CAPTURING REAL TIME DECISIONS AND THEIR SUPPORTING RATIONALE IN HIGH-RISK POLICING ENVIRONMENTS

A Thesis submitted by

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ABSTRACT

Despite the vast research on decision making in critical incidents, little is known about the recording of decisions made in time constrained and dynamic policing environments. The coronial inquest into the Lindt Café siege prompted unprecedented levels of scrutiny into the key decisions made by police commanders in resolving uncertain and complex incidents. Decision capture was identified as an organisational deficiency that transcends most policing jurisdictions in applying an effective structure or approach to enable officers to accurately record their decisions and supporting rationale in high tempo operating environments. This study examines tactical level commanders in an Australian policing jurisdiction to understand the current approaches to decision capture and the influences that impact on the timely and accurate recording of decision information. Drawing on semi-structured interview data from nine police officers, the findings identified a shift from handwritten artefacts towards technological solutions such as body worn cameras and police radio networks to record their decisions. This analysis determined that there was no organisational structure to this recording process and decision information was limited and unlikely to withstand scrutiny if critically reviewed. Based on these findings, the study proposes a concept of a three-tiered decision support mechanism that may assist to provide capacity to improve organisation effectiveness in responsive decision capture.

CERTIFICATION OF THESIS

This Thesis is entirely the work of Mark Whitnall except where otherwise acknowledged. The work is original and has not previously been submitted for any other award, except where acknowledged.

Principal Supervisor: Associate Professor Marcus Harmes

Associate Supervisor: Dr Sophia Imran

Student and supervisors' signatures of endorsement are held at the University.

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ABBREVIATIONS

ACPO – Association of Chief Police Officers

ADF – Australian Defence Force

BWC – Body Worn Camera

CAD – Computer Aided Dispatch

CDM – Critical Decision Model

DDO – District Duty Officer

DIEMS – Disaster Incident & Event Management System

DSS – Decision Support System

ESC – Ethical Standards Command

ICCS Plus – Incident Command and Control Structure Plus

ICENRIRE – Isolate / Contain / Evacuate / Negotiate / Resolve / Investigate / Rehabilitate / Evacuate

MDP – Management Development Program

NDM – Naturalistic Decision Model

NSWPF – New South Wales Police Force

OODA – Observe / Orient / Decide / Act

PCC – Police Communications Centre

QPS – Queensland Police Service

RPD – Recognition-Primed Decision Model

SERT – Special Emergency Response Team

SOP – Standard Operating Procedures

CHAPTER 1: INTRODUCTION

Policing jurisdictions in Australia, by their very nature, have significant experience and capacity to respond to what can be termed as routine emergencies (O'Rourke & Leonard 2018). These incidents require a standard policing response, and the attending officers have a high degree of familiarity in dealing with these situations. A critical incident differs as it evolves rapidly, is inherently ambiguous and challenging to define (Zimmerman 2006). These situations also consist of novel aspects such as scale, complexity or unprecedented nature and are unlikely to be resolved using routine approaches (ANZPAA 2012). Critical incidents present a unique challenge for police commanders as they are required to make high consequence decisions in time constrained and high-risk operating environments. These officers also have the added pressure of their decision-making being subject to review at the conclusion of the event.

When incidents result in the loss of life, coronial inquests are established to scrutinise the nature of decisions made and critically examine the courses of action selected. The coronial inquest into the 2014 Lindt Café siege in Sydney witnessed an unprecedented elevation in the levels of scrutiny into the key decisions made by commanders in the resolution of this high-risk policing incident (NSW State Coroner 2017). Inquiries of this nature rely on the interrogation of witnesses, and any recorded decision information becomes particularly important from an evidentiary perspective to support police commanders in recalling why particular decisions were made (Brooks, B. et al. 2016). The coronial findings to the Lindt Café siege established there were organisational deficiencies in the New South Wales Police Force (NSWPF) processes for recording decision information and there was commentary indicating this deficiency hindered or delayed aspects of the overarching policing response to this incident (NSW State Coroner 2017).

The researcher has over 35 years' policing experience in the Queensland Police Service (QPS) with a significant component dedicated to developing comprehensive protective security overlays for major events from concept to successful on ground implementation. This has provided a unique organisational insight into police decision

making at varying levels of experience and capability. One of the recurring themes from these observations was that at all levels, commanders were observed to be still operating in a traditional analogue paradigm to record their decisions. Primarily, this consisted of hand or type written artefacts captured at the time of making key decisions. The researcher has been unable to identify any existing structure or framework that supports these police officers in capturing this critical decision information in a manner that would accurately record why such decisions were made as well as having capacity to withstand scrutiny if reviewed. Keeping in mind the coronial inquest into the Lindt Café siege and the researcher's own experience, the researcher assumes there is a potential gap in professional practice around decision capturing and recording during critical incidents that would benefit from further exploration through evidence-based research. With the emergence of new technologies such as body worn cameras, there is a need to understand how best to integrate these decision capture approaches into a format that improves an officer's capacity to accurately and effectively record decision information in high-risk policing environments.

1.1 BACKGROUND

Police attend routine emergencies every day; these range from a single-officer response to those requiring a large-scale policing deployment or a multi-agency response. In order to have a nationally consistent approach, policing jurisdictions across Australia have agreed to adopt the Incident Command and Control Structure (ICCS Plus) when responding to and managing incidents (ANZPAA 2012). This framework applies a series of all-encompassing principles and functions that police officers consider when managing an incident irrespective of its size or complexity. Under these command and control arrangements, the commander is the officer who has overall responsibility for coordinating the policing resources at the scene of the incident. The QPS has made significant investment in the systematic training and continuing professional development for all police officers of the rank of Sergeant and above to command incidents using this nationally consistent practice.

To support the application of ICCS Plus, the QPS introduced the Police Command Framework to standardise how incidents are managed and commanded in Queensland. The Framework describes fundamental concepts that are pivotal to command success including that every decision, and the process used to arrive at that decision, be

recorded (Queensland Police Service (b) 2017). Both ICCS Plus and the Framework encourage commanders to record what was known about the incident when the decision was made including capturing the rationale as to why a particular course of action was selected when compared with other available options. The articulating of decision rationale enables the police commander to explain the complexities of their operating environment including any anomalies and ambiguities that have influenced their decision making (O'Rourke & Leonard 2018). The researcher assumes in these critical incidents that the traditional handwritten approaches to decision capture are not effective in the timely and accurate capture of this decision information. This assumption is based on observations made by the researcher during simulated high tempo operating environments designed to explore a police commander's decision approach to resolving complex incidents.

As a practitioner in law enforcement, the researcher's work-based learnings reflect a significant gap in the application of effective and accurate decision capture in complex and dynamic operating environments. This understanding that there might be inadequacies associated with decision capturing and recording has inspired the researcher to challenge the prevailing approaches applied during critical incidents and explore alternative structures to improve organisational capability including the potential to develop a support mechanism to help future commanders accurately record their decision information. These capture processes will also provide opportunities to improve a commander's capacity to explain the decision context including rationale and situational awareness at the time of the decision to organisational review committees, coronial inquests or commissions of inquiry (Nilsen et al. 2012). This research provides avenues of inquiry to investigate how decision information is recorded in an operational setting and understand what prevents these commanders regardless of experience from capturing this information in a timely and accurate manner.

1.2 CONTEXT

To better understand command decision capture in high risk operating environments, this study has focused on tactical level police commanders in the QPS. Police officers who perform the functions of District Duty Officers (DDO) have been selected as the target group for this research. The DDO role is an operational function performed by officers of the rank of Senior Sergeant who have responsibility for the coordination

and allocation of available policing resources to effectively respond to calls for service. It also includes commanding the initial policing response to critical incidents (Queensland Police Service 2020). These officers are regularly required to make decisions in operating environments that are defined by time pressure, uncertainty, and an incomplete operating picture. The DDOs have all received training in ICCS Plus and they must apply these nationally consistent practices to ensure these incidents are managed effectively. From time to time, officers of the rank of Sergeant or Senior Sergeant with limited field experience in commanding incidents perform the role of DDO on a temporary basis. For the purposes of this study, these temporary DDOs would be considered '*novice'* commanders based on their time in the role, length of operational service and incident command courses undertaken, and these officers form one of the sample groups for this study. The second sample group are Senior Sergeants who have more than five years' experience in their permanent role as DDO and they would be considered as '*expert'* commanders. The study explores the perceptions of these officers to understand if incident command experience influences the effectiveness of decision capture in these complex and dynamic operating environments.

1.3 PURPOSE

The primary purpose of a police officer is the investigation of offences and from an evidentiary perspective this drives the need for accurate collection and recording of information. This initial evidence capture has historically been gathered in an analogue manner by the investigating officer making comprehensive handwritten notes. It includes recording their observations, suspect descriptions, drawings of offence locations as well as documenting witness versions of events (McMaster et al. 2012). These notes are made contemporaneously or shortly after the incident whilst the events are still fresh in the officer's memory. This approach to information capture is accepted by the judicial system as an independent recollection that provides an accurate and complete account of the officer's observations and associated actions. The researcher in professional practice has observed officers commanding the initial phases of an incident. Their primary approach to decision recording is writing notes in their official police notebook or diary. The researcher has observed that the speed and evolution of these novel and unprecedented events makes it extremely challenging for police commanders regardless of experience to use these handwritten artefacts to accurately

capture their decision information in a timely and effective manner. The purpose of this research is to explore innovative ways of capturing decision reasoning with the potential to develop a decision support mechanism that may assist future police commanders in responsive decision capture in high risk operating environments.

