Managing Emergencies: Key Competencies for Incident Management Teams

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Each year Australian fire and land management agencies deploy Incident Management Teams (IMTs) to manage bushfires. An important question is: what are the key competencies required for IMT personnel? Recent research in high reliability organisations suggests that teamwork-related competencies are likely to be most important because incident management depends critically upon interdependent team members, often operating in dynamic, uncertain, time pressured, and high stakes environments. This study used semi-structured interviews with experienced IMT personnel (N = 15) to identify 12 key competencies important for bushfire IMT roles. Analysis of 30 bushfire incidents described by interviewees confirmed that three competencies (a) interpersonal and communication skills, (b) leadership, and (c) IMT procedural knowledge were central. Potential implications for organisational decision making in emergency contexts in general are outlined.

Keywords: competencies, bushfire, incident management teams, teamwork

In Australia and New Zealand, Incident Management Teams (IMTs) coordinate responses to a wide range of large-scale natural, industrial and civil emergencies. Depending on the size and complexity of an incident, IMTs may vary in size from three or four team members from a single agency district to more than 100 personnel from multiple agencies. The Australasian Inter-agency Incident Management System (AIIMS) provides a common operating framework that IMTs use to manage these emergencies. The AIIMS protocol outlines a standard structure for incident management including member roles, responsibilities, and operational procedures (AFAC, 2005). The IMT’s role is to coordinate the resources required to contain, and ultimately resolve, an incident.

Because bushfires are a prototypical, and generally well understood example of a wide range of emergency situations that organisations may be required to manage, this setting provides an excellent opportunity to investigate incident management competencies. It is no coincidence that people sometimes refer to managing difficult situations as ‘putting out fires’. From time-to-time most large organisations may face some form of crisis — whether this be the recall of a faulty product, industrial action, or the malfunction of an internet provided service. Thus, the present research may provide useful insights to organisations considering their own capacity to respond to critical events.

Bushfires (wildfires) are the most common type of emergency that Australian IMTs are deployed to manage. Each year bushfires result in considerable property damage and have been responsible for many deaths (McLennan & Birch, 2005). The competency of bushfire IMTs has been an issue considered in recent royal commission and coronial inquiries (e.g., 2009 Victorian Bushfires Royal Commission; South Australian 2005 Wangary Coronial Inquest). A concern raised during these has been whether the IMTs initially deployed to manage bushfires were adequately staffed by sufficient appropriately trained and experienced personnel. In other words, were sufficient competent IMT personnel deployed early enough to effectively manage

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they do not manage more than five reporting groups or larger, position-holders are expected to delegate so that As an incident and the corresponding IMT become cerns the scalability of IMTs in relation to incident size. team with numerous specialist and supporting roles. incidents an IMT can be scaled up to a more extensive team may consist of only a few members. For larger and Logistics (see Figure 1). For a smaller incident the IMT structure involves an Incident Controller oversee- ing three functional sub-teams: Planning, Operations, and a discussion of the findings, including whether the same competencies are salient when IMTs manage a routine incident compared with managing a challenging incident. Included in the discussion is a comparison of the competencies developed in this study with those identified in the two previous studies.

The AIIMS Framework and Incident Management Competencies

The AIIMS framework embraces three principles that assist IMTs to focus on the management of the incident (AFAC, 2005). First, AIIMS involves functional management, enabling particular individuals or sub-teams within the IMT to focus on specific tasks. The standard IMT structure involves an Incident Controller overseeing three functional sub-teams: Planning, Operations, and Logistics (see Figure 1). For a smaller incident the team may consist of only a few members. For larger incidents an IMT can be scaled up to a more extensive team with numerous specialist and supporting roles.

The second AIIMS principle of span of control concerns the scalability of IMTs in relation to incident size. As an incident and the corresponding IMT become larger, position-holders are expected to delegate so that they do not manage more than five reporting groups or individuals. Similarly, as an incident de-escalates, responsibilities for IMT personnel are scaled-down accordingly. A brief outline of the key IMT roles and responsibilities follows (AFAC, 2005).

