor's goal is to capture the salient events within the incident, ordered by time and expressed in terms of the points where understanding changed, where judgements or decisions were made, and points where actions were taken.

Third sweep: progressive deepening and the story behind the story

Sweep three is used to determine the presence or absence of salient cues, and the nature of those cues; to assess the current situation and the basis of this assessment; and to manage expectations about how the situation might evolve, the goals that were considered, and the options that were evaluated and chosen.

Fourth sweep: 'What if?'

The final sweep through the incident provides an opportunity for the interviewer to shift perspective. During this phase, interviewers often use a 'What if?' strategy, such as 'What if you had taken action Y, instead of action X?' Answers to such questions provide additional information on how the participant understood the complete situation.

To accomplish these four steps, the CDM combines four basic techniques common to cognitive task analyses:

- a type of protocol analysis
- a form of case-based reasoning
- a form of structured interview
- a form of retrospection.

The results of conducting a CDM should be analysed to set up a descriptive decision model, which is a system that could distinguish the decision strategies between experts and novices. Several researchers have reported that both experts and novices relied on decisions based on recognition, but when deliberation was reported, the novices were more likely to deliberate concurrently on the option evaluation dimension. One of the products of CDM could be a critical cue inventory (CCI), which is a collection of all of the informational and perceptual cues that are pinpointed in the protocols. The CCI serves as the basis for designing training materials to teach these perceptual discriminations and improve learning opportunities for future events.

Thematic analysis

A thematic analysis requires involvement and interpretation from the researcher; it is not simply a count of particular words or phrases. Instead, it focuses on identifying and describing both the implicit and explicit ideas within the data – that is, the *themes*.

Codes are then developed to represent the identified themes and applied to these or linked to raw data as summary markers for later analysis. These analyses may include:

- comparing code frequencies
- identifying code co-occurrences
- graphically displaying the relationships between codes within the dataset.

Thematic analyses can be used to build theoretical models or to find solutions to real-world problems.

The strengths of this method are that it can be applied to large and small datasets, it is good for team research, the outcomes are supported by the data, and non-theme-based and quantitative techniques may be included to add analytical breadth to the outcomes. It can be used to study individual and group experiences, and it can lend itself to quantification of the data to reinforce analytical outcomes.

Effective use of the thematic analysis method does require that assertions are supported by the data (evidence from within the text) and this may also include noting the context in which the original themes were identified.

Reliability is often an issue with thematic analyses due to the strong interpretive component, and this can be even more problematic when multiple analysts are used. Strategies to maintain agreement on theme definitions and understanding should be used in these instances. Thematic analysis is still, however, the most systematic and useful means of capturing the complexities of meaning in a textual dataset.

A simplified version of the methodology is shown below.

Research

Begin with a research question – that is, what it is you need to know. Obtain the data via interviews, surveys or other means. It is generally text or audio/video footage of interviews from which text can be obtained.

Analysis

Familiarise yourself with the data (reading and rereading). Jot down rough notes and impressions. Then code the data. Theoretical thematic analysis occurs when there is a research question that is used to analyse aspects of the data that are relevant to it. Inductive thematic analysis occurs when the analysis is looking for emerging themes rather than having a predetermined idea of topics in mind (also known as open coding, where the codes are developed and modified while working through the coding process).

Search for themes

Once the coding is done, begin to look for themes. Here, themes are the patterns in the data that are important or interesting in terms of the research question.

Review the themes

Review, modify and develop the themes that were identified in the previous step. Do they make sense? At this stage, it is also helpful to collate all the relevant evidence and data for each theme. Reread the evidence and ensure that the theme is appropriate and supported by this information.

Define the themes

Defining the themes means to identify the essence of what each theme is about. In addition, identify any subthemes and how they relate to the overall theme as well as each other. This helps to form the overall understanding of the research question.

Report the findings

Write up the analysis.

