The Future of Incident Command
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# The Future of Incident Command

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Introduction

Incident Command is fundamental to the way that Fire and Rescue Services resolve emergency incidents. Command is practiced at every single incident, each time a 999 call is received, every time a response is required. Incident commanders are trusted by the public when they are at their most vulnerable, and they are trusted by crews working under dangerous conditions. Quite simply, incident command lies at the core of what fire and rescue services do.

Today’s command context is increasingly challenging. There is considerable public, peer and legal scrutiny of the way in which incidents are dealt with, more so today than ever before. Fire Incident Commanders are expected to work in challenging and highly pressured situations. Under these pressures, an incident commander needs to understand the situation as it unfolds, make many and varied decisions about resources and operational tactics, plan how to deal with the emergency and communicate these plans in a way that crews understand. This process involves a number of command skills that allow these processes to effectively take place. These include situational awareness, decision-making, leadership, communication, understanding the dynamics of the team as well as resilience and pressure management.

Fire and Rescue Services have a clear responsibility to prepare incident commanders to operate in such environments effectively and safely. This report outlines some recent work led by CFOA that aims to advance Incident Command in the UK.

Part 1

Part one considers the need for change in relation to incident command. It considers a historical perspective of the development of the Incident Command System in order to understand how command has been shaped today. It outlines some of the catalysts for change, including learning from critical incidents, judicial enquires, policy direction and legislative requirements. These areas formed the basis of the work carried out in the development of the National Operational Guidance for Incident Command. One of the most critical areas that was repeatedly identified was a need for the guidance to emphasise the importance of command skills, in particular situational awareness and decision making.

Part 2

Part two explores some innovative research into incident command decision making that underpinned some of the changes to the guidance. The key aim was to explore the way in which command decisions were actually made under the pressures of operational incidents to see whether current guidance was sufficient. The way in which experience influences decision making was also assessed, with the intention of exploring how declining incidents and experience might affect commanders. This was the first time that such research had been conducted on the incident ground, which represents a significant advance in our knowledge.
Part 3

Part three considers how the findings of this research were used to support the development of the guidance. It also outlines some further research commissioned by CFOA that explored the effectiveness of the changes to the guidance. These changes aimed to support incident commanders making decisions and improve their situational awareness. CFOA National Decision Trials were established to put these assumptions to the test. This section outlines how the guidance was found to support incident commanders making decisions. Given that the number of incidents will continue to decline, command experience will also further reduce, an additional aim of this CFOA led work was to explore the effectiveness of difference kinds of training contexts. Decision making was compared in a virtual reality environment, the training ground and also at live burns in residential blocks due for demolition. The findings and their implications for command are explored.

Part 4

Part four uses some current notable practices in relation to Incident Command from Fire and Rescue Services. A number of recommendations are made that are intended to support Fire and Rescue Services in advancing incident command:

- Improving incident command despite declining operational experience
- Improving incident command decision making through improving judgement of risk
- Improving the selection, assessment and development of incident commanders
- Improving Decision Making in a multi-agency setting under the pressures of complex and major incidents

CFOA have been clear in their commitment to Firefighter safety, leading and investing in work to drive operational effectiveness and advance the future of incident command. Whilst the present day context will to some extent shape the future for incident command, it is within the gift of the sector to take control of its future direction. Fire and Rescue Services now have a key role in the implementation of these improvements that will shape the future of incident command.
Part 1: Incident Command – The Need for Change

Background
This section will explore the current context of incident command, its history and some of the drivers for improvement moving forward. It will discuss some of the factors that identified the need for the research into Incident Command commissioned by both CFOA and the National Operational Guidance programme, and the way in which this work provided an evidence base for changes seen in the revised Guidance for Incident Command.

ICS History and Development
A number of challenges faced Fire and Rescue Services in the 1990’s. Two incidents of particular note were Gillender Street (London, 1991), and the Sun Valley poultry factory fire (Hereford, 1993). Each of these resulted in two firefighter fatalities, and each also resulted in Improvement Notices being served on the fire authorities in question by the Health and Safety Executive (HSE). These raised questions, among other things, about operational competence, operational intelligence, crew safety and risk assessment. Additionally, the findings of the Fennell Enquiry into the 1987 King’s Cross underground station fire included recommendations about command and control training, and also about the issue of how many command changes had occurred at that incident as it developed. (Fennell, 1988, p.166; see recs 26 and 30 re Ch. 11.)

Driven by these, and a number of other serious local incidents, work commenced in West Yorkshire Fire and Rescue Service in 1994 to develop procedures to address some of the major issues highlighted. The project initially had two main areas of focus. The first, “dynamic risk assessment”, addressed at-incident operational risk management. This was followed by “organisational structure on the incident ground”. Soon afterwards, “command competence” became the third main focus of what soon became known as the “West Yorkshire Incident Command System”. Some Incident Command System terminology was borrowed from the system that had been used in California since the 1970’s, although the substance of the UK system was more heavily influenced by the Phoenix Fire Department’s fireground command system (Brunacini & Bergeron (1985). This had in turn led to NFPA’s more widely known Incident Management System, or IMS, which is still widely employed in the USA today.

In 1999, the UK’s Fire Service Inspectorate published a volume of the Fire Service Manual entitled “Incident Command”, which brought West Yorkshire’s work, further refined and enhanced, and still in three main sections, to the whole UK Fire and Rescue Service as a standardised approach to the operational command of emergency incidents (HM Government, 1999). It is worth addressing each of these three elements of the Incident Command System individually.

Operational Risk Management
In the early 1990’s, the concept of “dynamic risk assessment” was new to the Fire and Rescue Service, and not yet well understood. Unsurprisingly, a variety of interpretations arose as to what this constituted, and what the Fire and Rescue Service response ought to be. The concept of announcing a ‘tactical mode’ was introduced which would relate to the kind of operations that were being undertaken following a risk assessment of the situation and the activities to be implemented. The announcement of the tactical mode provided evidence that a risk assessment had been completed, and by transmitting this by radio, formed a record of that. It also used simple phrases by which the decisions around activity could be communicated to crews and commanders.

For example, a commander might assess a situation as one that could be addressed readily by crews with available equipment and familiar techniques without undue risk: this would result in a declaration of...
“Offensive Mode”, meaning that crews would be working within the identified hazard zone, on the basis that the benefits were worth the risk being faced. This would be the mode of operation used on a day to day basis at small or domestic incidents.

Occasionally, the commander would face a situation that might be too dangerous, where the outcome would not be worth the risk, where current resources were inadequate or where sufficient information was not yet available to make an operational commitment. This would result in a declaration of “Defensive Mode”, signalling that crews must operate outside of the risk area until steps had been taken to address the aforementioned concerns. Sometimes, in fast moving situations, it might be necessary to declare “Defensive” only for a short time, until, for example backup crews or special resources arrive on scene, or until other agencies have completed key parts of their tasks.

It was always recognised, from the very outset, that the tactical mode procedure was simplistic, representing only a “traffic light”, red/green, go/no-go set of options, but it plugged a very wide gap at the time. It was supplemented by an analytical risk assessment approach, which was recommended for use as soon as time and resources allowed.

**Organisational Structure on the Incident Ground**

It became apparent at an early stage of the Incident Command System work that the Fire and Rescue Service was missing a standard lexicon for describing and labelling incidents and operational situations. This was a serious gap which was hampering training, tactical briefings, debriefings and much else. For example, many debriefs took on the shape of a narrative description of officers’ and crews’ deployment, arrival, movements and some decisions, but there was little of use that could be recorded and utilised for future training or operational policy development. It was difficult, sometimes even for officers who had been in attendance, to determine whether, for example, an incident where a building had burned to the ground had been successful or unsuccessful, and it could of course have been either.

Therefore the now familiar patterns of sectorisation; clear lines of command with identification and responsibilities of incident ground roles; patterns of incident escalation and de-escalation; correct use of firefighting or support sectors and their lines of accountability; tactical modes; inter-agency working were all formally introduced into the system.

One notable concept that was adopted from military science was that of “span of control”. It recognised the obvious fact that a human can only cope with so many “open channels” of communication (e.g., face-to-face, telephone, radio, ambient chatter etc.), and that the number depends very much on how dynamic and complex the situation is. Therefore, to reduce the likelihood of this being a problem, it was advised that the span of control for any commander, at any level, should not exceed five. For example, an incident should not develop beyond five crews before it is subdivided into sectors; a sector should not have more than five crews; and an incident commander should not control more than five sectors before utilising, say, one or more operations commanders. This was itself a crude mechanism, as clearly, if one is talking to someone and another line of communication starts to become active, such as a radio or command support officer, then confusion and delay can arise, even loss of critical information. Nevertheless it constituted a benchmark within the architecture of an incident.

Finally, with the new challenges of the post-911 world, the system had to be expanded once more to embrace the scale and complexity of incidents that might be encountered due to terrorism. Combined with the efforts to combat the effects of climate change, the incident command structures have evolved further within the national resilience framework to provide better communications, staff support and inter-agency working, among other things.
Command Competence

Given the ongoing work nationally in the 1990’s to address the training and competence issues identified in the Gillender Street improvement notices, it was clear that these issues needed to explicitly feature in any package that purported to cover the full range of incident command competences. This issue therefore constituted the third pillar of the system.

The first edition (1999) of the manual covered basic elements of: acquisition of knowledge; application of knowledge; ongoing development of commanders. The second edition (2002) was expanded to include aspects of National Occupational Standards, the Integrated Personal Development System and National Development Modules, with the third edition (2008) adding performance criteria (with a section on guidance for assessors), Personal Development Records, Continuing Professional Development etc. West Yorkshire itself, in pursuit of the necessary improvements, pioneered the “command portfolio”, in which officers recorded their training, experience at incidents, records of debriefs and evidence of continuing professional development. This provided a useful way for the Service to record learning and to provide assurance of the command competency of their Incident Commanders.