Agee (2009) argues research questions should be the tools of discovery to draw the reader into the topic of study and clearly articulate what the researcher intends to capture about the experiences and perspectives of the individuals involved in a study. To achieve its purpose, a paramount consideration when developing the research questions for this study was to ensure they would explore what the study intends to address and would be answerable within the research's timeframes and assigned resources. The research question and sub-questions have emerged in response to the researcher's interests in critical decision making and how police commanders record decision information in these complex and uncertain environments. The questions have been designed to provide the researcher with an opportunity to investigate what is known about this field of study and rigorously explore and reflect on the data generated through semi-structure interviews with the DDO cohort to formulate constructive analysis and findings regarding their responses.

Research Question (RQ) 1: How do police commanders capture real time decisions and their supporting rationale in dynamic, complex and high-risk operating environments and what impact does it have on organisational effectiveness in responding to critical incidents?

The below sub-questions have assisted in answering the overarching research question (RQ) 1:

Sub-RQ 1.1: How does command experience influence the accuracy and effectiveness of decision capture in dynamic, complex and high-risk operating environments?

Sub-RQ 1.2: What decision information is captured and how and when is it recorded?

Sub-RQ 1.3: How and to what extent technology solutions are used to support this decision capturing process?

The research questions and sub-questions have been designed to direct the exploration of this field of study to gain an insight as to how tactical level police commanders capture decisions and supporting rationale in critical incidents and whether the recorded information has capacity to withstand scrutiny if reviewed.

1.4 SIGNIFICANCE, SCOPE, AND DEFINITIONS

The aim of this study is to report on the structures and approaches used by tactical level police commanders in recording decisions and the supporting rationale in dynamic, complex, and high-risk operating environments.

The scope of the study was limited to a small, targeted cohort of nine police officers who had performed the functions of a DDO on either a permanent or temporary basis. The study applied a semi-structured interview approach designed to engage in deeper recollection and analysis of the respondent's decision making and associated cognitive processes to record critical decision information arising from the incident these individuals had chosen to discuss.

This research analysed the qualitative data obtained from these semi-structured interviews and presented the captured data in an intelligible and interpretable form to clarify concepts and to identify patterns, themes and relationships associated with the research question.

1.5 THESIS OUTLINE

The aim of the research is to explore innovative approaches to assist police commanders to accurately record decision information as well as developing a support mechanism that may assist future commanders in responsive decision capture. A pragmatism research paradigm has been selected to explore tactical level police commanders in an operational setting to understand how decision information is captured. Chapter 2 presents a comprehensive literature review from different sources including law enforcement policy documents relating to incident command as well as theory-led academic literature on command decision making to gain an understanding of the existing research and debates relevant to capturing real time decisions and supporting rationale in high-risk policing environments. Chapter 3 outlines the methodology for the research underpinning the theoretical aspect of the adopted pragmatism paradigm. It includes the design, proposed data collection methods, analysis methods and finally ethical considerations for the research. Chapter 4 explores the four key themes identified through this analysis: officer experience; incident command; decision capture tools; and post event review. The process includes verbatim quotes from the interview participants to illustrate and support the findings that provide insights for the discussion and the subsequent conclusion chapters.

Chapter 5 discusses the results and insights at the decision information level currently being captured by tactical level commanders and the operational stressors that impact on their capability to articulate and record the reasoning as to why key decisions were made. It also discusses the limitations to the research findings. Finally, Chapter 6 concludes the research by introducing a three-tiered decision support mechanism evolved from the findings and subsequent discussions that has capacity to improve organisational effectiveness in responsive decision capture. The study findings also highlight organisational learnings for the Queensland Police Service and potential solutions to improve the professional practices of tactical level police commanders in responsive decision capture approaches in dynamic, complex and high-risk operating environments.

CHAPTER 2: LITERATURE REVIEW

In December 2014, a man armed with sawn-off shotgun entered the Lindt Café in Martin Place, Sydney and held ten customers and eight staff hostage in the name of Islamic State. The New South Wales Police Force (NSWPF) initiated a 'contain and negotiate' response. However after 16 hours the gunman began to execute his hostages. Tactical police stormed the café and killed the gunman. Tragically one hostage also died as a result of police gunfire. On 24 May 2017, the coroner's report to the Lindt Café siege was handed down after a two-year inquest and exposed deficiencies in the overarching policing response to this incident. The then State Coroner Michael Barnes made 45 recommendations that have reshaped how policing jurisdictions across Australia respond to complex and uncertain domestic terrorism events (Goldsworthy 2017).

One of these recommendations outlined a need to improve the organisational approaches to how police commanders recorded their critical decisions and supporting rationale. This deficiency in command decision capture is the focus of this literature review. This chapter reviews a mixture of sources including law enforcement policy documents relating to incident command as well as theory-led academic literature on command decision making to gain an understanding of the existing research and debates relevant to capturing real time decisions and their supporting rationale in high risk policing environments.

To begin, section 2.1 summarises the background and context of the Lindt Café siege and how the police response to it has influenced the direction of this research in exploring approaches to capturing critical decision information in high tempo operating environments. In an emergency, police commanders are required to make complex decisions involving uncertain and ill-defined problems and do not have the luxury of making slow and considered analytical option generation. Recognising this need, section 2.2 summarises the academic literature surrounding the Naturalistic Decision-Making paradigm and in particular the Recognition-Primed Decision (RPD) model as it best describes how tactical level police commanders rely on their previous learned experience and intuition to recognise situations and generate an appropriate course of action to resolve the situation at hand. In order to understand what decision

information is required to be captured, the review analyses the key components of decision making including exploring the cognitive constructs of how a commander acquires the by-products of recognition to resolve these rapidly evolving incidents.

In Section 2.3, the review expands on the current research into decision capture approaches including the application of traditional notetaking practices as a method of record decision information and considers the evidentiary value of this capture process. It also expands on two emerging technology solutions, the first is Body Worn Cameras (BWC) a recent innovation designed to record police interactions with the public and analyses the potential benefits to police in capturing critical evidence. The second is the Decision Support Systems (DSS) that have been used by other sectors of industry to aid decision-making to improve business operations.

Section 2.4 returns to the Lindt Café siege and the questions raised throughout the inquest regarding the deficiencies in logging and recording command decisions made during this high-risk policing incident. Whilst the NSWPF was the focus of this inquest, the recommendations had broad ranging impacts on all police jurisdictions throughout Australia. Section 2.5 examines a series of frameworks implemented by policing jurisdictions to provide police officers with a values-based tool to generate simple, logical and evidence-based approaches to assist commanders in decision-making. These models explain the need for a commander to document not only the decision but also the supporting rationale.

The purpose of this literature review, therefore, is to gain an understanding of the existing research and debates relevant to capturing real time decisions and their supporting rationale in high-risk policing environments. This review summarises a large body of research on command decision making in critical incidents and highlights the research gaps around how decisions and supporting rationale are captured. It explores decision making approaches and associated technologies to determine if their application supports commanders in capturing real time decisions in high-risk policing environments.

2.1 CONTEXT AND RATIONALE OF THE LINDT CAFÉ SEIGE

On 15 December 2014, a lone gunman Man Haron Monis held 18 people hostage in the Lindt Café in Martin Place, Sydney. Over the 16 hours of the siege, police were unable to initiate a course of action to resolve the situation peacefully and the siege

tragically ended when the gunman executed one of the hostages causing the NSWPF Tactical Operations Unit to storm the café. Three people including the gunman died and three other hostages and a police officer were injured from the resultant emergency action. In NSW, like other Australian States and Territories, deaths associated with policing operations are classified as reportable deaths (Coroners Act 2009). The State Coroner has a statutory obligation to investigate all reportable deaths and the subsequent examination must be afforded the highest level of scrutiny, transparency and accountability to determine the circumstances of the death, and what, if any actions should follow to prevent similar incidents from occurring (Moses et al. 2011). At the conclusion of the public inquiry into the Lindt Café siege, the State Coroner made 45 recommendations regarding the actions or inactions of the State (NSW State Coroner 2017), some of which are of research significance to this project.

For the NSWPF, this was the first terrorism-related siege to occur in their jurisdiction and indeed in Australia and exposed the complexity of situations that are currently confronting contemporary policing operations. This event also created a challenge for policing jurisdictions when every decision made by commanders was publicly scrutinised by a world-wide audience who had unfettered vision of the unfolding situation. The resulting inquest had the advantage of hindsight to compile a more complete operating picture surrounding this siege than the police commanders had at the time of the incident. Through this hindsight the Coroner identified a number of deficiencies in the policies and procedures of the NSWPF in responding to critical incidents including processes to accurately capture decision information made by police commanders (NSW State Coroner 2017). From the researcher's professional practice, this deficiency or gap in recording what was known at the time of the decision and the reasoning as to why the decision was made is not confined to the NSWPF but has broad ranging implications across all policing jurisdictions in Australia. At the executive level of the QPS, there is acknowledgement that a capability gap exists in capturing decisions but most law enforcement agencies continue to grapple with a universal approach to accurately record decisions and their supporting rationale across all spectra of command (Queensland Police Service (b) 2017).

2.2 DECISION MAKING

Command decisions are often required in an environment of time pressure, uncertainty and limited information (ANZPAA 2012). Delaying or avoiding a decision can lead to

additional or elevated risk. The first element of understanding decision capture is to break down the key components of decision making in order to determine what is considered in the literature to be priority for command decision capture. Zimmerman (2006) explained decision making as the process of choosing an action which is effective in managing the incident at hand. Simon (1987) argued that due to cognitive limitations in dynamic operating environments, police officers will revert to the most simplified approaches of decision making. In these situations, Fellows' (2004) research provided a simplified perspective of this decision making process initially defining what the problem is, understanding what a reasonable solution would look like, taking action to reach that goal, and evaluating the effects of that action. It can be inferred that merely thinking about the problem does not reflect choice. Equally, deliberating and selecting an option but not actioning the choice is also not decision making. From a command perspective, the police officer must possess the ability to anticipate and prospectively model future states including understanding the consequences of choice, to achieve a plausible outcome (Power & Alison 2018).