APPENDIX 6

CAPABILITIES

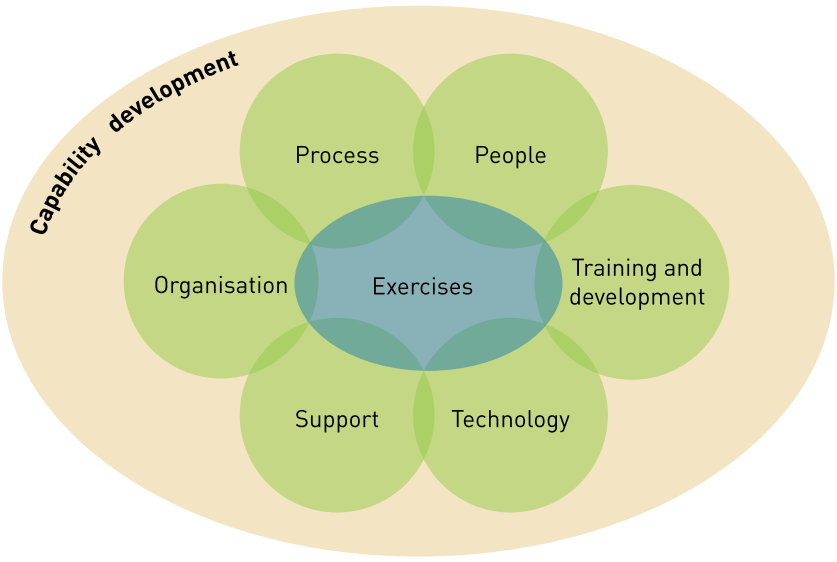
In an everyday context, capability refers to the capacity or ability necessary for doing something. Organisational capability is a logical extension of this meaning: an organisation's ability to do or affect something using organisational resources. Although many varied definitions can be found for organisational capability, an effective one is as follows: 'Organisational capability refers to an organisational ability to perform a coordinated task, utilising organisational resources, for the purpose of achieving a particular end result' (Prior et al. 2008).

Organisations should consider this to be a 'shopping list', and pull out the categories relevant to their activities. The following list is an example of some capabilities. This is not an exhaustive or prescriptive list. Agencies can choose relevant items from this list and add others as required. Note that the longer your list of capabilities, the more cumbersome your coding and analysis process becomes.

Aviation operations
Biosecurity
Border protection
Business continuity
Canine operations
Communications
Community engagement
Counter-terrorism
Critical infrastructure
Disaster victim identification
Emergency medical response
Evacuation
Firefighting
Flood operations
Hazardous materials
Health
Incident management
Information management
Intelligence
Interagency operations
Investigation
Marine operations
Media
Planning
Preparedness
Preventive health
Public order
Recovery
Rescue
Research
Search
Storm operations
Traffic management
Vehicle operations
Weapons

Elements of capability

Element	Description
People	Roles, responsibilities, accountabilities and skills Need to know: • the number of people required for the tasks • any specific physical/medical requirement or other personal attributes (e.g. no spectacles or hearing aids, of a certain fitness level)
Process	Policy, procedures or processes required for conduct of tasks (e.g. specific standard operating procedures, concepts of operation)
Organisation	The structures required for completion of task (e.g. team structure and higher level support structures) Jurisdiction and national-level structures
Support	Infrastructure facilities, maintenance Significant areas of support for conduct of operational tasks
Technology	Technology, equipment, systems, standards, security, interoperability
Training	Capability qualifications/skill levels, identification of required training and development
Exercise	Only relevant for exercises/exercise outcomes At times, observations/insights may only be as a result of the artificiality of exercises. Exercises are not real and often things happen in exercises that would not in the real world.



Source: Reproduced with permission from Prior et al. (2008)

Figure A6.1: Capability element comparison

POSTED Aus Defence (former)	FIC Aus Defence (current)	Elements of Capability US National Security	PPOSTT Aus National Security	Lines of Development UK Military	DOTMLPF US Military
People	Personnel	Planning	People	Training	Doctrine
Organisation	Organisation	Organisation and leadership	Process	Equipment	Organisation
Support and facilities	Collective training	Personnel	Organisation	Personnel	Training
Training	Major systems	Equipment and systems	Support	Information	Material
Equipment	Supplies	Training	Technology	Doctrine and concepts	Leadership
Doctrine	Facilities	Exercises, evaluations and corrective actions	Training	Organisation	Personnel
	Support			Infrastructure	Facilities
	Command and management			Logistics	