Current Incident Command Training

The processes involved in the Incident Command System, such as how to organise the incident ground and the principles of safety management are well embedded in Incident Command Training. However, such training has not uniformly included any great emphasis on the development of the skills necessary for incident command, although there are likely to be pockets of good practice. A typical schedule in a Fire and Rescue Service may involve a period of initial incident command training, followed by a re-assessment process every two-years. In terms of the most critical command skill, decision making, areas that an incident commander would typically be expected to be aware of include the decision making model, and the process of conducting a dynamic risk assessment.

The Incident Command Manual recognises the benefit of crew resource management training practised in other industries and its focus on non-technical skills such as ‘leadership, situation awareness, decision making, team climate and communication’ (CFRAU, 2008, p 117). The section notes that ‘fire officers who have studied this particular type of human factors training have argued that it has clear applications for the fire service’ (CFRAU, 2008, p 117). However, no further guidance on either command skills, or the applicability of crew resource management to Incident Command is given within the manual so it is perhaps unsurprising that the focus for training and development has been on processes rather than people.

In the present day there is often a great reliance on Incident Commanders practicing their incident command skills – in particular decision making - through natural exposure to operational incidents. With such a heavy emphasis on direct operational experience, an incident commander’s opportunity to gain experience in making command decisions can be limited by a number of factors. This might include their length of service, the number and types of incident that they have attended (Cohen-Hatton et al, 2015), which as we are aware have been declining over several years (DCLG, 2013). A number of additional alternatives exist that are used to supplement this experience, which include simulated exercises and computer-based command simulations. However, these are often resource intensive in nature, and have a limited number of command positions available at each simulation. They therefore do not readily provide an every-day opportunity to practice command skills, hence the great emphasis on operational incidents as a forum to practice these.
Catalyst for Change

National Operational Guidance for Incident Command: Literature Review

The Incident Command Manual (CFRAU, 2008) was revised under the auspices of the National Operational Guidance Programme. It was important to consider the modern context for incident commanders in order to identify critical areas that should be addressed in the refresh. This included taking account of lessons learned in recent times. A thorough literature review of documents, reports and reviews of critical incidents both within the Fire and Rescue sector and other industries was conducted. This literature review confirmed human factor failures (human error) can impact on all elements of Incident Command. An absolutely critical need was highlighted for the revised guidance to emphasise the importance of command skills, in particular situational awareness and decision making. It was important to consider both people and processes to improve incident command in the operational environment.

The literature review considered the lessons learned from many recent critical incidents involving the Fire and Rescue Service. These included:

- **Harrow Court, Hertfordshire (2005)** – Three people died at this fire, including two Firefighters Jeffery Wornham and Michael Miller, and a member of public, Ms Natalie Close.
- **London Bombings, London (2005)** – Fifty-two members of the public were killed as a result of four bombings.
- **Fire and explosion at Marlie Farm, East Sussex (2006)** - An explosion at this fireworks store killed Watch Manager Geoff Wicker and Mr Brian Wembridge of East Sussex Fire and Rescue Service and injured thirteen other people: nine FRS personnel, two police officers and two members of the public.
- **Atherstone-on-Stour, Warwickshire (2007)** – Four firefighters were killed fighting this warehouse fire, Darren Yates-Badley, Ashley Stephens, Ian Reid and John Averis.
- **Galston Mine Incident, Strathclyde (2008)** - Mrs Alison Hume died following a protracted rescue from a disused mineshaft.
- **Lakanal House, London (2009)** – Four people died in fire at a high rise block of flats
- **Shirley Towers (2010)** - Firefighters Alan Bannon and James Shears died whilst fighting a fire in a high rise block of flats.

**Critical areas identified**

**Omission of Human Factors and Command Skills:** The literature review found human factors and command skills stand out as vital yet missing elements within the Incident Command Manual. The importance of these elements have been emphasised in safety management in recent years. In 2010, the Health and Safety Executive (HSE) published a document entitled ‘Striking the balance between operational and health and safety duties in the Fire and Rescue Service’ (HSE, 2010). In this document the HSE highlight the responsibility of Fire and Rescue Services to prepare individual employees to make operational decisions in dangerous, fast-moving emotionally charged and pressurised situations, when there may sometimes be incomplete or inaccurate information. The cost of not getting this right is high, both in human cost and litigation. The HSE were clear in this document that the quality of the decision making at an incident illustrates whether individuals have been adequately prepared by the Service. In addition, HSG65 (HSE, 2011) advocated that best practice health and safety management included the need to understand how human factors affect health and safety performance.
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Safety critical nature of Human Factors and Command Skills: In 2013, the Department for Communities and Local Government published an influential document entitled ‘Fire and rescue authorities health, safety and welfare framework for the operational environment’. Human factors feature significantly in this guidance, noting that 80% of industrial accidents can be attributed to human factors or omissions, and ‘most firefighter injuries are influenced by the same factors...’ (DCLG, 2013, p 32). The document defines human factors in relation to the planning and delivery of fire and rescue services and advocates that they should consider the impact of ‘human factors’ on the safe, effective, and timely resolution of an incident. It acknowledges that understanding these ‘human factors’ is critical to effective health, safety and welfare management, and states ‘...the influence of human factors on behaviour at incidents should not be underestimated’ (DCLG, 2013, p 32).

Most safety critical industries that have experienced fatalities (e.g. aviation, oil/gas exploration, rail, healthcare) now strongly emphasise the influence of human factors on safety management. They also recognise error could perhaps be mitigated by understanding the basis of decisions and ensuring that through training personnel have the appropriate cognitive, social and personal resources (Flin, O’Connor & Crichton, 2008). Therefore the literature review recognised that human factors and command skills are safety critical for incident command, and argued the need for the refreshed guidance to take account of these.

Review of Safety Management, including the dynamic risk assessment process: A deficiency or failure in dynamic risk assessment as an aspect of incident command has been a feature of all the Fire and Rescue Service investigations examined as part of the literature review. Coroners have also made recommendations for improvements in relation to this aspect, including Harrow Court (Danbury, 2007), Lakanal House (Kirkham, 2013), and Marlie Farm (Irwin, 2013).

The model found in the Incident Command Manual can be described as complex and not obviously representative of a dynamic process. The literature review recommended a review of the dynamic risk assessment and models associated with it, not least as it is regarded as one of the four pillars of risk assessment within the DCLG’s 2013 ‘Health, Safety and Welfare Framework for the Operational Environment’.

Review of Incident Command decision-making: The literature review identified that the area of the Psychology of Incident Command, and in particular, operational decision making, needed to be expanded significantly in the refreshed National Operational Guidance. There were a number of issues identified in relation to decision making. The predominant criticism is that it was not prominent enough in the Incident Command Manual (CFRAU, 2008), given its critical nature for incident command.

Additionally, the relationship between the decision making model and dynamic risk assessment model was in need of clarification. The information on decision making is contained in an appendix only, and would benefit from expansion. Despite the two appendices that provide some information on decision making it does not form an upfront feature of the Incident Command System, and the literature review found there to be insufficient detail on incident command decision making in the operational environment, the types of decisions that may be made and the context in which they are used.

Omission of Operational Discretion: The literature review cites the absence of operational discretion as an area for further expansion. Operational discretion can be described as those occasions whereby the incident commander makes the decision (following a dynamic risk assessment which indicates the benefits outweigh the risks), that the most appropriate actions for the incident are not aligned with standard operating procedures. This might be because it is a non-standard incident, or an aspect of the incident is non-standard.
The lack of provision for such discretion within Fire and Rescue guidance has been questioned by some coroners, for example following the Lakanal House fire (Kirkham, 2013) and Galston mine incident (HMCI, 2012). Consequently, the issue of operational discretion was in need of expansion and clarification. Likewise the recent HSE publications, ‘Striking the Balance’ and ‘Heroism in the Police and Fire and Rescue Services’ require these concepts to be explained and put into context. This was a key area to be addressed in the revised guidance.

Clarification of professional judgement: Whilst operational discretion is omitted, professional judgement is referred to in the Incident Command Manual. It states professional judgement should be applied in conjunction with standard operating procedures once all available information has been gathered ‘…to decide the most appropriate course of action, weighting the benefits of proceeding with a task against the benefits likely to be gained’ (CFRAU, 2008, p 64). Where the decision involves an occasion when a rapid intervention is required to effect a rescue, the incident commander must ensure that personnel are not put at an unnecessary risk by undertaking work outside of agreed safety procedures and may decide to ‘adopt to a defensive approach until further information has been gathered’ (CFRAU, 2008, p 64).

However, the challenges of such an approach were a feature of the Galston mine incident where an incident commander suspended operations to follow policy and await the arrival of a mountain rescue team. HMCI who reviewed the Galston mine incident acknowledged that a balance needs to be struck between the benefit to be gained at an incident against the risks to personnel and members of the public. The HMCI also observed that striking such a balance is reliant on a subjective judgement, where different people will make different judgements given the same situation. However, he clearly sets out what is expected of an incident commander on the incident ground, i.e. they ‘…make this kind of judgement in a way which is both intelligent and informed…they should have the best possible understanding of the benefits to be gained…and the risks associated with the actions of the responding personnel before determining and plan of action’ (HMCI, 2012, p 23).

A lack of applicable research in an Incident Command setting: Most safety critical industries have commissioned research into human factors in naturalistic settings. At the time the literature review was conducted there had been no research at live operational incidents in Fire and Rescue Services, which posed a significant gap in the literature. There has been some research using simulated exercises (e.g., McLennan, Omodei, Rich, & Wearing, 1997). However, people may respond and behave differently in a training environment as simulations are unable to replicate all factors of a live operational incident, thus limiting the data.

Many safety critical industries have commissioned research and developed bespoke Behavioural Marker Schemes to evaluate the use of non-technical skills (such as leadership, inter-personal communication, situation awareness, teamwork, decision making, and stress/fatigue management) in safety-critical situations to reduce human factor failures.