2.2.1 Classical Approaches to Decision Making

Classical approaches to decision theory prescribe analytical and systematic methods to weigh evidence and determine the optimal course of action (Klein 2008). Analytical decision making begins with the identification of a single problem and the generation of a wide range of options assigning evaluation criteria to calculate the optimal outcome. Theoretically, the best decision is made when there is unlimited time, an abundance of cognitive energy, and the availability of all information to derive accurate inferences (Power & Alison 2018). These classical decision approaches are based on the prevailing laboratory-based research paradigms (Calderwood et al. 1990) and are primarily focused on static and well-defined decision tasks that have limited applicability to operational settings. Klein (2008) espoused that classical strategies significantly deteriorate when confronted with conditions of risk, ambiguity and time pressure.

This research focused on senior non-commissioned police officers performing tactical level command functions in the initial response phase to managing critical incidents. These police commanders are required to make complex decisions often involving uncertain and ill-defined problems that require the implementation of real time solutions under significant operating constraints (Thunholm 2005). According to

literature (Klein, 2008), the classical approaches are simply too time consuming and demanding to support a police commander in weighing up options. Even in low tempo policing operations, these classical approaches require extensive mental aptitude and also lack the flexibility to rapidly respond to an evolving critical incident (Hine et al. 2018). These classical approaches have no application to this research as it focuses on police commanders working in dynamic environments. to successfully resolve the incident, such environments do not allow time space to generate multiple options and weigh evidence against each, as part of the decision strategy to determine the most suitable course of action. Under these conditions, it would be impracticable to accurately capture critical command decision information using classical approaches.

This research reviewed decision making approaches to determine which approach could best support commanders in capturing real time decisions in high risk policing environments.

2.2.2 Naturalistic Decision Making

During critical incidents, commanders do not have the luxury of making slow and considered analytical decisions and instead tend to rely on intuition and experience. The paradigm of Naturalistic Decision Making (NDM) arose from the lack of knowledge about decision making in naturalistic settings that are characterised by uncertain and dynamic operating environments with often ambiguous and limited information (Zimmerman 2006). NDM researchers hypothesized that these crisis-related decisions were fundamentally different from the standard 'option generation and comparison' framework of the classical approaches (Klein 2008).

Under the NDM framework, decisions are made using a holistic approach involving context specific situation recognition and pattern matching to memory structures. Such an approach allows police commanders to make effective choices in circumstances that are time critical with ambiguous information (Hine et al. 2018). The NDM approach proposes that in dynamic and continually changing conditions, experience plays an important role in finding solutions that satisfy and suffice when better answers cannot be obtained. The initial concept of NDM was to study commanders in an operational context, often involving strings of decisions, actions, evaluations, and contemplation (Orasanu & Connolly 1993). NDM applied in a dynamic, real time context, relocated the study of decision making from the study of action to the study of choice (Zimmerman 2006). NDM studies determined that limited conscious

deliberation occurred however there was reliance on recognition of the situation and the application of intuition to problem solving (Sinclair et al. 2012). Intuition is built on a commander's previous experience and provides a rich catalogue of cues and patterns to draw upon at the subconscious level to rapidly generate a reasonable course of action (Kaempf et al. 1996). It is unlikely that commanders will be able to articulate this element of intuition as there is limited conscious deliberation. As this is a cognitive process, it is anticipated that police commanders will experience difficulties in justifying their reasoning for selecting a specific course of action to resolve the incident.

2.2.3 Recognition-Prime Decision (RPD) Model

One point of contention is that there is no unified theory of NDM. Lipshitz (1993) tabulated nine different models proposed by the NDM Community of Practice. The main model often referred to as contributing to NDM is Klein's (1993) Recognition-Primed Decision (RPD) model, although several other models including Rasmussen, (1983) Skills/Rules/Knowledge approach have been put forward (Nja, 2009). These models all have similar conclusions with decision makers relying on a form of synthesis between their experience and situation recognition to make judgements (Lipshitz 1993). The RPD model best describes how tactical level police commanders rely on their experience to recognise situations and identify viable course of action without comparing or evaluating options in rapidly changing environments.

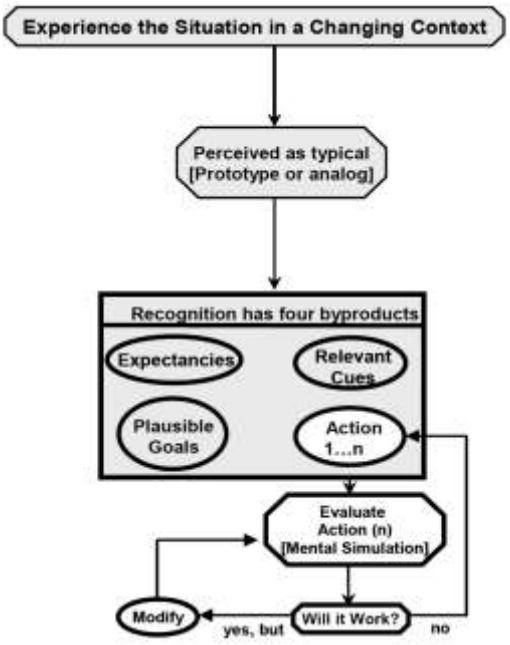

Figure 1 – Recognition Primed Decision (RPD) (Kaempf et al. 1996)

Figure 1 presents the RPD Model and describes how officers use their experience to identify familiar patterns or primary causal factors operating in a dynamic policing incident. These patterns highlight relevant cues, provide expectancies, identify plausible goals and suggest typical reactions in that type of situation (Klein 2008). Pattern matching helps police commanders recognise similarities to other situations by matching cues from the current situation such as shrinking the operating space of an armed offender with templates stored in memory and finding a match. Templates are group critical cues or attributes, stored in long-term memory that represent a particular instance of a situation, for example, a specific armed specialist policing response. Cue recognitions enable the police commander to rapidly classify the situations and with little conscious deliberation quickly match patterns of previously encountered similar events (Mishra et al. 2015).

The RPD model is more than pattern matching, police commanders review their selected option by using mental simulations to imagine how it would play out within the context of the current operational setting (Kaempf et al. 1996). Mental models allow information to be stored in an organised manner and afford decision-makers the ability to construct personal paradigms based on the individual lens that officers use to view the world that can accommodate the current dynamic event. The majority of initial first responder decision-making is learned through trial and error and problem-solving during emergency incidents. Once these cognitive techniques are mastered, police officers use learnings to develop long-term experience in their problem solving strategies (Hintze 2008). As contemporary policing environments are becoming more uncertain and ill-defined with real decision problems that rarely present themselves in a neat and complete form, this paper applied the RPD model to the research to understand how police commanders at the tactical level captured decisions and supporting rationale in high risk policing environments.

2.2.4 Situation Awareness

The NDM approach proposes that experience plays an important role in enabling commanders to make rapid and intuitive decisions (Hine et al. 2018). Hammond et al. (1987) applied cognitive continuum theory to assert that decisions vary in degree based on whether commanders rely on intuitive or analytical processes. Conditions such as

the amount of information and time constraints influence where decisions fall on this continuum (Klein 2008). Kaempf et al. (1996) further espoused the NDM approach focuses on the importance of situational awareness for successful decision making in high risk policing environments. The recognition of situational dynamics is one of the key drivers in selection a course of action.

Pre-decision processes appear to be central to command success and Mica Endsley's (Endsley 1995) work on situation awareness is central to much of the NDM research (Endsly & Garland 2000). Situation awareness is described as the perception of the elements in the environment within a volume of time and space, the comprehension of their meaning, and the projection of their status into the future (Endsley, 1995). This definition provides three primary components required to achieve situation awareness and the first step is perception including the status, attributes, and dynamics of the incident. This involves the process of monitoring, cue detection, and simple recognition of the incident providing awareness of elements such as location, environmental factors, numbers and capabilities of both the police and other persons involved. The next step is comprehension of the situation based on the synthesis of disjointed perception elements. This step goes beyond simply being aware to include understanding of the significance of those elements in light of the commander's objectives for resolution of the incident. This is achieved through processes of pattern recognition, interpretation and evaluation to develop a comprehensive operating picture for the commander. The third and highest level of situation awareness involves the ability for the commander to make a future projection of the situation. This is achieved through knowledge of the status and dynamics of the elements and comprehension of the situation, and the extrapolating this information forward in time to determine how it will affect the future states of the commander's operating environment (Endsley, 1995). Commanders will vary in their ability to acquire situation awareness due to experience, length of service and training. Although alone it cannot guarantee successful decision making, situation awareness does support the input processes such as cue recognition, assessing the operating environment and anticipating future events provides the foundations for good decisions (Artman 2000).

This research applied both Kaempf's (1996) naturalistic decision-making (NDM) framework and Endsley's (1995) three components of situation awareness to explore how commanders' capture real time decisions. The research focused on tactical level

commanders who largely operate remotely, rely on situation awareness and are required to balance strategic organisational implications with front line reality in the resolution of critical incidents. These police officers do not have the luxury of making slow, considered decisions and instead, rely on intuition and experience. In these situations, research indicates that the intuition element of a decision is built on prior experience and in these instances, commanders have capacity to draw from a rich catalogue of patterns developed from previous policing encounters (Flin & Arbuthnot 2017). In policing, expertise is developed through the regularity of operating in a particular environment and experienced commanders will use pattern recognition to fill information gaps in situational awareness. From a command perspective, the concept of situational awareness is the process of describing how police officers assess their environment and anticipate future events (McMaster 2014).