Aus = Australian

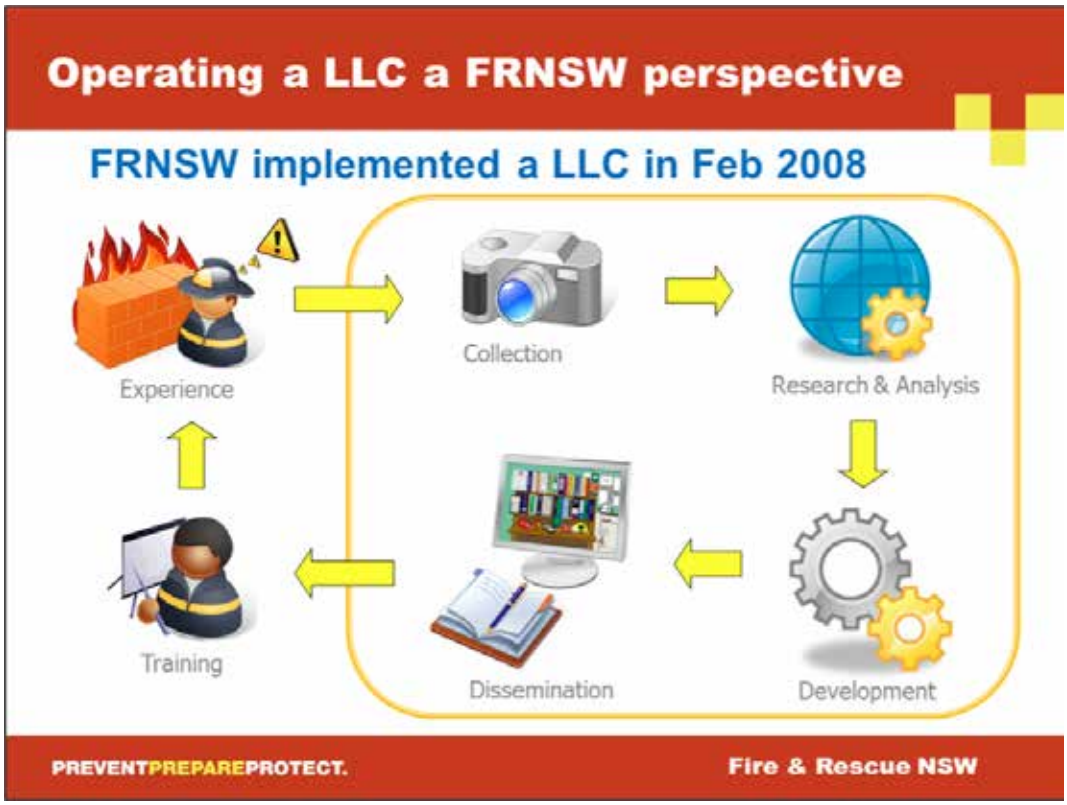
Colour	Organisational function
	Personnel
	Organisation
	Equipment and infrastructure
	Training
	Process and doctrine
	Support

Source: Reproduced with permission from Prior et al. (2008)