Need to include practical guidance on Command Skills: The literature review recognised that a great deal of technical knowledge is necessary to underpin incident command, such as knowledge of procedures, the Incident Command System and generic risks, to name but a few. However, there are also many Command Skills that are needed to apply this knowledge usefully and effectively. For instance, a Commander must be able to understand a situation, decide on an appropriate plan, communicate the plan and continue to monitor the situation to ensure the incident is resolved effectively. These skills include situational awareness, decision-making, communication, leadership, resilience and pressure management. These command skills are necessary to glue together the technical skills and knowledge to facilitate effective Command.
Part 2: Evidence-led Change – Incident Command Research, Findings and Applications

Background

It was clear from the literature review that an improved focus on Human Factors and Command Skills, in particular decision-making, could add significant benefit to the revised National Operational Guidance for Incident Command. A key part of the development of the guidance was a piece of new research that was able to explore the way Incident Commanders make decisions at real life emergency incidents (Cohen-Hatton et al, 2015). The aim was to improve firefighter and public safety by increasing the understanding of the processes that drive operational decision making. This would ensure that guidance was produced that accounted for the human factors of incident command in a way that could actually support Commanders in challenging environments and help to reduce human error.

This work allowed the integration of the academic with the practical, ensuring the guidance produced was evidence-based from the most up-to-date research. This study, entitled ‘An investigation of operational decision making in situ: Incident command in the UK fire and rescue service’ has been peer-reviewed and subsequently published in the psychology journal ‘Human Factors’ (Cohen-Hatton, et al, 2015). The value of the work was recognised recently with the award of a national research excellence prize (2014) due to its impact on sector improvement.

Whilst there is a large body of work looking at general decision making processes, there is a relatively limited amount conducted into operational decision making with Fire Officers. Although the mental processes may be similar, the way in which they are implemented can differ according to the task and the context, hence most safety critical industries explore these processes in the industry environment (NOG, 2015). There is comparatively little research conducted within the operational Fire and Rescue context which leaves a gap in our knowledge relating to how these processes might affect us during Incident Command.

The small amount of research that does exist is limited to either simulations, or interviews after an incident (e.g. Klein, Calderwood & Macgregor, 1989). These studies can provide only relatively distant clues about decision making at emergency incidents. Crucially, many of these studies rely on the accuracy of participants memory for events, which research has shown may lack accuracy (e.g. Spencer & Flin, 1993), and are unable to identify the sequence in which information was presented and decisions were made to further inform our understanding of command decision making.

This study addressed this gap in knowledge through a detailed analysis of incident command decision making at actual incidents that were attended by officers across the UK Fire and Rescue Service. Incident Command doctrine was previously developed to the best of the ability of the sector, although without such direct evidence as we have now been able to gather through this research. The Incident Command Manual (CFRAU, 2008) had adopted the DMM which was a very analytical and reflective decision model for incident command. However, there are a number of other types of decision making which are relevant to the incident command context which are not accounted for in this model. Whilst no doubt a useful tool, we are aware from the literature review (NOG, 2015) that current incident command decision making, used under the auspices of such a model, is not without criticism. This research looked at whether the decision making process in the operational environment followed the process assumed by current decision models in operation (i.e. the DMM (CFRAU, 2008)).
Analytical, Reflective Models of Decision-making

Early researchers have argued that when people solve problems, they do so in an analytical and rational way, which proceed in an orderly sequence of phases (e.g. Dewey, 1933). These ideas are echoed in many normative models of decision-making that typically identify three key phases: Situation assessment, plan formulation and plan execution (e.g., Lipshitz & Bar-Ilan, 1996; van den Heuvel, Alison & Power, 2013).

This three-phase, analytical and somewhat reflective model can also be identified within the DMM, which was the decision model adopted in the Incident Command Manual in the UK (CFRAU, 2008). In relation to situation assessment, the incident commander forms an understanding of the situation by considering the information, cues and clues available to them. The result of this phase provides the foundation of the planning process, and consists of both understanding the present and a future projection of the situation (Endsley, 1995). For example, incident commanders are expected to gather information that is relevant to the incident, resources, and hazards, in order to inform the selection of the appropriate course of action.

The plan formulation phase includes identifying the problem or problems, generating possible solutions, and the selection of an appropriate course of action. Here, incident commanders are expected to identify objectives and develop a tactical plan where suitable actions are selected and planned. The final phase of plan execution involves the implementation of the plan. For incident commanders, selected actions are communicated to those who will implement them, and activity is controlled by the incident commander to ensure it is carried out appropriately and effectively. However, the fact that such a model is embedded within training and operational guidance (e.g. the DMM) does not necessarily mean that it represents the way incident commanders actually make decisions.

Figure 1. The current decision model assumes an analytical, reflective decision process where information is gathered and assimilated, objectives are identified and prioritised then activity is planned before it is implemented.
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**Intuitive, Reflexive Components of Decision Making**

Whilst the kind of analytical, reflective models of decision making represent one way in which decisions can be made, it has also been argued that they do not capture how decisions are often made in the real-world environment (Klein, 1993). Instead, decisions are often influenced by various biases and involve the use of heuristics including those based upon previous experience (e.g., Gigerenzer, 2007; Shafir, 1994; Tversky and Kahneman, 1979).

Also, cues in the environment (in this case, at an incident) can prime knowledge structures that include actions, goals and expectancies previously related to that or similar environments (e.g., recognition-primed decision making; Klein, 1993). In such cases, various options are not necessarily evaluated against one another, but rather the decision to act might be one that is deemed to be satisfactory rather than optimal (e.g., Abernathy & Hamm, 1993; Klein, 1993, 2003).

Alternatively, the basis for an action might be more reflexive and automatic, affected by previously established associations that have developed between situational cues, actions and outcomes (e.g., Doya, 2008). These acquired (associative) influences can easily generalise across situations and affect behaviour in variety of ways (e.g., Balleine & Ostlund, 2007; Cohen-Hatton, George, Haddon & Honey, 2013; Dickinson, 1980). These more reflexive influences might or might not be appropriate to the given operational environment, nevertheless they could exert a powerful influence over incident command.

Whilst such processes were acknowledged in the Psychology of Incident Command Appendix in the Incident Command Manual (CFRAU, 2008), they are not reflected in the DMM, which represents an analytical and reflective processes. This would require relatively slow-time, reflective and conscious deliberation in order prioritising objectives or tactical planning which may not always be feasible in a dynamically changing, high pressured and high-risk operational environment.

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*Figure 2. With more intuitive (reflexive) decision processes, cues in the information gathering phase can directly prime responses in the action phase, bypassing the thinking phase.*
Research Aim

The principal aim of this research was to investigate the basis of decisions made at a wide range of incidents responded to by the UK Fire and Rescue Service. The research examined whether reflective decision-making models, such as that currently advocated in the Incident Command Manual (CFRAU, 2008), accurately represented the way in which incident command decisions were made in the operational environment.

A subsidiary aim of this study was to explore the influence of operational command experience on the way in which decisions are made at incidents. In most professional domains, experience gradually shapes the development of high-level, complex skills (e.g., Ericsson & Lehmann, 1996). However, the amount of experience of making command decisions in operational contexts can be limited by the length of service of the officer, or the infrequent nature of the incidents themselves (Cohen-Hatton et al, 2015).

However, as the literature review acknowledges, the consequences of errors can be life threatening (NOG, 2015). The way in which experience influences decision making processes at operational contexts in general, and the Fire and Rescue Service in particular, is an issue that is important and has not been addressed. This issue is particularly timely given the downward trend in the number of operational incidents over recent years (DCLG, 2012), with the consequence that the levels of operational exposure are expected to continue to decline.

Methods

Data was gathered from level 1 (Crew and Watch Managers) and 2 (Station and Group Managers) Incident Commanders in six UK Fire and Rescue Services (East Sussex FRS, Hampshire FRS, South Wales FRS, West Midlands FS, West Yorkshire FRS, Tyne and Wear FRS). In total, the decisions made by incident commanders at 33 incidents were analysed. These incidents covered a wide range of activity, for example, high rise flats, houses of multiple occupancy and commercial properties. It also included a range of Road Traffic Collisions, where the numbers of casualties ranged from one to over fifty.

Incident commanders at these incidents wore helmet mounted video-cameras to capture the unfolding activities at operational incidents from their exact point of view. The commanders’ point-of-view recording was later played back to them during an interview, where their thought processes were broken down in relation to the precise point that they were seeing on the screen. This allowed the accurate sequencing of both their thoughts and their actions. The independent codings of the video footage were coupled with the information from these interviews to sequence activity in terms of the three phases reflected in the decision-making model. These were situation assessment, plan formulation, and plan execution. The transitions between these categories were used to investigate whether decision making was based upon reflective, analytical processes as assumed by the current DMM, or whether more reflexive processes were being used.

The research also looked at the levels of situational awareness of incident commanders when they were making decisions (Endsley, 1995). If a high level of situational awareness was observed, i.e. anticipation of the likely development of the situation, this might serve as evidence of plan formulation in the absence of explicit plans.
The Future of Incident Command

Fieldwork Findings

Current models do not account for the processes by which most command decisions are made. Most command decisions were reflexive and intuitive, rather than reflective and analytical.

The decision-making model (DMM) presented in previous editions of the Incident Command Manuals (e.g. CFRAU, 2008) assume Commanders use a very analytical, linear process where information is gathered, plans are formulated and then activity is implemented. The model also assumes it happens in this precise sequence. This research found that this is not necessarily the case. Commanders often bypassed the planning phase, instead moving from the information gathering phase (or situational assessment) directly to the action phase (or plan execution).

This suggests a much more reflexive process as commanders appeared to be directly responding to elements within the situation. This was likely to happen around 80% of the time when decisions were made. This might have been because particular cues in the given situation primed specific decisions that did not involve any explicit plan formation or evaluation.

Of the 20% of the time when explicit plans were likely to be formulated, current decision models assume a direct transition to implementation. Although there was relatively little evidence of explicit planning, when it did occur then Commanders were actually no more likely to implement the plan than to look for additional information. There are several possible explanations for this. Given the focus of attention was considering the sequences of decisions in real-time, it could be that Commanders were being distracted by other tasks therefore do not implement actions immediately.

If this were the case then one would assume that there would be less planning to implementation in the most dynamic incidents. These require a great deal of simultaneous activity due to the limited time available to prevent escalation. However, there appeared to be no more planning followed by further information gathering than at any other incident type. It seems more likely that the results indicate deliberation, hesitation or the seeking confirmation of the appropriateness of the planned activity.