- **The Incident Controller** has overall responsibility for the management of the incident. The Incident Controller establishes incident objectives, and ensures that effective strategy is put in place to manage the incident in a safe, effective, and efficient manner.
- **The Operations Section** is responsible for the control of all operations that are focused directly on resolving the incident. The Operations Section ensures that the strategies implemented to resolve the incident are in accordance with the Incident Action Plan (IAP). The IAP sets out the objectives for managing the incident and describes strategies and resources relevant for the control of an incident.
- **The Planning Section** provides support for the management of the incident with specific responsibility for: collection, evaluation and dissemination of incident information, prediction of incident behaviour, preparation and dissemination of plans and strategies for the control of the incident, and the collection and maintenance of information as to the resources that are allocated to the incident. A key output from these activities is the formulation and updating of an IAP.
- **The Logistics Section**’s primary function is to support the incident through the provision of human and physical resources, facilities, services, and materials. The IAP assists the Logistics Section in estimating the requirements for the next operational period.

The third AIIMS principle employed in IMTs is management by objectives. The Incident Controller in consultation with the IMT sets the desired objectives for the incident. These objectives become the guiding principles for resolving the incident and form part of the incident action plan. Only one set of objectives and one IAP is in place at any time.

COMPETENCIES AND COMPETENCY FRAMEWORKS

The idea of identifying key attributes important in an individual’s work performance goes back to Roman
times when this approach was used to select good soldiers (Draganidis & Mentzas, 2006). The modern interest in competencies developed during the 1970s when McClelland (1973) suggested that organisations may be better served by focusing on individuals' competence at tasks rather than their intelligence or scholastic aptitude. The publication of The Competent Manager by Boyatzis (1982) encouraged further interest in competencies (Hogan & Kaiser, 2005) and led to the development of a considerable literature (e.g., Dalton, 1997; Schippmann et al., 2000; Spencer & Spencer, 1993; Woodruffe, 1993).

The evolving literature has been marked by considerable debate and some confusion around the central concept of competency (Hogan & Kaiser, 2005; Young & Dulewicz, 2008). For example, Hoffman’s (1999) review of the literature highlights that competencies have been defined as assessing either:

- observable performance;
- standards for performance; or
- the underlying attributes of a person that lead to performance.

In an approach consistent with the third definition offered by Hoffmann, this study adopts Kurz and Bartram’s (2002) definition of competencies as ‘the repertoire of capabilities, activities, processes and response available that enable a range of work demands to be met more effectively by some people than by others’ (p. 230). Competencies are more than broad knowledge, skills, and attitudes; they are context-specific clusters of knowledge, skills and attitudes that are applied to particular work (Kraiger, 1999).

Using this definition, competencies describe a person’s capability to successfully complete particular work activities, and usually consist of several components. The breadth of a particular competency influences the number of component characteristics (Kurz & Bartram, 2002). A specific competency (e.g., ‘meets deadlines’) may contain only a few components, whereas a broader competency (e.g., ‘provides leadership’) may be made up of a larger cluster of characteristics. To help operationalise competencies, organisations often develop ‘behavioural indicators’, which may further explicate each competency (Dubois, 1999). It has been proposed that for an individual to perform well in a typical job they generally need to be proficient in 8 to 12 competencies (Schmieder & Frame, 2007).

Numerous competency frameworks have been developed for a range of work settings, varying widely in terms of their structure, focus, and level of detail. Some organisations have developed broad competency models for use across their business, identifying a core set of competencies for all of their employees, while other organisations have developed quite job-specific competency models to identify the particular competencies required for individual roles in the business (Schmieder & Frame, 2007).