Figure A6.2: PPOSTTE definitions table

APPENDIX 7

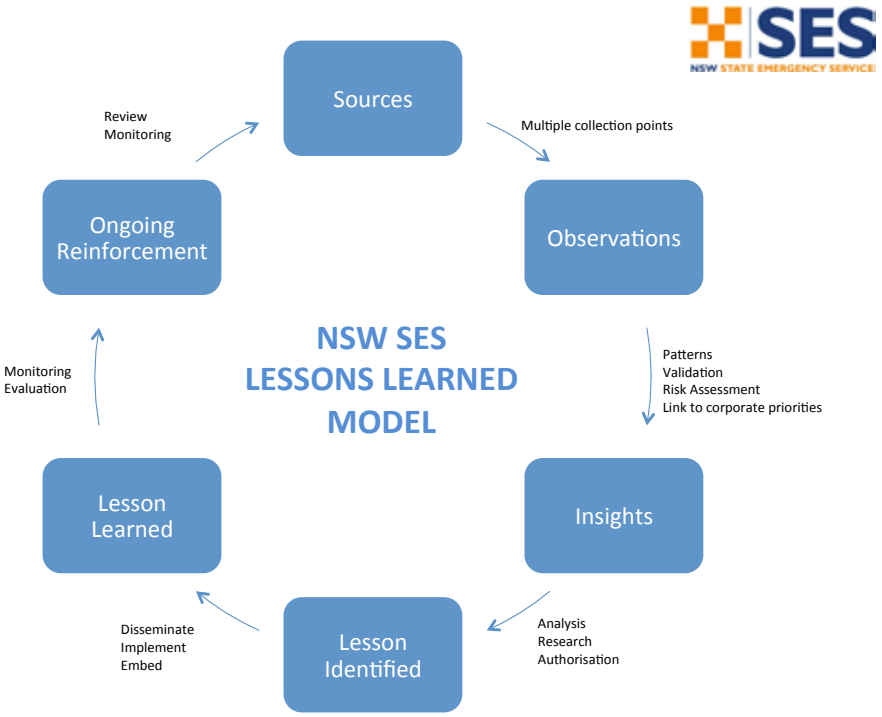
EXAMPLES OF EXISTING LESSONS MANAGEMENT SYSTEMS



LLC = lessons learned centre; FRNSW = Fire & Rescue NSW

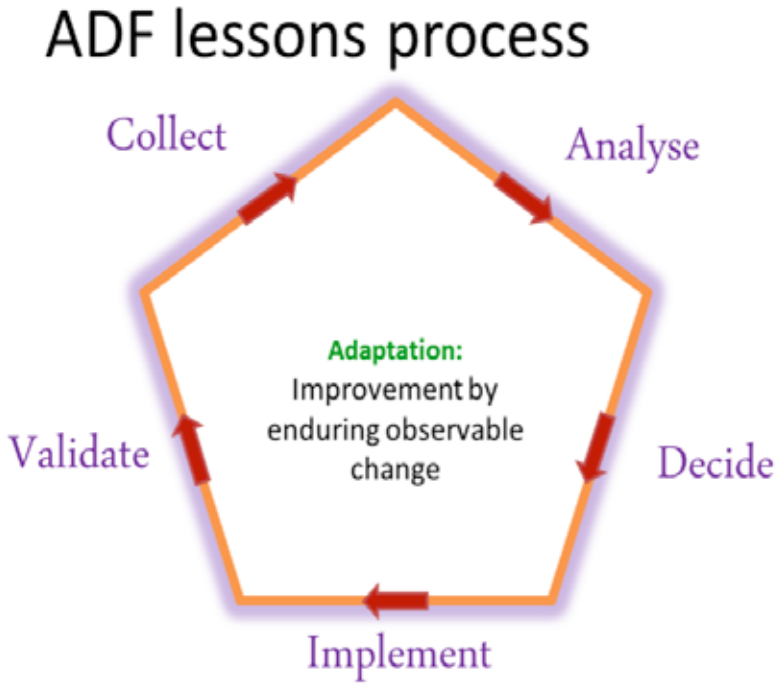
Source: Reproduced with permission from Fire & Rescue NSW (2012)

Figure A7.1: Sample of a lessons management system



Source: Reproduced with permission from New South Wales State Emergency Service (2012)

Figure A7.2: Sample of a lessons management system



Source: Reproduced with permission from Australian Defence Force – Centre for Army Lessons (2012)

Figure A7.3: The Australian Defence Force lessons process

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GLOSSARY

After action reviews (AARs)

A debriefing process following an event or activity by those involved with, or interested in, that event and whose purpose is to learn from it. Often used as a 'hot debrief', an AAR involves describing what was intended to happen, what was actually accomplished, what mistakes were made and how participation in similar events might be improved in the future. The information collected at an AAR often informs larger organisational debriefs and multi-agency debriefs. They may be recorded in a variety of media as a form of reference for future use. Briefings and AARs (also referred to as debriefings) are excellent learning tools and help to instil an information-sharing culture. Their effectiveness depends to a great extent on accurately identifying the most appropriate audience.

Analyse

To study the whole by thoroughly examining its parts and their interactions. In the lessons learning process, the analysis phase should allow discovery of the root cause of a problem or success, identify the appropriate remedial action to correct the problem, and the appropriate action body to achieve the correction or to sustain the success.

Analysis

The process of systematically applying statistical techniques and logic to interpret, compare, categorise and summarise data collected to refine observations.

Analysis techniques

There are various types of analysis techniques. See Appendix 5 for examples.

Benchmark

Reference point or standard against which progress or achievements can be assessed. A benchmark refers to the performance that has been achieved in the recent past by other comparable organisations, or what can be reasonably inferred to have been achieved in similar circumstances.

Blame culture

A set of attitudes such as those within a particular business or organisations that are characterised by an unwillingness to take risks or to accept responsibility for mistakes due to a fear of criticism or prosecution (see *Just culture*)

Conclusion

A reasoned judgement based on a synthesis of empirical findings or factual statements corresponding to a specific circumstance.