Whilst at times additional information seeking is entirely appropriate, at the other end of the spectrum this may be taken as evidence of decision aversion, and may be related to the uncertainty of situational factors. This interpretation is supported by the finding that increased Command exposure was linked to more planning followed by implementing (though not linked to a greater likelihood of planning in general), rather than deliberating.

Levels of situational awareness were low, command decisions were made in the ‘here and now’ without anticipating the development of the incident.
The research also assessed the levels of situational awareness when decisions were being made and found relatively little evidence of the highest level of situational awareness, such as the anticipation of the development of the situation. Rather, actions were mostly being based on an awareness of the situation that encompasses the here and now, as opposed to what may develop. If you could imagine a commanders perspective (or situational awareness) of an incident to be made of a jigsaw, the optimum position might be for those jigsaw pieces to be placed together into one picture that can be planned for holistically. Instead, it appeared that the pieces were not placed together, rather each piece was responded to individually, reactively and quickly. Probably as a result of the rapid and dynamically changing environment that our commanders find themselves in.

Dealing with elements individually may have some advantages, such as allowing attention and processing power to be focused on one area. However, this kind of rapid and reactive decision may leave people vulnerable to some decision traps, such as implementing a decision based on an element of the situation without taking account of the wider picture. There is clearly a danger of unintended consequences if decisions are made on elements in isolation, without considering the impact on other activities, objectives or the incident as a whole.

Experience made commanders more likely to implement and activity than gather more information

There appeared to be some effect of exposure to operational incidents on the way in which decisions were made. The more time an individual had spent in their current operational Command position, the more plans were implemented rather than further deliberation occurring. It could, perhaps, be indicative of being more confident that the planned activity is the most appropriate course of action. It could possibly be due to having better developed mental models, or knowledge structures, from spending more time in their command position meaning less deliberation was necessary.

However, this does not mean that a greater degree of operational experience automatically equates to being a better Incident Commander or operational decision maker. Of course, it is entirely possible that the plans that are implemented could be inappropriate as critical information has been neglected or a solution has been jumped to quickly, based on an element of the situation (or a cue) as opposed to considering the incident as a whole. Given that most plans appeared to be formulated and/or implemented based on the lower levels of situational awareness, this finding should not be taken as evidence that experience or exposure alone equates to better Command decisions.

What does this mean for incident command?

Whilst it is acknowledged that the majority of incidents are dealt with effectively (certainly all of the incidents we visited were dealt with very successfully), there was clearly a need for ongoing decision models to take account of the ways in which decisions are naturally made, and avoid the problems that can naturally occur as a result of making these decisions in such a challenging environment. In particular, models need to account for intuitive (reflexive) as well as analytical (reflective) decision processes and help to guard against decision traps, the unintended consequences of rapid decisions. It is important that this is reflected within Incident Command training for it to be effectively embedded.
The Future of Incident Command

Part 3: Incident Command - The Current Picture

Changes to the National Operational Guidance for Incident Command

The guidance acknowledges the findings of this research. The Command Skills section achieves the recommendation from the literature review through the provision of practical guidance on Command Skills with an emphasis on situational awareness and decision making (NOG, 2015).

The previous DMM has been improved and incorporated into the ‘Decision Control Process’ which outlines how Commanders can facilitate both analytical, reflective decision processes as well as more intuitive, reflexive processes, thereby accounting for the high proportion of such decisions which are made rapidly and reactively. The National Operational Guidance for Incident Command reflects this evidence, aiming to mirror the way commanders actually make decisions. Consequently, the new decision-making element of the guidance does not impose unnatural processes. It is assumed that this should support decision makers by priming a thoughtful response in a practical way. It should increase situational awareness and link actions to goals. This fuller picture should therefore help to support responding to unexpected events.

It includes many of the elements embedded in the previous decision model, which were sound. The new and critical addition is the concept of ‘Decision Controls’ which can be thought of a rapid mental check that should ask the questions, why am I doing this? What do I think will happen and is the benefit proportional to the risks? Decision Controls are designed to guard against decision traps that may occur as a consequence of the type of decision process naturally adopted for the situation. Applying these rapid checks should immediately raise situational awareness to the highest level by priming ‘anticipation’, and also should ensure actions are linked to goals, avoiding some of the problems of an automatic response.

The refreshed guidance has been designed to complement other operational models, including the Joint Emergency Services Interoperability Programme (JESIP) joint decision model and the dynamic risk assessment models. A good understanding of both the guidance and these models should give operational decision makers a useful and practical basis for making sound operational decisions in challenging circumstances.

There are several other key areas that are significant departures from the current manual:

- A focus on Command skills, in particular, decision-making and situational awareness
- A review and evolution of the current firefighter safety maxim
- A review of incident tactical modes and changes to make them simpler and more effectively applied
- Introduction of the concept of operational discretion
This final point is worthy of note. In particular, we aimed to promote a clear understanding of operational discretion and the application of professional judgement in decision making, ensuring policies and procedures are used flexibly and appropriately to ensure the best operational outcome. This included explaining and clarifying the relationship between effectively dealing with an incident and making the public safer, Health and Safety management ensuring firefighters are not exposed to unjustifiable risk, dynamic and analytical risk assessments and effective, assertive and safe decision making at all levels.

**Testing the changes with the CFOA National Command Decision Making Trials**

The research outlined above provided a useful academic evidence base to rationalise these changes. However, it was also acknowledged that the changes would need to be practical for them to be of use to the Fire Sector and to incident commanders. The efficacy of these changes have recently been tested through an extensive and large scale piece of national research led by the Chief Fire Officer Association (CFOA).

The primary purpose of this work was to ensure that the changes to the guidance in relation to decision-making were pragmatic and were likely to improve operational effectiveness. A second aim of this work was to explore how effective simulations are in providing command experience. There is often a great emphasis for Incident Commanders to practice incident command decision making through natural exposure to operational incidents. However, given the downward trend of operational incidents the opportunity to gain this experience through the traditional routes can be limited.

*Figure 3. The Decision Control process incorporates the findings of the research, and introduces the concept of decision controls to pragmatically support command decision making.*
Intuitive and reflexive processes such as recognition primed decision-making rely on the decision maker to accurately recognise what is going on, and falling experience levels might effect this. In particular as there is less opportunity to collect mental data banks of experiences that can be subsequently applied to other incidents. This might be in terms of a range of operational tactics to choose from, or in terms of understanding and predicting what the cues at an incident might mean, how an incident might develop or what effect an action might have.

CFOA recognise the importance of these elements, therefore part of this work focused on exploring how the experience missing from declining incidents can be replaced in other ways. Simulations, either by computer system or the training ground, offer a commonly used substitute. Part of this work involved comparing how decisions in simulated environments might differ in comparison to reality.

The results have recently been accepted for publication in a peer-reviewed psychology journal, “Journal of Experimental Psychology:Applied”, (Cohen-Hatton & Honey, in press).

**Method**

In total, 84 Incident Commanders from 14 UK Fire and Rescue Services volunteered to participate in the trials. Half of the Incident Commanders used the new Decision Control Process, and half were asked to make decisions in the standard fashion (under the auspices of the Decision Making Model contained in the Incident Command Manual).

The trials used three immersive environments and three types of incident (a house fire, road traffic accident, and a shop fire). The three types of incident were presented to commanders using the virtual reality simulation suite at the Fire Service College; on the training ground at the Fire Service College with real crews; and then a recreation of the highest risk incident by setting fire to buildings due for demolition with Hampshire Fire and Rescue Service. This final phase gave us the most realistic environment, whilst allowing the control necessary to manipulate the scenario and assess the effect of the refreshed guidance.

In total, tens of thousands of decisions over 204 separate scenarios provided us with around 424 hours of command decisions to analyse. In total, 2040 matched decision points were compared to see whether the draft guidance does in fact improve decision making in the way that we predict, and whether the effect differs according to how close to reality the context is.
Main Findings

**Commanders using the decision control process defined operational goals and expectations more**

The use of the decision controls aimed to address some of the findings from the research conducted at live operational incidents (Cohen-Hatton et al, 2015). Namely, a lack of defined operational goals, limited explicit planning and the absence of high levels of situational awareness. The decision controls are also designed to support the evaluation of risk verses benefit.

We found significantly more evidence of defined operational goals when Commanders used the decision controls than in those given standard training. We also found more evidence of Commanders considering their expectations concerning the outcomes of activity when they used decision controls, which was explicitly linked to higher levels of situational awareness. Finally, there was also some evidence that the decision controls resulted in more evidence of considering whether the benefits were worth the risks associated with that activity.

Thus, decision control training was successful, and affected change in the way predicted.

**Commanders using the decision control process explicitly planned and shared goals more**

At live operational incidents, it was found that commanders operated without explicitly planning activities around 78% of the time. This was mirrored by the Commanders in this study who received standard training who moved from situation assessment directly to implementing a plan around 70% of the time (although this varied across environments). For example, in the live burn environment this was percentage was higher, with 77% of commanders’ decisions occurring without explicit planning. This outcome reassured us that the scenarios were valid, replicating the conditions expected in the real-world context.

The use of the decision controls had an impact on the amount of explicit planning that was both statistically reliable and marked. On average, commanders using the decision controls would explicitly plan and link activities to operational goals around 55% of the time, compared with 30% of the time in commanders given standard training.

These results demonstrate some very clear effects of using the decision controls that should guard against decisions that are generated reflexively (e.g., by cues in the environment), and without due evaluation. There are, of course, other benefits to explicitly planning and linking activity to operational goals. For instance, as these key goals and plans are explicit, they are rationalised, which may help to justify key decisions. This has obvious benefits after an incident in the case of post-incident inquiry, but also a clearly rationalised decision may provide the incident commander with more confidence to implement the activity, and thereby reduce decision inertia that is so often seen in the face of uncertainty.