Salas and colleagues suggest that there are two types of competencies that influence performance at the team level: taskwork competencies and teamwork competencies (McIntyre & Salas, 1995; Salas, Rosen, Burke, & Goodwin, 2009). Both team and taskwork competencies consist of a range of knowledge, skills, attitudes, and other characteristics. However, the key difference is that taskwork competencies support the achievement of individual-level tasks whilst teamwork competencies support interdependent tasks and thus the functioning of the team. Therefore, a successful team is most likely to contain personnel with the requisite individual expertise required for the tasks at hand and the skills and appropriate attitudes to contribute to the interpersonal and social aspects of teamwork (Salas, Rosen, Burke, Goodwin, & Fiore, 2006).

Russell’s (2001) longitudinal study of managers provides some support for Salas and colleagues’ distinction between taskwork and teamwork competencies. This study investigated the predictive value of competencies for 98 senior managers promoted to general manager roles in a Fortune 500 company between 1985 and 1992. Russell found that technical (i.e. taskwork) competencies (i.e. financial analysis, business understanding, and business execution) predicted initial performance. However, subsequent performance was predicted by non-technical people-oriented (i.e. teamwork) competencies (i.e. staffing, climate setting and communications, and customer interaction).

INCIDENT MANAGEMENT COMPETENCIES

In terms of the competencies required for incident management, Crichton and colleagues compared previous research findings from emergency services and military settings with interview data collected from an IMT called in to manage a major industrial accident on a Gulf of Mexico oil rig (Crichton, Lauche, & Flin, 2005). The authors identified 5 competencies: situation awareness, decision-making, teamwork, leadership, and communication.

In their discussion of this research, Crichton et al. (2005) made two important observations. First, the management of the oil-rig incident relied on a combination of IMT command skills used in conjunction with organisational processes. In the Australasian bushfire context these organisational processes would include AIIMS and a variety of specific agency operating arrangements. The second was that although competency labels may appear to be generic, the underlying behavioural elements are specific to the domain in which they take place.

In 2006 the Victorian Country Fire Authority (CFA) and Department of Sustainability and Environment...
DSE) commissioned a joint research project to identify the competencies for IMT personnel managing the most complex types of bushfire incidents (i.e., Level 3). To date, the project has identified competencies for two of the four functional areas of incident management (i.e., incident control and operations). To successfully meet the demands of incident management, personnel holding IMT leadership roles were deemed to need a combination of suitable personal attributes, and appropriate skills and knowledge (CFA-DSE, 2006a, 2006b). The proposed skills and knowledge requirements are: leadership, management, technical expertise, and communication. The suggested personal attributes are: stress tolerance, self awareness, communication and interpersonal skills, problem solving, effective decision making, intrapersonal attributes (e.g., integrity, action-oriented, perseverence), and effective organisation/operating in a structured environment.

Both the Crichton et al. (2005) and CFA-DSE (2006a, 2006b) studies provide useful insights for the present study, but also have their limitations. Perhaps the most obvious limitation of the Crichton et al. study is its tight focus on a specific industrial context. Crichton and colleagues acknowledge that the underlying behavioural elements for incident management are likely to vary across different contexts. Unfortunately, the limited scope of the CFA-DSE project and the role-specific approach adopted in the study to date (i.e., only incident control and operations roles have been considered) is an obvious limitation of this study. Moreover, the methodology used in the CFA-DSE project has created overlapping competency categories.

The present study is novel in that it identifies a set of discrete key competencies for bushfire incident management. Rather than following the CFA-DSE project’s approach of using facilitated discussion to assist in the development of role-specific competencies, the present study uses semi-structured interviews to identify key competencies that are important across the various IMT roles. The present study also differs in its approach from the CFA-DSE study in that it asks participants to refer to incidents that they have been involved in managing and thus captures the competencies salient in actual bushfires.

**IMT Competencies: The Present Study**

**METHOD**

**Participants**

Fifteen IMT personnel who had previously worked on various Level 3 incidents — the most complex type of bushfire incident — were approached to participate in this study. All agreed to participate. The mean age of participants was 49.9 years (SD = 6.3) and each had worked in fire management for between 12 and 42 years (M = 25.2, SD = 8.7). The participants had worked across the core IMT functions of incident control, planning, operations, and logistics. An outline of the research and nature of the interview was provided beforehand to enable potential participants to provide informed consent.