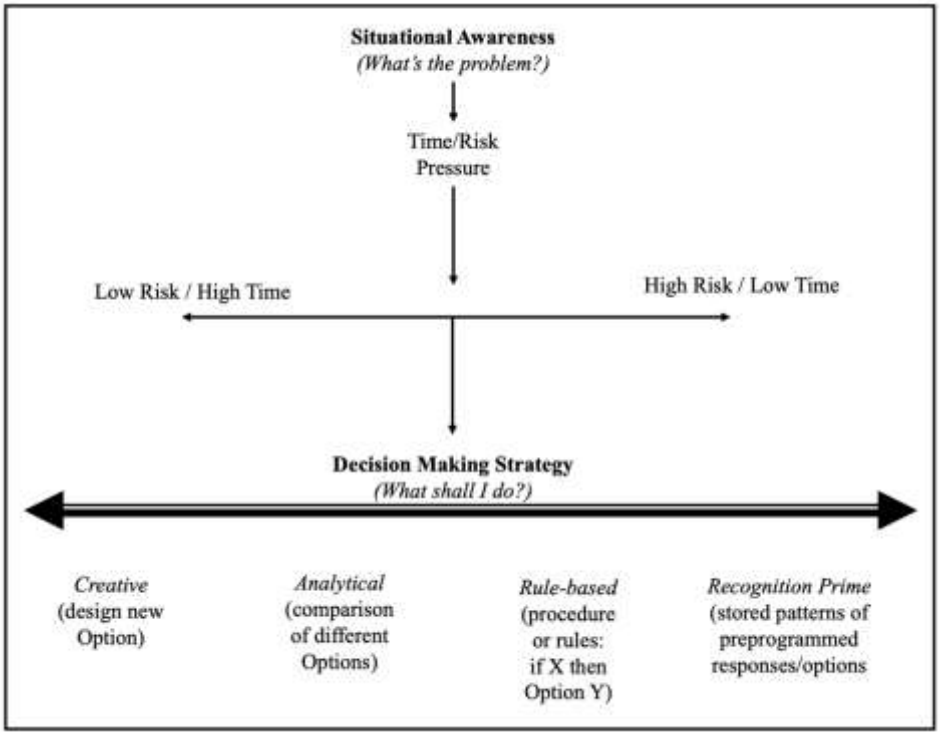

Figure 2 – Relationship between situational awareness and decision making strategy (Flin & Arbuthnot 2017)

Figure 2 provides a visual overview of how time pressure influences the decision-making strategies a commander may apply to resolving an incident. An expert tends to operate at a highly intuitive and subconscious level placing few demands on their working memory. The research of Hine et al. (2018) identified that a highly experienced commander does not need to interpret cues or consider possible

alternative actions, whereas a police officer with reduced operational experience tends to rely more on an analytical approach. These less experienced commanders will consider the pros and cons of several courses of action and this requires extensive cognitive resource and places a heavy demand on the working memory. The reviewed literature was not clear on whether this element of experience and the subsequent demand on working memory impacts on a commander's capacity to effectively capture critical decision information and the supporting rationale. That question is addressed by the present study.

The priority of police commanders in these dynamic operating environments is to determine a course of action that is workable, timely and cost effective rather than searching for an optimal choice that has the potential to stall decision making for long enough to lose control of the situation (Klein & Klinger 1991). Nonetheless, police commanders are clearly encountering decision points during this process. Klein et al. (1986) espoused that these are considered points in time where decisions or courses of action could have been chosen as a resolution option (Klein et al. 1986). Decision points are influenced by a commander's knowledge, perspective and situational awareness as they shift and operate throughout the evolving incident. The ability for a police commander to handle decision points depends on the individual's ability to recognise the situation as typical and familiar.

In high risk policing environments, critical incidents such as the Lindt Café siege consist of a series of decision points rather than a single decision problem. The dynamic tempo of this operating environment creates problems for tactical level commanders in firstly identifying key decision points and then accurately capturing and recording the rationale behind those decision options. This research will examine this information capture and establish if it assists in articulating decision reasoning for coronial inquests or other inquiries.

In cognitive science, a schema describes an organised pattern of thought or behaviour that categorises information and the subsequent linkage of relationships between them (Calderwood et al. 1990). Police commanders use these cognitive processes as a means of making comparisons between the current situation and previous experiences, thereby providing structure and guiding what information is required to be gathered (Klein et al. 2007). In command decision making, schema enable the experienced officer to make sense of the evolving situation. Successful sense-making requires the

commander to acquire cues, constraints and contingencies from their operating environment to form a mental picture of what is unfolding (Johnson et al. 2013). These knowledge structures aid how information is interpreted and stored which in turn reduces the cognitive workload of the experienced police officer in making sense of the situation (McMaster 2014). This ongoing process identifies problems, constructs meaning and develops explanations with the aim for the commander to understanding what is happening. Colville et al. (2013) argued that sensemaking summarises past experience, in the cues that capture specifics of present experience and the ways these two sets of experience are connected. The primary human mechanism for attaching meaning to particular experiences is to tell stories about them. This acknowledgement of meaning to experience provides the link between sensemaking and storytelling and can be used as an effective tool to achieve a functional understanding of what to do in a situation (Weick 1988). The story places current cues into a frame enabling commanders to comprehend, understand, predict and communicate to others in developing collective sensemaking. Storytelling entails placing events into a coherent sequence and this promotes understanding, enabling other emergency responders to build, use, and update knowledge structures relating to the unfolding situation (Bietti et al. 2019). Part of this collective sensemaking occurs when police commanders are providing evidence to coronial inquests and organisational reviews in accounting for their functional understanding of the evolving situation and introducing a workable level of certainty or plausibility for their decision making regarding the critical incident in question. The research reviewed this storytelling component of sensemaking to gain an understanding of how this element is captured and later articulated into decision reasoning by commanders in the judicial process.

2.2.5 Crisis Decision Making at Tactical level

The fundamental difference in crisis decision making at the tactical level is that experts rely on their previous knowledge and experience to deliberate about the situational aspects of the decision problem whereas novices deliberate more about the option implementation and timing (Calderwood et al. 1987). Throughout this thesis, the terms *'expert'* and *'novice'* are used to refer to higher and lower levels of knowledge and experience. The research of Klein et al. (1989) noted that the term '*expert*' is generally applied to individuals who have over ten years of experience and are recognised as having achieved proficiency through operational practice in complex domains. The

term '*novice*' is used strictly in relative sense. Experts can see underlying causes and rapidly interpret the problem using a highly organised base of relevant knowledge that is not normally accessible to a novice in considering workable solutions.

In circumstances with ambiguous information and ill-defined goals, a novice reverts to more abstract reasoning in contextualising the problem and justifying the action alternatives. This is achieved with limited consideration of future contingencies in their decision making (Klein et al. 1986). A novice under time pressure reverts to the safety of a rule-based approach that has previously been effective when formulating their decision choices (Mishra et al. 2013). Initial police training is rule-based focused, providing officers with a sequence of subroutines to provide a repertoire of possible actions that are typically controlled by a stored rule or standard operating procedure (Brooks, Benjamin et al.) to respond to a variety of predictable situations (Rasmussen 1983). These processes are generally well known and recalled easily from memory or supported by the use of a checklist to assist officers in decision making. Their application requires early problem identification and options are automatically generated based on either SOP or analogue recognition that have been successful previously (Calderwood et al. 1987). Given that certain types of critical incidents are extremely rare, and therefore beyond the experience of almost all police commanders, it is possible that an unprecedented event could make a novice of everybody (Eyre 2014). On the other hand, a proficient commander who is faced with uncertainty tries to diminish it by acquiring additional information to construct a more complete and accurate mental picture (Nja & Rake 2009). In these situations, experts are distinguished from novices mainly by their situational awareness capabilities of capturing sufficient information to gain a comprehensive insight of the context of their operating space rather than their general ability to reason (McMaster 2014). Officers throughout their service are continually called upon to resolve policing incidents of varying complexity and it is uncertain how these previously learned experiences impact on a commander's option generation. There is a gap in current research relating to whether these differing levels of experience impact on the effectiveness of decision capture by tactical commanders in these uncertain and dynamic field settings.

Klein (2008), a pioneer researcher of the NDM community of practice, studied tactical level decision making of urban fire ground commanders, wildfire incident commanders, and tank platoon leaders in the United States. These commanders used

their experience to identify a workable solution without testing the adequacy of alternative options in circumstances where decisions were time critical (Klein et al. 1989). The researched showed that previous experiences evoke recognitional pattern matches to generate a workable course of action.

2.3 DECISION CAPTURE

In contrast to decision making, which addresses the question of '*What shall I do?'* sensemaking is a prospective process that aims to determine '*What is going on?'* (McMaster et al. 2012). For a police commander to make sense of these competing streams of information they must develop a robust mental construct acquiring an understanding of the causes, constraints, and contingencies of the evolving incident in order to action workable choices (Johnson et al. 2013). In other words, the police commanders need to record this decision information not just mentally and verbally but in writing

2.3.1 Note Taking

The purpose of this thesis is to understand how tactical level commanders in high tempo policing environments capture decision information as well as gain clarity as to why and when it is recorded. Policing jurisdictions across Australia have varying practices for the recording of information relating to incidents. This research has focused on the QPS and its current practices to capturing real time decision information and any supporting rationale. Whilst there have been significant technological advances in the recording of information, the process of taking notes is still considered best practice as it encourages information encoding to help police officers remember events (Hartley 2002). This strategy also cues individuals to ask further questions to make sense of the evolving situation. Due to cognitive limitations, the taking of notes aids the retrieval of factual knowledge and provides an alternative information storage methodology that has potential to support commanders in the decision-making process. In order to reduce the load placed upon these cognitive capabilities, commanders use hand-written artefacts in the form of notes to reduce the complexity of the task as well as stimulate external memory cues to assist in problem solving (McMaster 2014).