Element of capability

The specific building blocks or enablers of all capabilities.

Evaluation

A time-bound exercise that attempts to assess systematically and objectively the relevance, performance and success, or the lack thereof, of ongoing and completed activities. Evaluation is undertaken selectively to answer specific questions to guide decision makers and/or managers, and to provide information on whether underlying theories and assumptions used in program development were valid, what worked and what did not work, and why. Evaluation commonly aims to determine the relevance, validity of design, efficiency, effectiveness, impact and sustainability of a program.

Evaluation questions

A set of questions developed by the evaluator, sponsor and/or other stakeholders, which define the issues the evaluation will investigate and are stated in such terms that they can be answered in a way that is useful to stakeholders.

Explicit knowledge

Consists of anything that can be codified, or expressed in words, numbers and other symbols (e.g. plans, marketing surveys, customer lists, specifications, manuals, instructions for assembling components, scientific formulas, graphics) and can, therefore, be easily articulated and shared, usually in the form of documents, processes, procedures, products and practices.

Finding

A factual statement based on empirical evidence gathered through monitoring and evaluation activities. Findings are objective conclusions based on the analysis by subject matter experts. A finding does not suggest a specific course of action. A finding may be a lesson that has been identified.

In some models, a finding is a conclusion reached after analysis to identify the root cause. It is a clear, succinct statement that needs to be agreed to or accepted before considering solutions or recommendations. A finding defines the issue, not the solution.

Human factors

A discipline of study that deals with the human–machine interface, the psychological, social, physical, biological and safety characteristics of a user, and the system the user is in. A human factor is a physical or cognitive property of an individual or social behaviour that is specific to humans and influences functioning of technological systems as well as human–environment equilibriums. Studying human factors involves looking at all aspects of the way humans relate to the world around them, to improve operational performance, safety and the experience of the end user.

Hypothesis

A proposition (or set of propositions) proposed as an explanation for the occurrence of some specified group of phenomena, either asserted merely as a provisional conjecture to guide investigation (a working hypothesis) or accepted as highly probable in the light of established facts. A hypothesis could be:

- a proposition assumed as a premise in an argument
- the antecedent of a conditional proposition
- a mere assumption or guess.

Implementation plan

A documented and authorised course of action developed by an organisation to take a lesson identified and embed it into business-as-usual activities so the lesson may become learned.

Implicit knowledge

Knowledge that is not directly expressed; that is, the meaning is inferred from the context and, therefore, relies on existing knowledge.

Insight

A deduction drawn from the evidence collected (observations), which needs to be further considered. Insights provide guidance for future analysis and potential action. Insights can be positive or negative, and can contribute to reinforcing positive behaviour or changing practices. Insights may be developed when a single observation poses a high risk to the organisation or when a number of similarly themed observations have been collected.

Issue

A matter drawn from the evidence collected (observations), perhaps during an evaluation, which needs to be further considered. Issues will generally be negative, such as problems that have occurred.

Just culture

A just culture has been defined as a culture in which front-line operators and others are not punished for actions, omissions or decisions taken by them that are commensurate with their experience and training, but where gross negligence, wilful violations and destructive acts are not tolerated.

Knowledge management

An integrated, systematic process for identifying, collecting, storing, retrieving and transforming information and data assets, so they are readily accessible in order to improve the performance of the organisation. Knowledge management includes understanding data (by classification and rational presentation), synthesising it (by selection, analysis, interpretation, adaptation or compression), making it useful (by presenting arguments, matching needs and problems, assessing advantages and disadvantages) and considering options for selection. The basic tenets of knowledge management are to improve decision making, foster innovation, build relationships, establish trust, share information and improve lessons management systems.

Lesson identified

This is a viable course of action, based on the analysis of one or more insights, which can either sustain a positive observation or address an area for improvement (Stuart 2012).

Lesson learned

Dependent upon the changes required, it may take several years for the change to be institutionalised across the organisation. A full iteration of a lessons learned cycle would involve the identification of a lesson, an action proposed and agreed, and the solution implemented and tested/validated to ensure the desired behaviour is sustained across the organisation.