**Materials and Procedure**

The participants were interviewed either via telephone or in person using a semi-structured interview protocol. The interviewer followed a standard script containing three broad questions probing the competencies required to work effectively in an IMT. The interviews commenced with the interviewer briefly outlining the nature of the research and interview process. The interviewer then followed the interview script asking participants three questions. Prior to use with participants, the script was piloted with an experienced IMT member.

The first two questions were based on Flanagan’s (1954) Critical Incident Technique. The first question required interviewees to identify an incident where they had worked in an IMT that proficiently managed a routine incident. In essence, the interviewee was being asked to recall a straightforward incident that was effectively managed. Once interviewees had thought about this for a moment and selected a particular incident, the interviewer used probes to establish the nature of the incident, the interviewee’s role, how the IMT was assembled, and the observed team-member characteristics and behaviours that were thought to have been most important in influencing the success of the IMT.

The second question required interviewees to identify an incident where they had worked in an IMT that was stretched, or challenged, to manage a demanding incident. In essence, the interviewee was being asked to recall a difficult incident that the IMT struggled to manage. Once interviewees had thought about this for a moment and selected a particular incident, the interviewer used the same type of probes as used for the routine incident. Participants generally selected incidents for the first two questions that had occurred within the last three years.

The third question followed Weller and Romney’s (1988) free listing procedure, asking interviewees to free list the competencies they regarded as important for working in an IMT, regardless of a person’s specific role. Additional prompts were provided by the interviewer to encourage collection of as comprehensive a list of competencies as possible from the interviewee.

The three questions were ordered so as to take participants from reflecting upon team-member attributes and behaviours observed at specific incidents to identifying the competencies important in working in an IMT. This approach was used to encourage interviewees to anchor their observations on actual incidents and to minimise the risk of them simply recalling some standard, perhaps organisationally derived items.
During the course of each interview, the interviewer made detailed notes of the participant’s responses. At the end of each interview the interviewer verbally summarised the information collected for the interviewee to ensure that the key points had been captured and provide the opportunity for interviewees to correct any omissions or clarify any points.

RESULTS

Data Preparation

In total 226 response statements were extracted from 15 interviews. There were 72 responses to Question 1 (proficiently managed incident), 61 responses to Question 2 (incident that stretched the IMT), and 93 responses to Question 3 (free-listed). A preliminary review of the initial 226 responses identified 7 items that were either unclear or that described procedures. The removal of these 7 responses left 219 items for detailed analysis.

Participant responses varied from simple concepts (e.g., ‘interpersonal skills’) to longer statements (e.g., ‘failed to communicate upwards and outwards’ and ‘AIIMS knowledge and the ability to apply it in different situations’).

Before looking at the competencies identified from the three questions, it is important to consider the nature of the IMTs and bushfires that were referenced by interviewees in their responses to Questions 1 and 2. Each participant used two separate bushfire incidents to respond to the interview questions leading to this study being based on a total of 30 incidents. The nature of these incidents varied from small-scale incidents involving small, 3–4 person IMTs (i.e., Level 2) through to large, complex incidents (i.e., Level 3) involving a 100 or more people in the IMT.

Identification of Key Competencies

The identification of the key competencies involved two phases. The first phase involved identifying the key competency themes from the 93 free-listed responses to Question 3. These responses were combined into a single list with each skill and competency weighted by two criteria:

1. the number of interview respondents who identified the skill or competency
2. the order in which the skill or competency appeared on each participant’s list.

Using Weller and Romney’s (1988) procedure, the most common responses and those named earlier by participants were given a higher weight. This procedure developed an initial list of 10 competencies.

The second phase of data analysis further developed and refined the competencies initially identified and involved wider detailed thematic analysis of the responses to all three interview questions. In addition to ranking all items by how often they appeared and order in which they were cited, the content of each response was closely examined and sorted to produce non-overlapping competency categories. The aim was to identify the most important competencies from the interview data as a whole. The proposed final 12 competency categories are shown in Table 1.