The officer's willingness and ability to competently take notes has been a standard operational practice for all police officers in Queensland since the introduction of the

first Policeman's Manual in the early 1900s (Allinson 2004). Police officers are often called upon to recall information, sometimes after a prolonged duration, which necessitates the need for good note taking. The purpose of the official police notebook or diary is to provide an organisationally consistent approach for officers to record information relevant to an incident including witness accounts, conversations and observations that were made at a particular time. Everything significant regarding the incident should be recorded in the police officer's official notebook. The time factor is critical for later use in court. Note taking, therefore, should be done at the same time as the conversation, event or detail is recorded. If this is not possible, the notes should be made as soon as possible afterwards whilst the events are still fresh in the officer's memory to capture a permanent record to support a credible memory recall of the facts surrounding the incident (Johnson et al. 2013). In the absence of such recordings, the courts have determined that memory over time does not improve and people tend to fill-in or reconstruct lost memories so they can make sense of the incident (Lacy & Stark 2013). Consequently, the Operational Procedures Manual provides strict governance about how and when Official Police Notebooks or Diaries are used in Queensland, in order to support the reliability and accuracy of entries (Queensland Police Service, 2020). The Queensland judicial system recognises the fact that people's memories fade over time and a court or public inquiry will usually place more weight on statements and notes that are recorded contemporaneously. In complex and time-pressured situations, tactical level police commanders have limited time space to contemporaneously record notes of their rationale and decision making. It is normally at the resolution of the incident, that the officer is able to formulate their impressions regarding the events and can re-order fragments of information into a narrative of the incident that relates to what they saw, the decisions and action they took and the outcome (McMaster et al. 2012). Currently, notetaking is the accepted method of capturing this information. Tactical level commanders most likely record decision information and its supporting rationale by documenting elements of this narrative in an official police notebook or diary.

Literature reveals that the method of recording and amount of detail will depend on the size and scale of the incident. For smaller and more routine events it may be sufficient for the responding police officer to use an official notebook or diary to capture this information. In larger and more complex incidents, note taking is a

complicated and multi-faceted process, which can frequently leave commanders with unelaborated and incomplete notes (Zuckerman 2016). The operational tempo of these types of events significantly limits the time required to accurately record the critical decision points and their supporting rationale. The research of Lacy and Stark (2013) highlighted the 'imperfection' of memory revealing that the respondents to their study were able to retrieve roughly 50 percent of information one hour after the encoding event. This memory distortion would continue to occur with the passage of time. When applied to time pressured incidents, tactical commanders are unlikely to have the ability to capture real time decision information and will instead attempt to document this information at the conclusion of the event. With these delays there is a real potential for commanders to forget key information or for some memories to become distorted. The QPS Command Doctrine (2017) recommends in these uncertain and dynamic incidents for the commander to appoint a police officer as a 'scribe' to document a chronological log of events, orders and any decisions that were implemented to influence the overarching resolution of the incident. This practice is especially effective where officers are deployed for an extended period of operational pressure, when cognitive space becomes compressed resulting in information overload and mental fatigue (Narr et al. 2006). The scribe remains in close proximity to the commander to record critical decisions and the rationale for implementing the resultant courses of action. Whilst this is accepted practice, from a functional perspective it very rarely occurs at the tactical level as the commander is normally resource poor and will require all available officers to be undertaking frontline functions to support the overarching policing response to manage the incident at hand. It is not until the incident becomes protracted and the commander is supported by a cascading level of additional staff and resources that a scribe is assigned.

2.3.2 Technology Solutions

In response to the Lindt siege coronial report, the QPS has been proactive in developing an electronic logging and dissemination platform that has the capability for critical command decisions and their rationale to be logged. This platform known as Disaster, Incident and Event Management System (DIEMS) has been successfully tested and integrated into mega events including G20 and Commonwealth Games, enabling all levels of command to document critical decisions and associated rationale (Queensland Police Service 2020). Unfortunately, this logging system does not have

full functionality in the current QPS mobile technology solutions that are used in the field thus preventing officers from being able to enter time critical decision information. At the tactical level, the operational tempo and associated time constraints forces officers to utilise a manual note taking approach to record decisions as this is the most organisationally acceptable approach to capturing information about the evolving situation (Queensland Police Service (b) 2017). Whilst there is significant commentary from an inquest perspective around decision logging systems, there is very little guidance from the QPS articulating the elements of decision making required to be recorded or what components of the supporting rationale should be captured regardless of the system processes (electronic or manual).

2.3.3 Body Worn Camera

Body Worn Camera (BWC) technology is a recent advancement across policing jurisdictions in the United Kingdom, Australia, United States and Canada. It has been implemented to enhance transparency and accountability during officer encounters with members of the public (Bowling & Iyer 2019). BWCs are small surveillance and information technologies that officers wear on their clothing or glasses that is designed to support police conducting operational activities, by recording evidence and behaviour. From a policing context, one of the fundamental justifications for BWCs is to positively influence the actions of officers, leading to greater legitimacy and lower rates of misconduct (Yokum et al. 2019). It has also been recognised that BWCs can provide additional organisational benefits in the recording of real-time information that may be presented as evidence in the prosecution of court matters. Whilst there is significant evidence based research around the benefits of using BWC in police-citizen encounters, limited academic attention has been directed towards understanding how this technology may help accelerate the decision-making capabilities of officers in high risk policing environments (Richards et al. 2017).

Manual police work involves the use of the physical attributes (hands, ears, eyes and brain) to observe, record and for police officers to make sense of their operating environment. In policing, automated technologies designed to continuously record what officers see and hear such as the BWC are gradually replacing the manual labour processes of surveillance, investigation and court preparation and this has potential to result in tighter rules, more stringent record-keeping and oversight requirements ultimately reducing the opportunities for officers to make subjective judgments about

what information is recorded (Bowling & Iyer 2019). The NSWPF (2018) guidelines are clear that BWC must operate in tandem with manual note-taking processes and is not intended to replace it. The QPS has not formalised policy regarding this interaction however it is highly plausible that note-taking and report writing to record evidence gathering or witness statements will be eventually made redundant by these emerging technologies (Bowling & Iyer 2019). There is no current commentary from a QPS perspective as to how BWC technology is to be integrated into command decision-making, but it will be a key element of this study in relation to decision capture.

2.3.4 Decision Support Systems

Policing jurisdictions are currently exploring front end technology solutions to support commanders in providing a timely and collated intelligence-based product that has potential to strengthen their situational assessment of the emerging incident. Other sectors of industry have effectively used Decision Support Systems (DSS) to aid decision-making to improve business operations such as production. The research of Mishra et al. (2013) investigated information use and decision making in time constrained, uncertain and complex environments. It primarily explored information systems such as DSS designed to support decision making to establish their application and benefit to commanders in coordinating an effective policing response in dynamic and evolving environments. Although DSS technology solutions support decision making through the provision and presentation of information and by aiding the decision maker in making informed judgements that underpin decisions, the use of DSS during dynamic situations may lead to an information overload with large volumes of information arriving in real time that may not be relevant or even accurate (Mishra et al. 2013).

The decision support needs of police commanders are particularly challenging due to the dynamic nature of tasks and the concurrent influences on decision making. The urgency of the situation may compel the police commander to make decisions without having full or complete information available from DSS. Whilst this research deals with the DSS technology that is primarily a front-end data driven solution to support decision making, there are clear learnings that for complex, uncertain and time constrained events it could be difficult for commanders to just rely on DSS and accurately articulate the available information to support their decision reasoning (Mishra et al. 2013). The speed and complexity of the operating environment and the

volumes of information being received from DSS has the potential to overwhelm the commander's capability to make effective decisions. Technology solutions that provide a more intuitive approach with the ability to rationalise and analyse large volumes of information to add real time value to support a commander's decision making are yet to evolve. There is no current technology solution available to policing jurisdictions in Australia to aid in the rationalisation of information to support the rationale for decisions. This research explored the command decision making at the tactical level and established that decision support systems are not currently a viable consideration and should not be progressed as part of this study into decision capture.

2.4 DEFICIENCIES IN DECISION CAPTURE

To return to the siege which opened this chapter, questions were raised throughout the inquest regarding the logging and recording of decisions made by the police commanders during the Lindt Café siege. The Coroner identified that these senior police officers used manual recording practices including the use of junior officers as 'scribes' to capture time critical decision information. Counsel assisting the families of the deceased were critical of the haphazard approaches used by the NSWPF to capture decisions and argued that the manual notetaking was inadequate as there was little recording of reasons for decisions, which were considered almost entirely absent from logs and other records, including the personal notes of the commanders. These senior officers when questioned over this practice agreed that due to the dynamic nature of the event, the notes taken provided a very limited record of the key decision points and supporting rationale for courses of action chosen (NSW State Coroner 2017).

The NSWPF argued that in general terms the mechanisms for logging and communicating decisions were adequate, although they could benefit from modification and improvement to enable improved recording of the reasoning for command decisions. At the time of the incident, the officers had access to the electronic police logging system, known as 'iSURV' but there was limited access in the Police Forward Command Post due to technical issues (Kidd 2016). This lack of access impeded the police commanders from maintaining their situational awareness of what was unfolding in their operating environment, which ultimately impacted on

the effectiveness of their decision-making. The State Coroner recommended that this deficiency could be potentially remedied if the commanders had access to a flexible electronic system that had capacity to meet the demands of command and control of a complex event like the Lindt Café siege to not only provide understanding of what had occurred but also to provide clarity of communications during it (NSW State Coroner 2017).

These findings and recommendations have caused all policing jurisdictions in Australia to review their current policing procedures and practices in responding to similar potential situations to the Lindt Café siege (Goldsworthy 2017).

2.5 POLICE DECISION MODELS

Command decision making is guided and controlled through tactical judgments based on the police officer's perceptions as the incident unfolds. These judgments may be subject to organisational review and the most common failures identified are invariably a flawed decision by the commander, or the failure of this individual to make a decision under pressure (Flin & Arbuthnot 2017). To remedy these command failures, policing jurisdictions have initiated the development of values-based tools to provide simple, logical and evidence-based approaches to support decision-making. The following sub-sections will explore the evolution of these decision tools and subsequent implementation into policing jurisdictions.