A full iteration of a lessons management cycle would involve the identification of a lesson, an agreed implementation process, and validation of the implementation to confirm the improvement of a capability or an element of a capability. It is the end point that results from a change to policies, processes, procedures, equipment, training or some other organisational or operational norm. (Note: A lesson does not become learned until it results in an institutionalised change and becomes an ongoing element of the organisational or operational norm or standardised procedure or practice. The change itself is evidence of the learning. Identifying, documenting and even communicating a lesson does not necessarily lead to performance improvement. Once change has been attempted, the learning is occurring.)

Lessons management

A component of knowledge management that seeks to introduce better practice and improvement opportunities for an organisation's systems and processes. Lessons management broadly involves collecting and analysing information and data to develop, implement, validate and share changes intended to improve efficiency and/or effectiveness.

Learning organisation

There are several definitions for 'learning organisation' from difference sources; for example:

'An organisation skilled at creating, acquiring, interpreting, transferring, and retaining knowledge, and at purposefully modifying its behaviour to reflect new knowledge and insights.' (Garvin 1993)

'Learning organisations [are] organisations where people continually expand their capacity to create the results they truly desire, where new and expansive patterns of thinking are nurtured, where collective aspiration is set free, and where people are continually learning to see the whole together.' (Senge 1990: 3)

'The Learning Company is a vision of what might be possible. It is not brought about simply by training individuals; it can only happen as a result of learning at the whole organisation level. A Learning Company is an organisation that facilitates the learning of all its members and continuously transforms itself.' (Pedler et al. 1996)

'Learning organisations are characterised by total employee involvement in a process of collaboratively conducted, collectively accountable change directed towards shared values or principles.' (Watkins & Marsick 1992)

Mature observation

An observation for which there is already sufficient data and/or understanding to identify the root causes and thus requires no further analysis.

See also *Observation* and *Raw observation*

Objective

A generic term usually used to express an outcome or goal representing the desired result that an activity seeks to achieve. Objectives are usually stated in ways that allow the amount of attainment to be measured, and are concise, realistic, outcomes-oriented statements of what a program, subprogram or other element of a program structure aims to achieve. Objectives are specific statements of what is intended to be achieved. Ideally objectives should be SMART – that is:

- **S**pecific
- **M**easurable
- **A**chievable
- **R**esults oriented (i.e. written as something to be achieved)
- **T**ime bound.

Observation

A record of a noteworthy fact or occurrence as seen during an activity or operation. In the context of an evaluation, it is the evidence or data collected by an evaluator – that is, what is seen or discovered (observed) during the evaluation. Observations can be of good practices to be sustained, or opportunities for improvement. The analysis of accumulated observations provides for the development of insights and findings from which recommendations may be developed.

See also *Mature observation* and *Raw observation*

Performance indicator

Used to quantify the activity objectives, and reflect aspects of tasks or capabilities that are both critical to successful performance and impact on the effectiveness of capability. Consider how performance indicators can be measured or assessed other than by subjective opinion, and what evidence can be used to reinforce an evaluation. Performance indicators must be 'SMART'.

See also *Objective*

PPRR

An acronym for the phases/activities associated with prevention, preparedness, response and recovery.

Qualitative

Gaining understanding through measurement activity that is primarily descriptive and interpretative.

Quantitative

The use of numerical measurement and data analysis based on statistical methods.

Raw observation

An observation that requires further study or analysis to fully understand the root causes.

See also *Mature observation* and *Observation*

Real-time evaluation

Evaluation during the conduct of an operation.

Recommendation

A viable course of action that can either reinforce a positive finding or address an area for improvement. Recommendations may not be lessons; however, a lesson may include one or more recommendations.

Root-cause analysis

The analysis used to identify the root causes of raw observations.

Tacit knowledge

Refers to knowledge that cannot be readily articulated or explained to inexperienced parties (e.g. drawing, painting, writing, tying a knot, planning, decision making). An individual will acquire tacit knowledge only by gathering information, relating it to existing knowledge and accumulating experience; it involves judgement, intuition and common sense. In groups, tacit knowledge exists in the practices and relationships that develop through working together over time. The major challenges are in its recognition, sharing and management. It is characterised in that it is often difficult to transfer to another person by means of writing it down or verbalising.

Validation

To check or approve the accuracy of raw observations during the data analysis process.

Verification

Ensures that the originally observed issue has been successfully institutionalised as a mandated change and has been ingrained as part of the organisation norm.

Wicked problem

These problems share a range of characteristics – they go beyond the capacity of any one organisation to understand and respond to, and there is often disagreement about the causes of the problems and the best way to tackle them.

Emergency Management in Australia website

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