Confirmation of the suggested categorisation of behaviours into competencies was provided by a fellow researcher who had considerable previous experience working with firefighting personnel. That researcher independently sorted the responses from each question into the 12 suggested competencies. A free-marginal Cohen’s kappa (Brennan & Prediger, 1981) was calculated to assess the inter-rater reliability categorisation of the 69 response items to Question 1, the 57 response items to Question 2, and the 93 response items to Question 3. Brennan and Prediger suggest that it is preferable to use a free-marginal Cohen’s kappa when raters are not constrained to assign a certain number of items to each category, as was the case in this study. The free-marginal Cohen’s kappa for Question 1 (i.e., proficiently managed incident) was 77%, for Question 2 (i.e., stretched IMT) 75%, and for Question 3 (i.e., free listed competencies) 87% indicating good agreement between the raters for the categorisation of the interview data into the suggested competencies.

Behaviours Exhibited by IMT Personnel

(a) Managing a Routine Incident, and
(b) Stretched to Manage a Demanding Incident

The responses to Questions 1 and 2 required participants to identify the behaviours that were thought to assist an IMT to proficiently manage a routine incident, and the behaviours thought to hinder an IMT when it was stretched to manage a demanding incident. The three overall highest ranked and cited competencies were the same, although the order varied between the two conditions. The interviewees working in IMTs proficiently managing an incident were more likely to have cited

TABLE 1

Key Competencies for IMT Personnel

<table>
<thead>
<tr>
<th>Key Competencies</th>
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<tbody>
<tr>
<td>Interpersonal and communications skills</td>
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<tr>
<td>Disciplined</td>
</tr>
<tr>
<td>AIIMS knowledge and processes</td>
</tr>
<tr>
<td>Management skills</td>
</tr>
<tr>
<td>Leadership</td>
</tr>
<tr>
<td>Decision-making ability</td>
</tr>
<tr>
<td>Flexible and adaptable</td>
</tr>
<tr>
<td>Analytical thinking and problem solving</td>
</tr>
<tr>
<td>Calm and level headed</td>
</tr>
<tr>
<td>Situation awareness</td>
</tr>
<tr>
<td>Technical expertise</td>
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<tr>
<td>Other</td>
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</table>

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good interpersonal and communication skills (41%), effective leadership (10%), and robust knowledge of AIIMS (9%). However, when an IMT was stretched in the management of an incident, interviewees were more likely to have cited a lack of AIIMS knowledge (26%), poor interpersonal and communication skills (25%), and ineffective leadership (9%). Table 2 shows the 5 highest ranked competencies for Questions 1 and 2.

Description of the Competencies Important for Bushfire Incident Management

Drawing from the detailed content of the interview responses Table 3 provides a description of the competencies identified in this study. For each of the key competencies shown, behavioural indicators are outlined for when personnel demonstrate this competency and when personnel may lack this competency. These behavioural indicators were obtained from all three questions.

DISCUSSION

Comparison of the Key Competencies Identified in the Present Study With Those Developed by Crichton et al. (2005) and the CFA-DSE (2006)

The key competencies developed in this study are similar to those previously identified by Crichton et al. (2005) and the CFA-DSE (2006a, 2006b). Table 4 compares these three sets of competencies. Crichton and colleagues’ competency framework is the simplest, although this is in part due to the authors’ incorporation of several competencies under other broad categories. For example, Crichton et al. included coordination and workload management under teamwork, and included analytical skills under decision-making.

Comparison of the CFA-DSE framework with the current study shows that 8 of the 12 competencies are closely aligned, and a further competency, effective organisation/operating in a structured environment, appears to overlap with this study’s AIIMS knowledge and processes competency.