2.5.1 The Observe / Orient / Decide / Act (OODA) Loop

The Observe / Orient / Decide / Act (OODA) Loop is a commonly referenced decision action framework created by Colonel John Boyd of the United States Airforce (Higgins & Freedman 2013). It was designed to improve decision making, command and control processes, and time-based competition cycles at all levels of military response to conflict (Fadok 1995). The fundamental concept of the model is firstly observing and gathering sensory inputs in a thorough and disciplined manner from the commander's operating environment and then. orienting, that is, making sense of this collated data using mental simulations to gain situational awareness. This newly acquired knowledge provides the basis to make informed judgements using a structured decision process to execute the required action at the most optimal time. The final

element is to continually monitor the results of decision execution and essentially looping back to initial information collection point (Higgins & Freedman 2013).

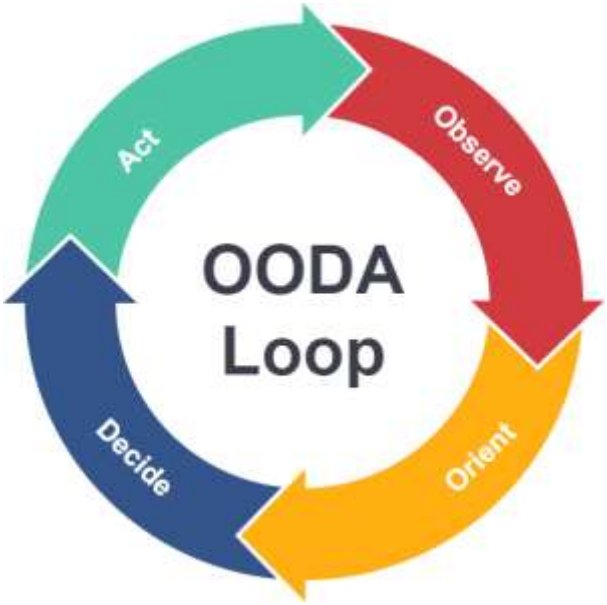

Figure 3 – The Observe / Orient / Decide / Act (OODA) Loop (Fadok 1995)

Fadok (1995) contended that all rational human behaviour, individual or organisational, can be depicted through this decision model as it is continually cycling through these four processes. This concept establishes a structure for commanders to think critically, anticipate risks, and remedy them before they impact on the overarching incident resolution (Angerman 2004).

2.5.2 National Decision Model

The National Decision Model is an adaptation of the OODA Loop introduced by the United Kingdom's Association of Chief Police Officers (ACPO) in a bid to ensure that police officers uphold the highest levels of professionalism in their decision making (College of Policing 2013). It is a combined risk and decision model providing an established means for all officers to make informed and coherent decisions whilst offering a structure to judge, assess, and justify the choices that are made (College of Policing 2013). Police officers face difficult and challenging situations on a regular basis and this model was designed to provide a framework for officers to assess the situational risks and provide a structured approach to support effective decision-making.

Figure 4 – UK National Decision Model (College of Policing 2013)

Policing jurisdictions in the United Kingdom have invested significant training and education to ingrain this five step model into the daily practice of all police officers (Police Executive Research Forum 2016). This framework has the capacity to provide police commanders with a logical mechanism to articulate their decision making and supporting rationale as to why a particular course of action was chosen (College of Policing 2013). There is so far limited research available on the effectiveness of the application of this model to uncertain and dynamic incidents as it is more aligned to analytic decision process that includes consideration of legislative requirements and option generation. This research assumes that experienced commanders are unlikely to apply the five steps of this model when required to make rapid decisions. It is likely that these commanders will revert to an intuitive or recognition primed decision approach to evaluate a course of action by using mental simulation to imagine how it will play out with the context of the situation.

2.5.3 Police Command Framework

In 2017, the QPS introduced the Police Command Framework (the Framework) to standardise the way incidents and events are approached and commanded. The Framework is principle based, meaning that individual commanders have the flexibility to inject their own experience and knowledge to appropriately respond to the unique operating environments faced by police (Queensland Police Service (b) 2017). The Framework comprises of two components: The Police Command Doctrine and the Fundamentals of Command. The doctrine details the philosophy and principles

to ensure consistent and devolved command practices across the organisation. The second component describes the attributes required of commanders as well as the fundamental command concepts that are pivotal to success in command at any level. The Framework in its current format does not articulate a structured decision approach as described in the UK National Decision Model. This Framework is not embedded into the day to day decision making of officers and the concepts are considered to be decision support tools that may assist commanders in formulating a decision and selecting an appropriate course of action for incident resolution. The approach of the Framework is linear and provides step by step guidance to commanders on decision-making.

Figure 5 – Fundamentals of Command – Decision Methodology (Queensland Police Service (b) 2017)

This decision approach provides the commander with adaptability, flexibility and agility to meet the challenges of the contemporary operating environment. The concepts of the recognition primed decision making are considered in this approach as it focuses attention of the importance of situational awareness for successful decision making in operational settings (Kaempf et al. 1996). It also enables the decision maker to rely on their experience to recognise the situation and identify viable courses of action without comparing the relative benefits or liabilities of multiple courses of action. In this process, the commander accepts that there are few prefabricated solutions, and each situation will require a willingness to accept prudent risk in unfamiliar and ill-defined situations and an ability to adjust based on continuous assessment (Queensland Police Service (b) 2017). This linear approach provides the flexibility to enable commanders to make either rapid or routine decisions with a strong focus on establishing situational awareness.

Commanders are accountable for their decisions and must be prepared to provide a rationale for what they did and why (College of Policing 2013). A key feature of all contemporary policing decision tools is a clear reference to recording every decision that is made, or not made, as it may be subject to later scrutiny for an inquiry or court

proceedings (Queensland Police Service (b) 2017). Policing jurisdictions also recognise that due to the nature of critical incidents it would be impossible to record every single decision and as a result not all decisions need to be recorded. The expectation is that professional judgement should guide whether to record the rationale, as well as the nature and extent of any explanation. The recorded information should be proportionate to the seriousness of the incident, particularly if this involves a risk of harm to a person. The police decision models reviewed as part of this study, reinforce the need to document decisions and their supporting rationale but do not provide any guidance or structure for the process of decision capture. Currently this appears to be a research gap and needs further investigation.

The Police Command Framework and the associated decision approach was implemented by the QPS in the lead up to the Gold Coast 2018 Commonwealth Games. Senior commanders (rank of Superintendent and above) were provided extensive training including functional exercising to confidently apply the Framework in guiding effective decision making to resolve critical incidents that may have occurred during this international event. The transition of this framework to the rest of the organisation was facilitated through the completion of an online learning product (two hours in duration) that was required to be completed before deployment to the Commonwealth Games. From an organisational perspective there has been no additional training or exercising to reinforce the need for a standardised approach to command decision making. This research examined this element to gain an understanding if the Command Framework influences tactical level commanders in the capture of critical decision information.

2.6 CONCLUSION

The review of literature explored existing research on the NDM paradigm and in particular the RPD model, traditional notetaking practices, Police Decision Models and emerging technologies that support command decision capture in high-risk policing environments. The review uncovered that tactical level commanders who coordinate the initial first response to incidents do not have the luxury of making slow, considered decisions and instead, have to rely on intuition and experience. The literature review further confirmed that experienced commanders tend to operate at a highly intuitive and subconscious level placing few demands on their working memory

whereas the less experienced officers tend to be more analytical which places a heavy demand on their working memory. It is not clear from the current research whether this element of experience and subsequent demand on working memory impacts on a commander's capacity to effectively capture critical decisions and the supporting rationale. This is explored further as part of this research.

The literature also supported that these tactical level commanders are most likely to record critical decisions and their supporting rationale by making handwritten notes in their official police notebook or diary. The purpose of the use of this method of decision capture is to satisfy evidentiary requirements if required to present this information in court. Moreover, the use of these handwritten artefacts is a cognitive approach to reducing the complexity of the incident as well as stimulating external memory cues that assist in problem solving. The review also identified emerging technologies such as Body Worn Cameras are being introduced into law enforcement jurisdictions to enhance transparency and accountability during police citizen encounters.

This project explores the integration between current manual recording practices and emerging technology solutions to understand how tactical level commanders capture decisions and their supporting rationale in high-risk policing environments. The next chapter outlines the research methodology used in this study to understand this decision capture phenomenon.

CHAPTER 3: RESEARCH DESIGN

Research is the systematic investigation or inquiry whereby data is collected, analysed and interpreted to understand a phenomenon (MacKenzie & Knipe 2006). In line with this overarching understanding, this chapter describes the research design adopted to achieve the research purpose which is, 'exploring innovative ways for police commanders to accurately capture decision information and develop a support mechanism that assists in documenting responsive decision making for effective resolution of critical incidents. Section 3.1 discusses the methodological paradigm used in this study, the stages in the implementation of methodology, and the research design; Section 3.2 details the participants in the study; Section 3.3 outlines the data collection through semi-structured interviews and justifies their use; Section 3.4 describes how the data was analysed and the final Section 3.5 outlines the ethical considerations of the research including its potential impacts and the limitations to the research.

3.1 METHODOLOGY AND RESEARCH DESIGN

3.1.1 Methodology

The research design plays a crucial role in bridging the gap between the research question and the methods of research. Pragmatism is considered a worthy research approach for interrogating and evaluating ideas and beliefs in terms of their practical functioning (Kelly & Cordeiro 2020). This paradigm is designed for researchers working in organisational settings to explore the interconnectedness of experience, knowing and acting in the research process (Kaushik & Walsh 2019). This study will examine police officers in an operational setting to understand how tactical level commanders capture decision information in critical incidents and pragmatism is orientated to contribute useful and actionable knowledge that will be anchored in the experiences of the respondents to provide practical relevance to the Queensland Police Service.