Given the team-oriented nature of Fire and Rescue operations, the explicit nature of the planning seen in commanders given training in decision controls has some other benefits. As plans are explicit, they feed into the team’s shared situational awareness enabling a shared understanding of the situation, what needs to be done, and shared expectancies. This supports a common operating picture, which is critical for both
Commanders had higher levels of situational awareness when using Decision Controls

At live operational incidents, it was found that most decisions were made based on lower levels of situational awareness. There was very little explicit anticipation of the likely development of the situation or the expected outcomes of actions. The decision control ‘Expectations?’ aims to increase situational awareness by encouraging commanders to anticipate the likely outcomes of activities that they expect, and how they think the situation might develop. It was found that commanders using the decision controls showed more evidence of the highest level of situational awareness, anticipation, than standard commanders in all of the simulated environments. In the virtual environment this was 2.4 times greater than the standard group, but in the most realistic live burn environment it was more than 5 times greater.

Decision Controls do not slow down decision making, even during unexpected and dynamic situations.

In order for the decision controls to be practical, it is important that they are not laborious to use or impose processes that might distract incident commanders in dynamic situations. To test this, a number of unexpected events were introduced with time pressure. These were designed to challenge the incident commanders understanding of the situation. The time taken to respond to these injects was measured to see whether it took any longer when the decision controls were used. No difference in response times was found when decision controls were used. This suggests their use does not compromise a Commander’s ability to make a decision rapidly in a dynamically changing situation, even when their current understanding of the situation is compromised.

Coupled with evidence that using the decision controls resulted in more defined operational goals and higher levels of situational awareness, their use may actually provide the Commander with a more comprehensive view of the incident and the incident plan, better placing them to respond under challenging and dynamic circumstances.

Simulations evoked similar patterns of decision making to real life incidents, from the virtual to the live burns. The effects of the decision controls remained similar in all settings.

Simulated exercises – whether using computer generated scenarios or traditional training ground exercises – offer a widely used tool to practice incident command. However, there are many differences between simulations and reality, such as the level of actual risk, uncertainty and moral pressures. The degree to which they reflect real-life decisions is currently unexplored in relation to command. The same scenarios were run using various simulations with differing degrees of realism were used to see how the context might affect the way in which decisions were made.

Three types of simulation were used. The first was virtual reality simulation, although highly immersive was also the most artificial. The second more realistic setting was the training ground at the fire service college, using real crews. The final setting used real fire in buildings due for demolition, increasing the risk to the most naturalistic levels.
The patterns of decision-making were remarkably similar across all three contexts in which the scenarios were set, and the group asked to make decisions in the standard way did so in a manner very similar to that seen at live incidents in the field study. The general effects of using the decision controls, in terms of more define operational goals and higher levels of situational awareness, also persisted.

Although the patterns of decision-making were similar, there tended to be more evidence of planning in the virtual reality simulation suite. To ensure this was a true reflection of the virtual context as opposed to the decision controls, let us look at the evidence only from the Commanders that were not instructed to use them. It is known from the live operational incidents at commanders were only explicitly planning activities around 22% of the time. In the most realistic context of the live burns the evidence was similar, where plans were explicitly linked around 23% of the time. On the training ground, this rose to 29% of the time and in the virtual environment this rose significantly to 36%.

**Conclusion**

The CFOA National Decision Trials had two main aims. The first was to explore how practically effective the changes introduced in the National Operational Guidance for Incident Command, and second was to explore how effectively decision making in the simulated environment compared to the reality of operational incidents.

This study has provided encouraging evidence that Commanders given training in the use of decision controls responded as predicted. They defined goals, expectations and evaluated benefits versus risks more than when decision controls were not used. There was more explicit planning and sharing of goals, and higher levels of situational awareness. Critically, there was evidence that the use of Decision Controls did not slow down decision-making in any way, even during unexpected and dynamic situations. These factors are expected to support the reduction of decision inertia by providing a focus on operational goals an improving situational awareness which should in turn reduce uncertainty.

This study also provided evidence that simulated environments, with a focus on key decision points, evokes similar patterns of decision making to real life incidents. As the opportunities for exposure to actual operations incidents is expected to continue to decline, a greater use of simulations may help to replace some of the opportunities to effectively practice command decision-making.

Excellent command decision-making requires practice. The opportunities to practice command in large-scale exercises are limited as they can be resource intensive and the number of command positions are also limited. Encouragingly, similar patterns of decision making were found in the virtual setting. Effective computer simulated scenarios, again with an emphasis on critical decisions may offer an effective means of supplementing this experience to a greater number of incident commanders as part of a wider strategy to replace elements lost by limited exposure to operational incidents. However, it should be clearly noted that this should be in addition to more realistic training where all command skills can be practices under realistic pressures.
Part 4: Future Challenges for Incident Command

This report has so far explored the past and present context for incident commanders. It will now offer a future perspective, and will consider some of the challenges for incident command moving forward. Some questions will be explored, such as how incident command can be improved despite the continuing decline in operational experience, how fire and rescue services can support incident commanders by reducing risk aversion, and also how selection, assessment and development of incident commanders could be improved. Some recommendations are made for Fire and Rescue Services to consider.

Challenge 1: Improving Incident Command despite declining operational experience

Experience can be defined as “the knowledge or skill acquired by a period of practical experience of something…” (Oxford English Dictionary, 1989). Whilst the dictionary definition is quite specific, the elements that experience might include can be much broader. In the fire and rescue context it is often synonymous with factors such as time served, rank and is a term used to suggest credibility. However, it is clear that none of these factors necessarily equates to the number of incidents exposed to, so in this sense the definition of experience is not quite so simple. What experience of incidents does offer is the opportunity to gain understanding, learn operational tactics and practice command skills. This in turn will mean command skills are improved, commanders have more knowledge to draw on from their experiences and confidence is increased.

One of the aims of this work was to explore the influence of operational command experience on the way decisions are made. There has traditionally been a great emphasis on gaining practical experience of incident command through exposure to operational incidents that is naturally gained during the normal course of duty. Coupled with the continuing decline in operational incidents, the number of opportunities to gain this experience naturally will also decline. This section explores some of the possible challenges this will present Fire and Rescue Services, as well as some possible solutions.

Increase opportunities to gain command experience

Examination of data gathered directly from operational incidents suggested that the amount of incident command experience that people had did in fact make a difference to the way that decisions were made. Although it was true that all commanders appeared to respond directly to things rather than explicitly plan, we found that the more experience a commander had then the more likely they were to implement the outcomes of those decisions rather than to seek further information.
Experience provides practice at making decisions, which is a key command skill. Situational awareness is also a skill that allows a commander to integrate many disparate pieces of information to form an accurate mental picture of the situation, which is often dynamically changing, as well as anticipate what might happen. Experience also allows a commander to learn and store a range of tactics for dealing with a situation, including what works, what does not work and what cues are associated with each.

Exploring the effects of command experience is particularly salient during present times, given the ever widening range of incidents the Fire and Rescue Service is required to deal with. Such incidents may occur relatively infrequently, such as terrorist attacks and wide scale flooding, meaning the opportunity to gain experiential learning of such events is limited. However, the skills and knowledge required to effectively, assertively and safely command such incidents are critical in order to get the best resolution for the public that we serve and protect.

There is a reasonable argument that given the current trends for reducing incidents, along with the wider range of incidents and emerging threats that Fire and Rescue Services are required to deal with, that attendance at operational incidents alone is highly unlikely to provide enough opportunity to practice command skills and learn the tactics necessary for incident command. The traditional emphasis on gaining experience predominantly through attending incidents is unlikely to be sufficient for the future.

As well as having less opportunities to practice incident command due to the Fire and Rescue Services success in proactive preventative work, there are also less Flexible Duty Commanders than in previous years. Officer numbers have reduced in many Fire and Rescue Services in order to release cost efficiencies. This means that existing officers have increasingly broad remits during the course of their day duties. Inevitably, there are less officers doing a greater share of core work, meaning that providing ample opportunity to undertake simulations can be a challenge. Inevitably, the amount of time spent on command training becomes the minimum necessary, instead of the optimum ideal.

Whilst it is accepted there should be a balance as incident command might represent a relatively low percentage of an officer’s time, it also represents the most risk. This risk is in terms of the safety of those they are in command of, and also the people that they are protecting. Therefore there is an argument that command training should reflect a much greater proportion of an officers time than the small percentage spent at incidents.

Typically, Fire and Rescue Services may require Officers to undertake a mandatory simulated incident command exercise every 18-24 months in order to demonstrate competence. The amount of opportunity to take part in additional simulations and their uptake (whether live exercises or computer simulations, refresher training, or other command related activities) can vary according to Service and role. Whilst this may be sufficient to provide the Service with the assurances required that the individual is competent to undertake incident command duties, it is unlikely, as a sole mandatory exercise, to provide enough practice for incident commanders. This is particularly true given the reducing numbers of incidents.

A similar challenge exists for watch based incident commanders. Recent reports such as the DCLG publication ‘Facing the Future’ argue that the reduction in operational incidents has resulted in an increase in the ‘latent capacity’ of fire crews. In short, there is an assumption that if crews or officers are not attending operational incidents then the time that would have been spent there could be spent undertaking other activities, or that their numbers could be reduced. However, this is a worrying over-simplification. That reduction in time spent at operational incidents also represents a reduction in the amount of practice of the critical skills necessary for incident command under the realistic and challenging pressures of the operational context.
The HSE are clear in ‘Striking the Balance’ that Fire and Rescue Services have a clear responsibility to adequately prepare their staff to make decisions under the pressures they can reasonably expect to face (HSE, 2010). If there is no longer the opportunity to gain this practice at operational incidents, then more time needs to be focused on command training in order to ensure operational preparedness. This includes the confidence and resilience of the individual as well as assurances for the Service. This is relevant to both the current cadre of incident commanders, as well as succession planning to prepare and create the new generation of incident commanders.

One course of action that might logically follow on from the perception of latent capacity is to reduce the amount of resources maintained. This might be through the reduction of operational officers, appliances or by decreasing the complement of the wholetime duty system and augmenting this with alternatives such as retained duty systems. Whilst there are undoubtedly opportunities to consider efficiencies moving forward, caution should be given as to whether operational preparedness – not just operational response – can be gained and maintained in addition to other activities in any future models.