Perhaps the most notable differences between the present study and the CFA-DSE framework is the identification of situational awareness and flexible and adaptable in the present study’s key competencies. Although situation awareness is noted in the CFA-DSE (2006a) role standard as an important precursor to effective decision making, it was not listed as a competency. This is an interesting omission given the importance placed on situation awareness in a variety of high reliability organisational settings such as aviation, offshore oil and gas, medicine, military, and nuclear power plant operations (Flin, O’Connor, & Mearns, 2002).

The CFA-DSE competency framework appears to emphasize a systems-oriented approach to incident management and ignores flexibility, adaptability and improvisation as desirable elements. This is in contrast to findings from the present study where interviewees highlighted the value of flexibility and improvisation for IMT personnel. Other authors underline the value of flexibility and improvisation in high reliability organisation (HRO) approaches to managing novel incidents (e.g., Klein & Pierce, 2001; Stachowski, Kaplan, & Wäller, 2009; Turner, 1994).

Competencies Pertinent When

(a) an IMT is Proficiently Managing an Incident and
(b) When an IMT is Stretched in Incident Management

The results suggest that the same types of behaviour were central in both circumstances, albeit that the team members managing the incidents proficiently demonstrated competency, whereas the team members stretched to manage the incident were seen as failing by not demonstrating the same types of competency under the more demanding task conditions.

The most obvious difference reported between IMTs (a) proficiently managing and (b) stretched in their management of an incident was in the competency of AIIMS knowledge and processes. Arguably, this should be one of the more straightforward competencies to train personnel in, yet it appears to be one of the most obvious skill sets that may undermine effective IMT functioning. Of course, a lack of motivation or discipline cannot be ruled out as contributing to team members’ failure to demonstrate competency in AIIMS knowledge and processes.

TABLE 2

The Differences Between an IMT that is Proficiently Managing a Routine Bushfire Incident, and an IMT that is Stretched by a Demanding Bushfire Incident

<table>
<thead>
<tr>
<th>Question 1: When the incident is proficiently managed</th>
<th>Question 2: When the IMT are stretched in the management of an incident</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interpersonal skills (41%)†</td>
<td>AllIMS knowledge and processes (26%)</td>
</tr>
<tr>
<td>Leadership (10%)</td>
<td>Interpersonal skills (25%)</td>
</tr>
<tr>
<td>AllIMS knowledge and processes (9%)</td>
<td>Leadership (9%)</td>
</tr>
<tr>
<td>Discipline (9%)</td>
<td>Calm and level-headed (11%)</td>
</tr>
<tr>
<td>Analytical thinking and problem solving (4%)</td>
<td>Discipline (11%)</td>
</tr>
</tbody>
</table>