In depth research questions require insightful investigation and call for a qualitative approach (Creswell 2009). A research gap was identified in the literature review due to limited exploration related to understanding command decision capture from a

policing perspective. To bridge this gap the qualitative research approach applied was exploratory that allowed the researcher to do an in-depth inquiry into this research topic. Exploratory research provided flexibility in applying questioning and probing techniques to evoke meaningful and salient insights from the police officers involved in the study (Agee 2009). It allowed the researcher to explore and collect qualitative data with a view to improve professional practice in developing a decision support mechanism that may assist future commanders in responsive decision capture.

3.1.2 Research Design

Qualitative research design contributed to this study by providing a logical chain of reasoning to support the research question (Agee 2009). The most effective way to understand the issues surrounding how police commanders capture decisions and their associated reasonings was to become immersed in the investigative processes. It included exploring how the cultural and organisational contexts influenced the cohort being studied. As a constructivist investigation, the primary task of this research and it reflected in the specific methods used in the qualitative data analysis process.

The qualitative researcher studies elements in their natural settings attempting to make sense of, or interpret, the phenomenon in terms of the meanings people bring to them (Lincoln & Denzin 2003). The most common qualitative approaches in the collection of data are interviews, none of which can be easily analysed by statistical applications (Patton 2002). The smaller and more focused sample group of nine allowed the researcher to gather rich detail, meaningful contexts and experiences relating to how police officers captured critical decisions in the field. The goal of this approach was to uncover emerging themes, patterns, concept, insights and understandings surrounding how these participants recorded their decision in complex operating environments (Cohen et al. 2000; Patton 2002).

3.2 PARTICIPANTS AND STUDY POPULATION

The study was conducted with the police officers who perform the function of District Duty Officers (DDO) in the QPS. The DDO role is an operational function performed by officers of the rank of Senior Sergeant who have responsibility for the coordination and allocation of available policing resources to effectively respond to calls for service including the initial command response to critical incidents (Queensland Police Service 2020). These officers are regularly required to make decisions in environments

defined by time pressure, uncertainty and limited information. Delay or avoiding a decision may lead to additional or elevated risk. These environmental elements ultimately impact on the officer's ability to accurately capture timely decision information and its supporting rationale. From time to time, officers of the rank of Sergeant or Senior Sergeant with limited field experience in commanding incidents will perform the role of DDO on a temporary basis. In a policing context, this is referred to as 'relieving' and it occurs when the permanent officer has taken leave or is performing other duties and there is a requirement for the position to be backfilled on a short-term basis. For the purpose of this study, these temporary DDOs form one of the sample groups for this study and are considered '*novice'* commanders. The second sample group, Senior Sergeants who had more than five years' experience in their permanent role as DDO are considered as '*expert'* commanders.

In relation to the recruitment and selection of participants for this study, the original concept was a random sampling process generated by a generic email advertisement to Senior Sergeants in the QPS to identify a cohort of officers that had performed the functions of DDOs (temporary or permanent) and had commanded a critical incident as outlined within the parameters of information guide. As a result of the COVID-19, the researcher was transitioned to support the overarching policing response to the pandemic and these operational commitments compressed the timeframes available to conduct this study. For efficiency, the researcher made the decision to reshape the recruitment and selection process. Purposive sampling was applied instead by targeting officers who were known to the researcher and had performed the role of DDO. This deliberate choice of participants selection despite its inherent bias can provide reliable and robust data (Tongco, 2007). Officers from different ranks (Sergeants and Senior Sergeants) who had differing levels of immediacy in command decision making were selected to maintain the reliability and validity of this research.

The research approach was to directly contact officers performing DDO duties in Cairns and Townsville. They were provided a comprehensive brief to the study including the research objectives to establish their willingness and suitability to participate. Five DDOs readily volunteered to participate in this study. They identified another four potential candidates who had performed the role of DDO on a temporary basis and had police forward command experience that addressed the parameters of

the study. These four officers were subsequently contacted by the researcher. All volunteered to participate in the research.

Tables 1 and 2 provide a breakdown of the research participants via rank and location. Due to ethical considerations, these officers have been de-identified and are listed using a numbering system prefixed by the letter 'P'. *Table 1* lists the participating officers who have performed the duties of DDO on a temporary basis and are considered *'novice'* commanders for the purpose of this research:

SAMPLE GROUP A – NOVICE COMMANDERS (RELIEVING DDOs)		
Participant	**Rank**	**Location**
P2	Senior Sergeant	Townsville
P3	Sergeant	Cairns
P4	Sergeant	Cairns
P9	Senior Sergeant	Brisbane

Table 1 Sample Group A – Novice Commanders

Table 2 lists the participating officers who have performed the duties of DDO on a permanent basis and are considered *'expert'* commanders for the purpose of this research:

SAMPLE GROUP B – EXPERT COMMANDERS (SUBSTANTIVE DDOs)		
Participant	**Rank**	**Location**
P1	Senior Sergeant	Townsville
P5	Senior Sergeant	Cairns
P6	Senior Sergeant	Cairns
P7	Senior Sergeant	Townsville
P8	Senior Sergeant	Townsville

Table 2 Sample Group B – Expert Commanders

A total of nine officers (seven male / two female) volunteered to participate in this study and from a qualitative data perspective, it is considered a reasonable sample size and is sufficient to provide meaning and in-depth understanding to this study (Patton 2002).

3.3 DATA COLLECTION

3.3.1 Interviews

This study applied the Critical Decision Method (CDM) which has been used by Naturalistic Decision Making (NDM) researchers to capture knowledge of domain experts such as military personnel and firefighters in real-world situations (Zimmerman 2006). The CDM is an interview based approach designed to retrieve information from commanders around their decision-making in complex operating environments (Hoffman et al. 1995). The researcher adopted this method to engage in deeper recollection and analysis of the participants' decision-making and associated cognitive processes to record critical decision information arising from the incident they had chosen to discuss (Klein et al. 1989). The CDM supports the semi-structured interview technique as an appropriate tool for building understanding of this complex decision phenomenon (Shortland 2015). An interview guide was developed to support this semi-structured approach. It was designed to provide consistency in the themes and key areas covered during the participant interviews. An essential component embodied in the interview guide was analysing the research question to determine crucial data points. A list of interview prompts were formulated to generate discussion to understand what decision information was captured by the participants and how it was recorded for their selected incident.

The interview guide was structed in two parts. The first section of the interview guide focused on gathering biographical data around the participant's service history and background from a policing perspective. The goal was to develop a comprehensive picture of their operational experience in commanding dynamic and ill-defined incidents as well as establishing an insight into how and what information these officers capture around their decision-making. The second section of the interview guide was designed to explore a critical incident of the interviewee's choice, giving them the opportunity to tell their command stories candidly, using their own words. It was important as part of this process to make the interview respondent feel comfortable and encourage greater introspection about the incident and the decisions made. It engendered trust between the researcher and the participant to provide open and frank reflection regarding their decision capture approaches to the critical incidents that they had chosen to discuss. From this initial incident overview, the researcher in conjunction with the participant was able to sequence the events into a timeline and

identify the critical decision points. For the purpose of this study, a decision point was a point in the incident timeline when a course of action to resolve the incident was undertaken. A series of probing questions were created to elicit clarity around the officer's situational awareness, critical cues and option generation when a critical decision was made to understand how and what information was recorded. If the officer did not record any decision information, the questions also explored why this occurred.

The critical element of this interview process was the requirement for the participant to select a suitable incident for discussion. The researcher emailed initial guidelines to the participants to explain the incident selection process for this study followed by a telephone conversation highlighting the need to select an incident that confronted the officer with a command challenge and at least two decision points taken in its resolution. This process encouraged the participant to choose an incident that had significant meaning to them. Whilst these incidents may be dynamic and complex, the act of storytelling strengthened recall and aided the participants in making sense of the key components of the events encountered including why they took a particular course of action (Colville et al. 2012). The breakdown of the incidents selected by the nine participants is given in *Table 3*:

BREAKDOWN OF CRITICAL INCIDENT SELECTION	
P1	• Siege incident involving armed offender
P2	• Siege incident involving armed offender
P3	• Airport incident involving committed individual
P4	• Illegal Rave Party during COVID restrictions
P5	• Hostage situation on a rural property
P6	• Hostage situation on a rural property
P7	• Mobile armed offender
P8	• Siege incident involving armed offender
P9	• Balcony Collapse with significant injured persons

Table 3 – Breakdown of Critical Incident Selection by Participants

This table highlights the variety of incidents that the participant officers selected as suitable for discussion. Whilst there are similarities in incident types, each participant officer individually commanded their selected incident to its resolution.

3.3.2 Interview Procedures

As a result of restricted travel due to COVID-19 pandemic, not all the interviews were in person. The Microsoft Teams platform was used to interview participants in a safe video conferencing environment when face to face interviews were not possible. A total of nine interviews were conducted, with each lasting approximately one hour. The interview breakdown is given in *Table 4*:

	INTERVIEW TYPE
P1	• Microsoft Teams
P2	• Face to Face
P3	• Face to Face
P4	• Face to Face
P5	• Face to Face
P6	• Face to Face
P7	• Microsoft Teams
P8	• Microsoft Teams
P9	• Microsoft Teams

Table 4 – Breakdown of method of interview

The same protocol was adopted for both face to face and Microsoft Teams interviews. First, the participants were provided with a Participant Information Sheet (PiS) outlining a description of the research project, the expected benefits, the potential risks as well as the privacy and confidentiality considerations relating to their participation in the study. Based on this information, the participants were asked to sign a consent form, giving permission for the interview to be audio recorded and that any data collected may be used in future research activities related to this study. An Olympus digital voice recorder was used to record the interviews.

One of the Microsoft Teams interviews had minor technical issues that resulted in the interview being suspended for a short time until the session could be reconnected. This minor disruption did not impact on the participant or their responses to the interview process. Overall, the participants were very open and honest in discussing their chosen incident and very forthcoming in describing the reasoning as to why they did or why they didn't record their command decisions and the supporting rationale.