Consideration should be given as to whether enough opportunity or support to prepare can be given to staff who are expected to undertake incident command. This may present particular challenges with part-time duty systems such as Retained in areas where there are specific threats or risks which have a high training requirement for incident commanders to maintain operational preparedness in addition to business as usual incidents.

**Recommendations**

Fire and Rescue Services may wish to consider the findings of this research in relation to their operational and training strategies.

Fire and Rescue Services may also wish to:

- Review the amount of opportunity that incident commanders of all levels reasonably have to practice incident command
- Review the pressures under which commanders are expected to operate and assure themselves that commanders have ample opportunity to practice command skills under realistic pressures, and have the opportunity to gain the expected knowledge needed to command incidents in their risk areas
- Review their organisational culture and the extent to which it provides an environment that encourages the uptake of command opportunities through a positive learning environment
- Assure themselves that operational preparedness, in the sense of providing adequate opportunities to practice command and succession planning, is fully accounted for when considering alternative working patterns and capacity to undertake additional activities
Consider the elements of operational experience lost through the reduction in incidents and explore a wide range of methods to replace them

Operational experience provides a range of benefits in terms of experiential learning. These can be broken down to some distinct elements. Firstly, it provides an opportunity to practice the command skills already discussed, such as situational awareness, decision making, leadership and communication, as well as building resilience to pressure, to name but a few. However, experience also enables the commander to learn a range of tactics, not only from their direct application to the incident, but also in terms of learning tactics from colleagues who might have experienced similar situations previously.

There is an opportunity to learn from successful as well as unsuccessful incidents. This supplements a commanders’ knowledge of particular types of incidents, and cues that might signal particular events, which will frame the way in which a commander will respond at future incidents. In essence, experiencing command changes the way in which a commander thinks and behaves.

Given the downward trend in operational incidents, the research reported here has found encouraging evidence that even the most simulated command environments elicit similar patterns of decision making to real world situations. Such simulations, whether live exercises or computer simulations, are likely to play a prominent role of any Fire and Rescue Service strategy to replace lost experiential learning from the decline in incidents.

It is reasonable to suggest that computer generated command scenarios are also the least realistic type of simulation. It can also be the least resource intensive in comparison to large scale exercises. Given that similar patterns of decision making were found using this method to other methods, it could usefully provide more regular opportunities for Commanders to practice incident command, and in particular command decision making.

Whilst a useful alternative, it is difficult for computer simulations to replicate the same kind of pressures experienced at an operational incident. They also provide limited opportunities to interact with real crews. Whilst decision-making patterns are a similar reflection to real-life, there are other command skills, such as communication and leadership, which are less usefully practiced in this forum. Therefore it would not be advisable to use computer simulations to completely replace more realistic exercises, but rather a combination of the two is likely to be more effective.

The most appropriate split will be a matter for local determination and will depend on a number of factors including the opportunity to practice incident command in the operational environment, local resources and risk. However, the key consideration will be for Fire and Rescue Services to assure themselves that incident commanders have adequate opportunity to practice all of the command skills necessary for operational effectiveness.
Good quality command simulations of incidents require time and investment at the development stage. In particular, consideration should be given to how the pressures that incident commanders are expected to operate under can be simulated. This might be in terms of moral pressure from members of the public, dealing with the uncertainty of the situation, the stress of being overloaded with information, and also dealing with unexpected events. Simulating a realistic level of risk can help to properly prepare an incident commander for the environments they are expected to work in, as they can practice under this risk rather than being expected to operate under these conditions for the first time when decisions can have critical consequences. Simulating this risk in a training environment can be challenging, however some Services have successfully taken an innovative approach to this. For instance, Hampshire Fire and Rescue Service have introduced ‘live burns’, which were utilised for the CFOA national decision trials. Here, agreement is sought to burn derelict buildings prior to demolition. This method successfully simulates the risks commonly associated with building fires in a more controlled environment.

Key to the success of any simulated command activity is to focus on critical decision points, as opposed to providing scenarios that simply involve implementing and supervising processes, such as standard operating procedures, alone. Fire and rescue services may wish to consider the extent to which their command simulations challenge their incident commanders, and provide the opportunity to practice all of their command skills. The development of effective simulations require investment. The personnel tasked with designing and delivering the simulations themselves should be properly selected and developed, and should understand clearly the outcomes that the simulation is trying to achieve in terms of command.

In short, quality command requires quality training. A considerable increase in the use of command-focused simulations, with a focus on risk-critical and difficult decisions, will prove useful as part of a wider strategy to replace the experience lost through the decline in operational incidents.

Whilst simulations (whether computer generated or exercise based) provide an opportunity to replicate all of these factors to a greater or lesser extent, they can also be relatively resource intensive. There are a range of methods that could be considered that can also supplement such learning that have a lesser resourcing requirement. For instance, tactical decision exercises provide an opportunity for an officer to assume the role of incident commander in a theoretical incident where they are presented with challenging problems.

The actions that the commander would take along with the rationale are discussed with colleagues, thus providing the opportunity to share tactics, and learn from other officers. Whilst tactical decision exercises do not provide an opportunity to practice all of the command skills, they provide a useful opportunity to share learning of tactics, and to supplement some of the knowledge of incidents that has been lost due to the decline in operational incidents.

Tactical decision exercises also provide the opportunity to practice decision making in slow-time. Whilst the luxury of time is not always available at operational incidents, the learning gained from thinking through the rational for decisions under less pressured conditions will be stored and available for more intuitive and rapid type decisions that may also be adopted during operations. Systems such as Hydra work on a similar principle, and allow processes, decisions and their rationale to be explored in syndicates. This also means decisions are explored and learning is shared, which is useful from both a single service and a multi-agency perspective.
Given the decline in operational incidents and the increasingly limited amount of command exposure that officers get, it is important to capture and share the learning as much as is reasonably possible. Tactical decision making exercises provide a structured approach to sharing tactics and practicing decisions in slow time. However, where time or resource does not allow for such a structured approach, there is still benefit to be gained from a professional discussion about incidents experienced, challenges faced and tactics employed, to enable learning to occur vicariously. This might be through case study presentations, or a regular forum for officers to discuss incidents attended.

Some Fire and Rescue Services have already explored some more innovative methods of ensuring the learning is captured and shared from operational incidents. For example, Hampshire Fire and Rescue Service have introduced the use of helmet mounted video cameras for incident commanders, following participation in the CFOA research. The resulting footage is being used for self-reflection and to coach incident commanders to develop their command skills. It is also used to share operational learning from incidents with colleagues, with the footage being used as a basis for professional discussion.

This is an innovative method of ensuring that as many commanders as possible are able to learn from a single incident. Hampshire Fire and Rescue Service have feedback very positive results from using this method at operational incidents, when commanders are exposed to real-life pressures as it provides an opportunity to self-reflect in a safe environment. Such a method may also be useful for commanders participating in simulated exercises.

**Recommendations**

Fire and Rescue Services may wish to:

- Explore a wide range of methods to replace elements of incident command lost through the decline in operational incidents, giving consideration to methods such as tactical decision making exercises and other forums to share experiences
- Consider the balance between the methods of simulation, and assure themselves that incident commanders have enough opportunity to practice all command skills under realistic pressures
- Consider the amount of investment in the development of simulations and command training, including considering the effectiveness of simulated exercises and the competence of those designing and delivering incident command training
- Consider the use of helmet-mounted video cameras for self-development and to share learning
Drive continuous improvement through lessons learned at operational incidents

So far, this report has focused on individual learning to replace elements of experience lost through the decline of operational incidents. It is also imperative that Services consider the wider organisational learning from operational incidents. Many Services use some form of operational assurance processes to monitor operational practices, including incident command. Systems of operational assurance can potentially provide a huge and informative data source that can be used to identify significant trends and drive improvements to procedures and training.

Some Fire and Rescue Services already use such data proactively, and to good effect. London Fire Brigade operate an impressive process called ‘Dynamic and Intelligent Operational Training’ (DIOT). The DIOT system focuses on the identification and communication of specific maintenance of skills training based on the performance of operational staff. Operational information is collected from a number of key sources, including operational assurance monitoring processes, and is fed into a database. The data is analysed to identify trends and issues in operational performance, including operational competence, and the results are reported to a board which takes action to mitigate any identified risks. This includes changes to operational policy and the development of new training where appropriate, ensuring both organisational and individual learning is accounted for and recorded.

As well as monitoring the operational practices that require improving, there is a great deal that can be learned from incidents that go well. Whilst the details of such incidents are often shared between colleagues informally, it is important that the opportunity to gain organisational learning is not lost. Using a formal process to capture, review and share command experiences ensures the learning from these incidents can be fed into the organisation, and can help to identify trends for improvements as well as best practice.

There are few examples of formal processes that comprehensively identify learning from incidents that go well. However, London Fire Brigade pioneered one such example with their Performance Reviews of Operations and Command, which have subsequently been adopted by other Fire and Rescue Services. These reviews are mandatory for any incident that required six or more appliances, and provides an opportunity for the Service to review the incident and extrapolate any useful learning, either organisational or individual. Such processes are assisted by a structured debriefing process that adequately considers, captures and shares key information that can be used to identify trends and learn lessons.

Work is currently underway, led by CFOA, that is exploring how lessons learned can be captured on a national basis. Whilst this work is still in its infancy, there are some clear advantages. This will enable lessons learned to be shared throughout the sector, and has the potential to provide evidence that can be fed into national works streams, such as national operational guidance, to drive improvements UK wide.
Recommendations

Fire and Rescue Services may wish to consider:

- Reviewing their methods of operational assurance to ensure they are adequate and proportionate to their operational requirements
- Reviewing the data that can be captured through operational assurance methods to ensure that it is useful
- Reviewing the processes for analysing, storing and sharing the data collected
- Review their methods of debriefing to ensure they are appropriately informative
- Reviewing the way in which learning is captured from incidents that go well
- Exploring their contribution to sharing lessons sub-regionally, regionally and nationally
Challenge 2: Advance incident command decision making by improving judgement of risk

Reduce the elements that contribute to risk aversion and decision inertia

The concept of risk aversion is one that has received growing interest with Fire and Rescue Services. The delicate balance between weighing the risk to the safety of responders and the need for urgent action has been raised by a number of Coroners and Judges in post-incident inquiries, including the Galston Mine incident (HMCI, 2012), the 2007 London Bombings (Hallet, 2011), and the Atherston-on-Stour Warehouse fire (MacDuff, 2012). There is a growing perception within the UK Fire Sector that commanders are becoming more conservative in their acceptance of risk, which at times, may be to the detriment of operations.