Note: † The percentage indicates the proportion of interviewees that listed this behaviour.
<table>
<thead>
<tr>
<th>Competency</th>
<th>Description of competency</th>
<th>Positive behavioural indicators</th>
<th>Negative behavioural indicators</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interpersonal and communications skills</td>
<td>The capacity to interrelate and develop effective working relationships with a wide range of personnel.</td>
<td>Good people skills, approachable, open, supportive, sensitive to others' needs, socially aware, able to listen and hear what others are saying, attune to body language, and effectively articulate ideas in a variety of media across a range of situations.</td>
<td>Lack, courtesy, impatient, uncooperative, poor listeners, unable to get their message out to the wider team or upwards, fail to share information, and do not clearly explain what was expected of others.</td>
</tr>
<tr>
<td>AIIMS knowledge and processes</td>
<td>A thorough knowledge of AIIMS principles and processes and the ability to appropriately apply these in incident management settings.</td>
<td>Readily apply AIIMS principles and processes, know their own role and responsibilities and those of the wider team, and apply appropriate AIIMS processes for decision-making, documentation and other IMT activities.</td>
<td>Lack AIIMS knowledge, fail to follow AIIMS processes, a poor understanding of their role and responsibilities, little appreciation of other team members' roles, and use outdated (i.e., non-AIIMS) incident management protocols.</td>
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<tr>
<td>Leadership</td>
<td>The ability to bring a team together, direct activities, and motivate personnel to work towards common goals. Although the incident controller is expected to provide leadership for the IMT, other team members are required to lead their own functional areas and contribute to the overall leadership of an IMT.</td>
<td>Know when to step in when things are failing, consistently model good behaviour, and the ability to bring the team together and provide direction.</td>
<td>A lack of clarity about who is running the fire, nonchalance, doesn't take control, and no clear objectives are set for the team or sub-team.</td>
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<tr>
<td>Flexible and adaptable</td>
<td>The capacity to cope readily with changes to roles, responsibilities, and alterations to planned activities.</td>
<td>Quickly adapt to the situation, cope with novel circumstances, are able to multitask, and effectively handle changing priorities and timelines.</td>
<td>Struggle to perform other roles in the IMT and get stuck by relying on an approach they know rather than develop a workaround for a novel situation.</td>
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<tr>
<td>Calm and level headed</td>
<td>The ability to remain calm and level headed, especially through the more challenging periods of incident management.</td>
<td>Project an aura of calmness — even when folk around them aren't, cope with stress, and a reasonable awareness of their own stress levels and actively managed these.</td>
<td>May at times be panicky, are reactive, struggle to recover from significant setbacks, and may become quite angry.</td>
</tr>
<tr>
<td>Technical expertise</td>
<td>The technical knowledge required largely centres on various aspects of fire management, fire behaviour, suppression techniques, and inter-agency arrangements.</td>
<td>Understand the fire business, possessing a sound knowledge of fire behaviour and suppression, and have the ability to use technology and the various tools required for incident management.</td>
<td>Lack fundamental knowledge of fire management and behaviour.</td>
</tr>
<tr>
<td>Disciplined</td>
<td>The typically time-pressured and high-stakes environment of incident management requires personnel to maintain focus on the task at hand and work in a disciplined manner to meet various operational timelines.</td>
<td>Methodical, punctual, stay on task, keep to agreed timelines, and follow agreed processes.</td>
<td>Fail to leave their usual jobs behind, struggle to work within agreed timelines, unfocused, and careless in the way they handle or promulgate unsubstantiated information.</td>
</tr>
<tr>
<td>Management skills</td>
<td>Good management skills enable personnel to effectively organise and coordinate the activity of their colleagues, enabling the completion of key IMT tasks.</td>
<td>Assemble a team with the right skills, focused on managing the fire at hand, and able to organise and coordinate activities within the team and with key outside agencies and stakeholders.</td>
<td>Fail to ensure good team organisation and coordination of key activities.</td>
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<tr>
<td>Decision-making</td>
<td>Competent decision-makers are able to make sound and timely decisions under difficult conditions.</td>
<td>Make sound, well-informed decisions in time-pressured and resource-constrained situations. Capable of refining their decisions, and if the situation changes, adjusting their plans accordingly.</td>
<td>Less realistic (more frequently optimistic) in their planning for decisions and tend to develop inertia that means they fail to change plans when it becomes clear that this is required.</td>
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<tr>
<td>Analytical and problem-solving skills</td>
<td>The ability to accurately and efficiently identify, analyse and resolve issues.</td>
<td>Skilfully analyse and explore key issues, deftly deal with tricky issues, crystallise the key issues from a complex situation, and demonstrate creativity in solving problems.</td>
<td>Fail to develop a realistic appreciation of key aspects of the incident including its trajectory and the impact of changing conditions on future fire behaviour.</td>
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<tr>
<td>Situation awareness</td>
<td>Team members who have situation awareness have developed an understanding of the key elements of the incident and know what is going on around them.</td>
<td>Know the resources available and exactly what was going on.</td>
<td>Fail to gather intelligence and have poor comprehension of the developing incident.</td>
</tr>
<tr>
<td>Other</td>
<td>This competency captured several facets not readily categorised into the 11 previous competencies including; maintaining a sense of humour, self-confidence, and demonstrating initiative.</td>
<td>Maintaining a sense of humour, self-confidence, and demonstrating initiative.</td>
<td>Personnel who have to be regularly prompted in what to do next.</td>
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</table>
During the course of data collection for this study several interviewees commented that it usually takes somewhere between four hours and up to two shifts to get ‘back into the swing’ of incident management. This observation suggests that pre-season training exercises may need to be longer and more intensive than those currently offered by some agencies.

Looking beyond the domain of bushfire, these observations around AIIMS knowledge and processes suggests that organisations shouldn’t underestimate the importance of ensuring that they have personnel available that can competently apply incident management principles and use their knowledge of organisational processes to effectively manage emergency situations.

The second competency that was important in IMTs both proficiently managing and being stretched in the management of an incident was interpersonal and communication skills. Interviewees generally noted that team mates demonstrated good interpersonal and communication skills when teams were proficiently managing an incident, and observed poorer interpersonal and communication skills when teams were stretched. There are two competing explanations that may be drawn from this observation.

The first explanation would suggest that as IMTs become stretched, workload pressures undermine the ability of personnel to maintain effective interaction and communication. This perspective proposes that the poorer interpersonal processes are in part the result, rather than cause, of an IMT struggling to manage an incident and therefore, potentially a useful indicator of the workload that an IMT may be struggling with.

An alternative explanation would suggest that poor interpersonal skills may undermine teamwork and information flow, and is thus a contributing cause to IMTs becoming stretched. This second perspective proposes that interpersonal skills contribute to the effectiveness of an IMT.

It seems most likely that interpersonal and communication skills both contribute to team functioning and can be adversely affected by challenging situations and that if an IMT with limited interpersonal skills comes under pressure, these two factors may work together to exacerbate poorer team performance. Although the exact nature of the causal relationship between interpersonal skills and performance is unclear, the wider literature certainly suggests that interpersonal and communication skills are an important competency in team and organisational settings (e.g., CIPD, 2007; Flin et al., 2002; Rippin, 1995; Russell, 2001).

The third competency that was reported as being salient in IMTs both proficiently managing and being stretched in the management of an incident was leadership. The ability to bring a team together, direct activities, and motivate personnel to work towards common goals was observed to be an important point of difference between these two situations. Interviewees commented that in effective IMTs it generally was not just the incident controller who provided leadership, but various other team members also played an important role. These observations are consistent with the evolving literature around the concepts of shared and distributed leadership (Day, Gronn, & Salas, 2004). For example, highly skilled and experienced members of
cohesive teams can take on some leadership functions, thereby providing greater opportunity for the formal leader to focus on key issues and thus assisting overall team performance (Zaccaro & Klimoski, 2002).

These observations suggest that not only do organisations need to ensure they appoint capable incident controllers with well developed leadership abilities, but they should seek to ensure that members of the wider IMT also have leadership competencies. Additional evidence for the importance of leadership skills in incident management comes from various HRO settings where leadership has been identified as a key component of teamwork and is included in team training (e.g., Baker, Day, & Salas, 2006; Flin & O’Connor, 2001).

In Summary

It is clear that effective incident management requires the complementary interplay between people (social and cognitive skills) and structure (organisation and knowledge) (Crichton et al., 2005). Earlier in this article the concepts of teamwork and taskwork were introduced. From consideration of the key competencies identified in this study, it is apparent that effective IMT personnel require a range of well developed competencies, particularly teamwork oriented ones. Interpersonal and communication skills, leadership, and AIIMS knowledge are clearly key competencies for bushfire IMT personnel.

The interviews indicated that when IMTs are stretched in their management of a bushfire there is an apparent deterioration in the same competencies that were identified as characteristics of proficiently performing teams. This finding underlines the importance of ensuring IMT personnel are well trained and have the ongoing opportunity to practice and further develop key IMT competencies.

Further evidence for the importance of the non-technical competencies identified (i.e., teamwork, leadership and interpersonal skills) has been provided by research conducted in other settings. In addition to research on senior management success, there is strong evidence from high reliability organisations for the importance of non-technical competencies in team performance.

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