The principle of risk aversion is closely related to the failure to commit to a decision, either by omitting the decision altogether or deferring the choice to another agency or to a later point in time. This lack of action, is also known as decision avoidance, or inertia (van de Heuval, Alison and Crego, 2012). Incident Commanders are accountable for their decisions, and it is a reasonable expectation that a commander may be called upon to justify their decisions.

Decision inertia is most likely to occur when there is an excessive focus on concerns over accountability, such as those regarding the potential negative consequences of a decision (Alison, Eyre & Humann, 2010). One way in which such inertia can be reduced is by focusing on operational goals (van de Heuval et al, 2012), which is a key outcome of using the decision controls. Furthermore, decision aversion is exacerbated under conditions of uncertainty (van de Heuval et al, 2012). Given the use of the Decision Controls has shown to result in higher levels of situational awareness, it would be reasonable to assume that uncertainty may also be reduced through their use. Through embedding and providing ample opportunity to practice the decision control process, incident commanders may be supported and the circumstances under which decision inertia are likely to occur can be mitigated.

Over recent years, Fire and Rescue Services have invested significantly in the development of policies and procedures that cover many foreseeable risks. However, there is an argument that where such polices are over-prescriptive they can actually hamper decision making in the operational environment. Standard operating procedures are designed for standard incidents, however, the reality can often be much less predictable. Rather than considering the best operational options, commanders who are used to operating with very prescriptive policies and procedures may feel pressured into adopting a pre-determined procedure, even when it is not the most appropriate action for the incident.

It is recognised that there is an important need for pre-determined methods of operating at certain incident types, and Fire and Rescue Services have obligations to ensure their staff are adequately prepared to deal with them. However, it is also important to ensure that commanders are able to apply these flexibly where appropriate, and recognise the circumstances under which it is safe and effective to do so. It is important that commanders are able to make the best operational decision for the circumstance, which is rationalised and based on a thorough and balanced assessment of risk and benefits.
The refreshed National Operational Guidance for incident command should support decision making under conditions where risk aversion, or decision inertia, are likely. In particular, the Guidance aims to promote a clear understanding of operational discretion and the application of professional judgement in applying decisions, policies and procedures flexibly and appropriately to ensure the best outcome. This should also reduce excessive concerns over accountability by removing the perception that an individual may not be supported by their FRS if the best operational decision is not one that is prescribed in policy.

A combination of the use of the decision controls, coupled with the emphasis on operational discretion contained within the Guidance will practically support incident commanders making decisions in challenging circumstances. Of course, an increase in the amount of opportunity to practice incident command will increase the confidence of incident commanders and will help to promote these benefits.

Fire and rescue services should be aware that the culture of their organisation can influence behaviours both on and off the incident ground. This may affect the way in which incident commanders operate and the way in which crews respond. Fire and rescue services should promote an organisational culture which supports their approach to incident command. This includes considering the degree to which their organisational policies and procedures may influence the risk appetite of their commanders. Incident Commanders and crews at all levels are also likely to benefit from having a clear and common understanding of what is expected of them by the service in terms of command, and that this is consistently displayed. Clear expectations can reduce uncertainty and anxiety and therefore improve operational effectiveness.

**Recommendations**

Fire and Rescue Services may wish to:

- Thoroughly embed the use of the Decision Control Process in training and in operations
- Consider the way in which their operational policies/procedures are written and interpreted by incident commanders and other operational staff
- Consider reviewing whether the amount of practice at incident command is sufficient to ensure commanders are confident and competent
- Consider and develop the most appropriate command culture for their Service
Improve situational awareness to reduce risk aversion

Good situational awareness is fundamental to incident command as it provides the basis on which all decisions are made. Good situational awareness also reduces uncertainty, which is one of the main conditions that contribute to decision inertia. The initial research at live incidents, as well as incident commanders who were not instructed to use the decision controls during the CFOA decision trials, demonstrated relatively low levels of situational awareness. Perspectives remained reactionary and were limited to the ‘here and now’ as opposed to anticipating the development of the situation. This anticipation is critically important for incident command, and ensures that the impact of actions as well as the way in which the incident may unfold are considered when decisions are made. It was encouraging that commanders using the decision control process had higher levels of situational awareness, which may contribute to reducing uncertainty.

Incident Commanders are often presented with a wealth of information at an operational incident. Fire and Rescue Services have been criticised in the past for not providing risk-critical information at operational incidents that have subsequently hampered operations (Marlie Farm, (Irwin, 2013); Atherstone-on-Stour (MacDuff, 2012)). Whilst it can be critically important that such information is available to the incident commander, there can also be an over-abundance of information that may be overwhelming. Appropriate command support and command structures will help to mitigate this and ensure key information is available to facilitate effective decision-making.

However, the way in which such information is presented may assist, or hinder, this process. Fire and Rescue Services have a variety of technological or traditional methods for the presentation of such information, from specifically designed command support software to simple white boards on command units. Whichever method or combination of methods is preferred, incident commanders and those with supporting roles need to be well versed and well practiced in the use of that method for it to be effectively used to promote good situational awareness under the pressures of an operational incident.

Ultimately, situational awareness is a command skill. It requires the rapid integration of, at times, disparate bits of information to form an accurate and reliable perspective of the situation. Critically, in the command context, this skill needs to be exercised under intense pressure. As discussed in earlier sections, it is important that when this skill is practiced it is done so under realistic conditions, where the pressures under which a commander is expected to operate are simulated. It is important that such opportunities to practice do not just focus on the application of processes, but focus on testing the understanding of a situation under difficult circumstances.

Recommendations

Fire and Rescue Services may wish to:

- Thoroughly embed and train the decision control process
- Ensure their incident commanders have ample opportunity to train and develop their situational awareness, as well as other command skills, under realistic pressures
- Review the way in which information is provided and presented at operational incidents, and ensure commanders and those with supporting roles are well practiced in the use of that method
Challenge 3: Selection, assessment and development of incident commanders

The ability to command operational incidents is recognised as a key requirement for all operational officers and is reflected in all of the role maps from crew manager onwards. The emphasis placed on incident command during selection processes can vary. Whilst it is accepted that there should be a balance between command skills and other skills required for specific roles, the importance of the command element should not be underestimated. It is in the operational arena that a significant amount of risk to both staff, the public and the organisation lies.

Assuming that an officer will be undertaking operational duties, the command element should be assessed as part of the selection process in recognition of this risk. Inevitably, there may be people who are unable to achieve the required standard of incident command, but are suitable to undertake other duties required. Fire and Rescue Services should consider carefully the importance of command in their own organisational hierarchy, and the implications of allowing progression in such cases where command competence is not met.

It is important that a safe learning environment is provided in order to develop incident command skills. Incident Command is something that is closely aligned with a sense of identity for many officers. This means that criticism of command is something that can be particularly emotive, though a constructive approach is essential for development. Fire and Rescue Services may wish to consider the culture of their learning environment. Aspects such as confidentiality, and the way in which feedback is presented should be considered to ensure that the processes and the culture of the learning environment are aligned with the Services desired command ethos.

The way in which under-performance is dealt with may influence factors such as openness, trust, risk appetite and response to errors. Difficult conversations relating to poor command performance should not be avoided and an appropriate command culture should support this. The use of operational mentoring and coaching initiatives may provide support and direction to improve both command performance and confidence. This may also be used to drive the command culture set by the Service.

The influence of the assessment process to drive command behaviours should not be underestimated. Such processes frame to individual commanders the expectation of the Service for command performance, command culture and command ethos. It is important that these encourage realistic command behaviours, and not a tick-box assessment culture that is a significant departure from expectations on the incident ground. Not all command simulations need to be formally assessed. However, where assessment does take place, the process be based on the behaviours expected on the incident ground.

There is a need for a joined up and consistent approach to incident command training, competence and monitoring throughout the sector. It is important that the findings of this research are considered, along with the National Operational Guidance for Incident Command, in relation to training and competency frameworks moving forwards. There are currently frameworks in place that provide a sound basis for doing this, such as the CFOA Command Training Assessment and framework, however uptake across the sector is varies and there are many inconsistencies with the approach to command selection, assessment and development. For example, the approach to providing assurance of incident commanders ongoing competence varies throughout the UK. It may typically involve a formal assessment every 18-24 months. A formalised and recognised national process to qualify or licence individuals to practice incident command may prevent significant duplication of work across the sector and also help to ensure that consistent standards are applied to incident command throughout the sector.
It may also help to support progression of individuals between fire and rescue services, ensuring a common standard to high risk activities such as incident command are applied. The ability to demonstrate adherence to common standard of command competence may support Fire and Rescue Services to demonstrate that commanders have been adequately prepared and are appropriately skilled, competent should scrutiny be applied following a critical incident.

Fire and Rescue Services, and indeed the sector, have a responsibility to ensure that incident command selection, assessment and development are given the appropriate level of prominence. However, it is recognised that although Services need to give commanders the time and opportunity to engage in incident command ‘practice’ and development, there is a level of emphasis on individuals to progress their development and continuously update their technical knowledge in relation to incident command. Incident command should be seen as professionalised and not as a bolt-on activity to other duties.

The point was made earlier that good command simulations require investment. The same principle applies to command trainers. The personnel tasked developing incident commanders, whether it is initial training or ongoing development, should be properly selected and developed. A key quality that is required is command currency of trainers. This ensures trainers understand thoroughly the current frameworks, polices and environment that commanders are expected to operate under, and also supports their credibility as command trainers.

The command context has changed rapidly over recent years, as has the emphasis on command skills as well as processes. It is important for those responsible for teaching command skills to have and maintain those skills in a realistic environment that is equivalent to the level of command that they are teaching, preferably through being current incident commanders at that level. For instance, it may be unfair to expect someone who has only practiced level 1 command to train others in level 4 command, as their experience of exercising their command skills under such conditions would be limited.
Recommendations

Fire and Rescue Services may wish to:

- Consider the prominence they wish to give to incident command elements in selection and progression processes, and assure themselves that their processes reflect this.

- Consider their command assessment methods to ensure that command performance, command culture, and command ethos are aligned. In particular ensuring that assessment methods encourage behaviours expected on the incident ground.

- Consider their learning environment in relation to incident command to ensure it reflects their command ethos.

- Consider the use of operational mentoring and coaching initiatives to support the command culture, improve performance and the confidence of individuals.

- Consider the level of emphasis on individual maintenance of skills and knowledge, and ensure that the appropriate level of support is in place.

- Review the uptake of existing frameworks such as the CFOA Command Training, Assessment and Qualifications framework for Fire and Rescue Services to improve consistency in relation to command development.

- Consider current methods of assurance of competency to ensure they are satisfactory.

- Consider a formalised and recognised national process to qualify or licence individuals to practice incident command across the sector.

- Consider current methods of selecting and developing command trainers who have the appropriate skills and currency for the level of command they are training.


The Future of Incident Command

Challenge 4: Improve Decision Making in a multi-agency setting under the pressures of complex and major incidents

A significant amount of investment has been dedicated to exploring command decision making from a fire and rescue perspective. This work has been used to support the development of Guidance and has informed command practices to improve operational effectiveness through CFOA work streams. The success of this work has been evident through the publication of research in peer-reviewed journals that has underpinned changes to National Operational Guidance.

The practicality of these changes have been empirically tested prior to their introduction, which demonstrates the investment of both CFOA and the sector to supporting the evolution of Incident Command and operational effectiveness. Much learning has arisen as a result of this work that may be of benefit to other agencies operating under the conditions of an emergency incident and work will continue to explore ways in which this learning can be shared.

Throughout the development of the decision control process, cognisance was given to the way in which it can be used to compliment the Joint Emergency Services Interoperability Programmes Joint Decision Model (JDM). The JDM is intended for use at major or complex incidents where an overall incident plan will requires objectives for a number of emergency services. The decision control process is designed to assist in particular with the element of ‘assessing risk and developing a working strategy’. It helps to feed plans that Fire already have into the Joint Decision Model and can be used as a process to plan and implement activities to achieve the fire and rescue objectives that have been agreed collectively using the Joint Decision Model. This allows fire and rescue objectives to be implemented, communicated and controlled in a well versed and well practiced way.

Key to the success of multiple agencies operating effectively in a complex or major incident environment is familiarity. A clear understanding of role, implications of methods of operation and working practices informs the situational awareness of each of the commanders making joint decisions. Whilst it may be impractical to operate in exactly the same way, given the differing roles and responsibilities, it is practical to be familiar with each others differences and the meaning of this to each agencies own working practices. The benefit of joint training and joint exercises in achieving this should not be underestimated. Local Resilience Fora have a key role co-ordinating this, and ensuring that any practical implications of differences in working practices are understood and considered during pre-planning.

In addition to the above there are many possible areas that might influence the way in which decisions are made in a multi-agency environment, under the pressures presented by major and complex incidents. Work is ongoing with Cardiff University to explore these factors in greater depth and the learning will captured and shared through CFOA work streams. This includes considering the way in which groups of Commanders make decisions collectively in a strategic environment, and exploring the differences in the way in which multiple agencies might view the same scene.
Recommendations

- Continue to share the learning from the CFOA led research with other agencies through interoperability leads and other existing work streams
- Fire and Rescue Services and other agencies may wish to consider increasing the opportunities to exercise together more, to understand local differences. Local Resilience Fora may play a key role in co-ordinating this work and ensuring any practical implications of differences in working practices are considered during pre-planning
- Continue to consider the findings of ongoing research into decision making in a multi-agency context

Conclusions and next steps

It is important to consider the historical perspective of the development of the Incident Command System in order to understand how it has shaped the present day. Whilst the present day context will to some extent shape the future for incident command it is within the gift of the sector to take control of the future direction and shape it in a proactive way. In order to do this, there are a number of challenges for Incident Command that Fire and Rescue Services will need to meet going forward.

These challenges have been explored in depth in the previous section. Following the research findings and other work carried out by CFOA, a number of recommendations are made that should support Fire and Rescue Services in meeting these challenges. These should result in improvements to incident command and operational effectiveness, and ultimately should improve Firefighter Safety by supporting assertive, effective and safe incident command.

CFOA have demonstrated their commitment to improving Firefighter safety through the improvement of incident command through commissioning this work and will continue to monitor the progress of such changes. However, Fire and Rescue Services have a key role to play in the implementation of the improvements that will shape the future of incident command, and create the next generation of incident commanders.
Summary of Recommendations

Challenge 1: Improving Incident Command despite declining operational experience

Recommendations:

- **Increase opportunities to gain command experience:**
  - Fire and Rescue Services may wish to consider the findings of this research in relation to their operational and training strategies.
  - Fire and Rescue Services may also wish to review the amount of opportunity that incident commanders of all levels reasonably have to practice incident command.
  - Fire and Rescue Services may also wish to review the pressures under which commanders are expected to operate and assure themselves that commanders have ample opportunity to practice command skills under realistic pressures, and have the opportunity to gain the expected knowledge needed to command incidents in their risk areas.
  - Fire and Rescue Services may also wish to review their organisational culture and the extent to which it provides an environment that encourages the uptake of command opportunities through a positive learning environment.
  - Fire and Rescue Services may also wish to assure themselves that operational preparedness, in the sense of providing adequate opportunities to practice command and succession planning, is fully accounted for when considering alternative working patterns and capacity to undertake additional activities.

- **Consider the elements of operational experience lost through the reduction in incidents and explore a wide range of methods to replace them:**
  - Fire and Rescue Services may wish to explore a wide range of methods to replace elements of incident command lost through the decline in operational incidents, giving consideration to methods such as tactical decision making exercises and other forums to share experiences.
  - Fire and Rescue Services may wish to consider the balance between the methods of simulation, and assure themselves that incident commanders have enough opportunity to practice all command skills under realistic pressures.
  - Fire and Rescue Services may wish to consider the amount of investment in the development of simulations and command training, including considering the effectiveness of simulated exercises and the competence of those designing and delivering incident command training.
  - Fire and Rescue Services may wish to consider the use of helmet-mounted video cameras for self-development and to share learning.
• **Drive continuous improvement through lessons learned at operational incidents:**
  - Fire and Rescue Services may wish to review their methods of operational assurance to ensure they are adequate and proportionate to their operational requirements
  - Fire and Rescue Services may wish to review the data that can be captured through operational assurance methods to ensure that it is useful
  - Fire and Rescue Services may wish to review processes for analysing, storing and sharing the data collected
  - Fire and Rescue Services may wish to review their methods of debriefing to ensure they are appropriately informative
  - Fire and Rescue Services may wish to review the way in which learning is captured from incidents that go well
  - Fire and Rescue Services may wish to explore their contribution to sharing lessons sub-regionally, regionally and nationally

**Challenge 2: Improve incident command decision making through improving judgement of risk**

**Recommendations:**

• **Reduce the elements that contribute to risk aversion and decision inertia:**
  - Fire and Rescue Services may wish to thoroughly embed the use of the Decision Control Process in training and in operations.
  - Fire and Rescue Services may wish to consider the way in which their operational policies/procedures are written and interpreted by incident commanders and other operational staff.
  - Fire and Rescue Services may wish to consider reviewing whether the amount of practice at incident command is sufficient to ensure commanders are confident and competent.
  - Fire and Rescue Services may wish to consider and develop the most appropriate command culture for their Service.

• **Improve situational awareness to reduce risk aversion:**
  - Fire and Rescue Services may wish to thoroughly embed and train the decision control process.
  - Fire and Rescue Services may wish to ensure their incident commanders have ample opportunity to train and develop their situational awareness, as well as other command skills, under realistic pressure.
  - Fire and Rescue Services may wish to review the way in which information is provided and presented at operational incidents, and ensure commanders and those with supporting roles are well practiced in the use of that method.
Challenge 3: Improve the selection, assessment and development of incident commanders

Recommendations:

- Fire and Rescue Services may wish to consider the prominence they wish to give to incident command elements in selection and progression processes, and assure themselves that their processes reflect this.
- Fire and Rescue Services may wish to consider their command assessment methods to ensure that command performance, command culture and command ethos are aligned. In particular ensuring that assessment methods encourage behaviours expected on the incident ground.
- Fire and Rescue Services may wish to consider their learning environment in relation to incident command to ensure it reflects their command ethos.
- Fire and Rescue Services may wish to consider the use of operational mentoring and coaching initiatives to support the command culture, improve performance and the confidence of individuals.
- Fire and Rescue Services may wish to consider the level of emphasis on individual maintenance of skills and knowledge, and ensure that the appropriate level of support is in place.
- Fire and Rescue Services may wish to review the uptake of existing frameworks such as the CFOA Command Training, Assessment and Qualifications framework for Fire and Rescue Services to improve consistency in relation to command development.
- Fire and Rescue Services may wish to consider current methods of assurance of competency to ensure they are satisfactory.
- Fire and Rescue Services may wish to consider a formalised and recognised national process to qualify or licence individuals to practice incident command across the sector.
- Fire and Rescue Services may wish to consider current methods of selecting and developing command trainers who have the appropriate skills and currency for the level of command they are training.

Challenge 4: Improve Decision Making in a multi-agency setting under the pressures of complex and major incidents

Recommendations:

- Continue to share the learning from the CFOA led research with other agencies through interoperability leads and other existing work streams.
- Fire and Rescue Services and other agencies may wish to consider increasing the opportunities to exercise together more, to understand local differences. Local Resilience Fora may play a key role in co-ordinating this work and ensuring any practical implications of differences in working practices are considered during pre-planning.
- Continue to consider the findings of ongoing research into decision making in a multi-agency context.
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