3.4 DATA ANALYSIS

The distinctive feature of qualitative data collection methods is the focus on text rather than on numbers. For this study, the text would be the data generated from the transcripts of the participant interviews. The inductive approach to this study involved analysing the data with little or no predetermined structure or framework and using the actual data to drive the structure of the analysis. This approach is most suitable when little or nothing is known about the study phenomenon (Creswell 2009). For this type of qualitative inquiry, the most common method of interview analysis is thematic content analysis (Kiger & Varpio 2020). This approach provided a flexible and useful research tool which produced an insightful analysis that answered the key elements of the research questions.

Qualitative interviews were the primary method in this study to obtain various perspectives on the research question that related to capturing decision rationale in high risk policing environments. The first step in the data analysis process was to transcribe the verbal interview data into written form. This transcription process commenced with using the Google Docs (web-based platform) and activating the Voice Typing function. The researcher played the participant audio recordings to initiate the automated transcription of the interview conversations onto the word document. Whilst this reduced timeframes to manually transcribe the text, the content had a high inaccuracy rate. The researcher applied rigour to review the nine transcriptions to ensure that the content was an accurate verbal account to the original nature of the interviews. In line with ethical approval, the researcher also ensured that no transcription data was stored on Google Docs.

The data collected through interviews with the participant officers was analysed using a three-stage procedure suggested in literature (Creswell & Poth 2016): preparing the

data for analysis by transcription, reducing the data into themes through a process of coding and representing the data. The patterns were identified through a rigorous process of data familiarisation, coding, and theme development and revision. The researcher selected NVivo 12 software to analyse the interviews as there was significant transcript data to manage. The process was also efficient and timesaving. NVivo 12 was used for capturing the initial codes from the interview data. The researcher worked systematically through the entire data set, giving full and equal attention to each data item and identifying interesting aspect in the data items that formed the basis of repeated patterns across the data set. At this stage, coded nodes in NVivo 12 were read and reread to identify broader patterns of meaning (potential themes). Good qualitative studies obtain a kind of undeniability of their results, provided the findings come with detailed accounts of the phenomena (Creswell & Poth 2016). The researcher defined and further refined the themes identifying the essence and determining what aspect of the data each theme captured.

3.5 ETHICS AND LIMITATIONS

3.5.1 Ethical Considerations

Qualitative research is used as a method to explore and capture an individual's subjective experiences in relation to decision capture. This can result in ethical challenges for the participants and the researcher (Aluwihare-Samaranayake 2012). As the data to be collected focused on participant experiences around highly stressful situations, the researcher was obligated to balance the value of knowledge to be acquired against any anticipated distress or other adverse experience for the participant. When considering this potential harm, the approach of the researcher was to eliminate or minimise the risk as well as ensuring that the participants were being fully informed on what the potential harms were to participate in the study. One of the mitigation strategies to protect these officers from distress or adverse experience was to provide them with a comprehensive verbal briefing about the study objectives and the support services that were available to them from both the QPS and USQ if required. As part of the risk minimisation approach to this research, clear protocols for dealing with stress were also included in the Participant Information Sheet reaffirming the support services available if required.

As the researcher is a serving member of the QPS and has an equivalent or senior rank to the nine interviewees who participated in this study, it was important to ensure that these officers did not feel pressured to participate as a sense of duty due to an unequal power differential. The PiS was provided to each officer articulating that participation in the study was entirely voluntary. It was made clear that any decision to not to participate or withdraw at any stage during the process would be respected. In order to ensure research integrity, this was also reinforced in the verbal briefing processes that there were no organisational consequences for refusing to participate in the study. This open and transparent approach allowed to build trust with the participant. They became more reflective and provided richer data on their approaches to decision capture and its supporting rationale.

Informed consent is an integral part of ethics in research. The principle of informed consent is to completely inform participants of the different aspects of the research. This was achieved through the development of a Consent Form and PiS that outlined the nature of the study, the participant's role, the identity of the researcher, the object of the research and how their confidentiality and contributions would be maintained. The researcher's focus was to protect the study participants by maintaining the confidentiality of the information supplied. Their anonymity was respected by de-identifying their identity. The researcher explained the interview protocols prior to obtaining informed consent.

The study received University of Southern Queensland Human Research Ethics Committee (Approval Number: H19EA306) and Queensland Police Service Research Committee approval prior to the commencement of research data collection. These committees also provided pre-approval of the researcher's data collection instruments including an email invitation proforma, Participant Information Sheet, Consent Form and Interview Guide. The researcher established a robust approach to data management. All hardcopy data such as handwritten notes from interviews were electronically scanned and then destroyed via shredding. All electronic data files associated with this research were stored securely, and password protected.

3.5.2 Research Limitations

One of the main limitations in this study was the consideration of methodological rigour. Due to limited resources and time constraints, the study confined its research design to a single qualitative research approach rather than mixed methods that are

usually applied for a research study using pragmatism as its paradigm. The study focused on single officer decision processes in initial command and control of critical incidents when information is scant, resources are limited and significant time pressure to initiate courses of action to isolate and contain the situation. The limitation of using a qualitative approach was that the findings did not have the same degree of certainty that quantitative analyses provides with a wider sample (Ochieng 2009). However, the findings of this research were not designed to discover if they were statistically significant or due to chance as required in quantitative research. Rather it was designed to analyse the collected interview data to establish themes and findings that emerged and unfolded from this research.

Another limitation of the study was the small sample size. Due to time and resource constraints the number of interviews was reduced to nine participants and focused on officers who had performed the functions of DDO in Cairns, Townsville and Brisbane. Due to this small sample size, the study results cannot be generalised to decision capture across all aspects of incident command. There is therefore scope for future research to study a broader sample group to strengthen the validity and generalisability of results.

CHAPTER 4: ANALYSIS AND FINDINGS

This chapter analysed the qualitative data obtained from semi-structured interviews of the nine respondents to answer the research question "How do police commanders capture real time decisions and their supporting rationale in dynamic, complex and high-risk operating environments and what impact does it have on organisational effectiveness in responding to critical incidents?" Volumes of raw data were reduced to clarify concepts and to identify patterns, themes and relationships associated with the research question (Cohen et al. 2007). The meaningful patterns identified are - presented as the findings in this chapter. This chapter examines the four key coding themes identified through this analysis: officer experience; incident command; decision capture tools; and post event review. The chapter includes verbatim quotes from the interview participants to illustrate and support the findings of this research.

4.1 PROCESS OF DATA ANALYSIS

A qualitative data analysis technique was selected. Semi-structured interviews were used as the data-gathering method and the captured data was organised, reduced, categorised, and interpreted, to understand the decision capture process in QPS. Based on the extensive literature review and the findings, a framework was developed to assist police commanders in effectively recording decision information in high-risk policing environments.

The first stage of data analysis involves the process of initial coding, whereby each line of the data is considered to identify key words or phrases. *Table 5* contains an extract of the initial coding framework used in the data generated from the actual interview transcripts and the application of the initial coding process:

Interview transcript	Initial coding framework
P4: *'My decision making in relation to that is to prevent escape, vehicle or person escape from an area and that is to protect police, public and the offender. So the decision there is to come up with a contingency to isolate the subject in that area and to contain him by using cordons of officers to prevent foot escape. When it became apparent that there was no vehicle through intelligence, I didn't need to consider making a decision around vehicle escape to prevent him from leaving the dwelling. By employing or making a decision to have a cordon in place it makes the situation easier to control so to speak.'*	• Appreciation Process • Incident Action Plan • Courses of Action • Decision outcome
P3: *'Okay, the benefit of my experiences being an OST instructor, so for me the three most important words you can think of at a job is 'What's Important Now' and that is what we push at OST and we push at OST for many years and we still do. 'What's Important Now' to me is the tenant of when you turn up to the job. 'What's Important Now' and ICENRIRE. Okay so we have isolated, we have contained, we have evacuated. 'What's Important Now' we now need to investigate the scene'*	• OST Instructor • ICENRIRE • Contingency Planning • Option Generation
P9: '*I think it's one that you have gotta make the time for. It certainly becomes a little bit less legible when your handwriting it down and hence one the reasons for the electronic version of it. But, depending on the size of the incident and the speed of the incident will depend on whether I can get someone else to do some recording as well. I prefer to do it myself but as with the pressures of making decisions in these time critical factors. It's something you have still got to do because it also helps you slow your brain down just for a minute, so you can see what you have actually decided upon and whether you have picked the best choice especially if you have a couple of options open.'*	• Handwritten Notes • Using a Scribe • Gap Analysis • Option Generation

Table 5 – Interview Transcript and Initial Coding Framework

As shown in the table these transcripts were broken down into manageable categories reflected in the second column. In the next stage of data analysis similar categories were grouped together and systematically labelled as themes relevant to these grouped

categories. A comprehensive framework was developed in NVivo 12, which contained all the themes and sub-themes of interest to this research. *Table 6* provides an example of the initial development of the grouped categories and broad themes related to each group of categories.

Categories	Broad Themes
• Appreciation Process • Contingency Planning • ICENRIRE • Incident Action Plan • Principles of Planning • Risk Management • Situational Awareness • SMEAC	**1. Incident Command Management Strategies**
• Commander's Intent • Courses of Action • Decision Matrix • Decision Outcome • Gap Analysis • Mission • Operational Briefing • Option Generation	**2. Strategies Supporting Command Decisions**
• Counter-Terrorism Exercising Capability • General Duties • Incident Command Instructor • Investigator • Negotiator • OST Instructor • Special Emergency Response Team	**3. Operational Background**

Table 6 – Breakdown of Method of Interview Undertaken

NVivo 12 was used to map this category development leading to the final themes which linked to the research question. Figure 1 represents this overarching concept:

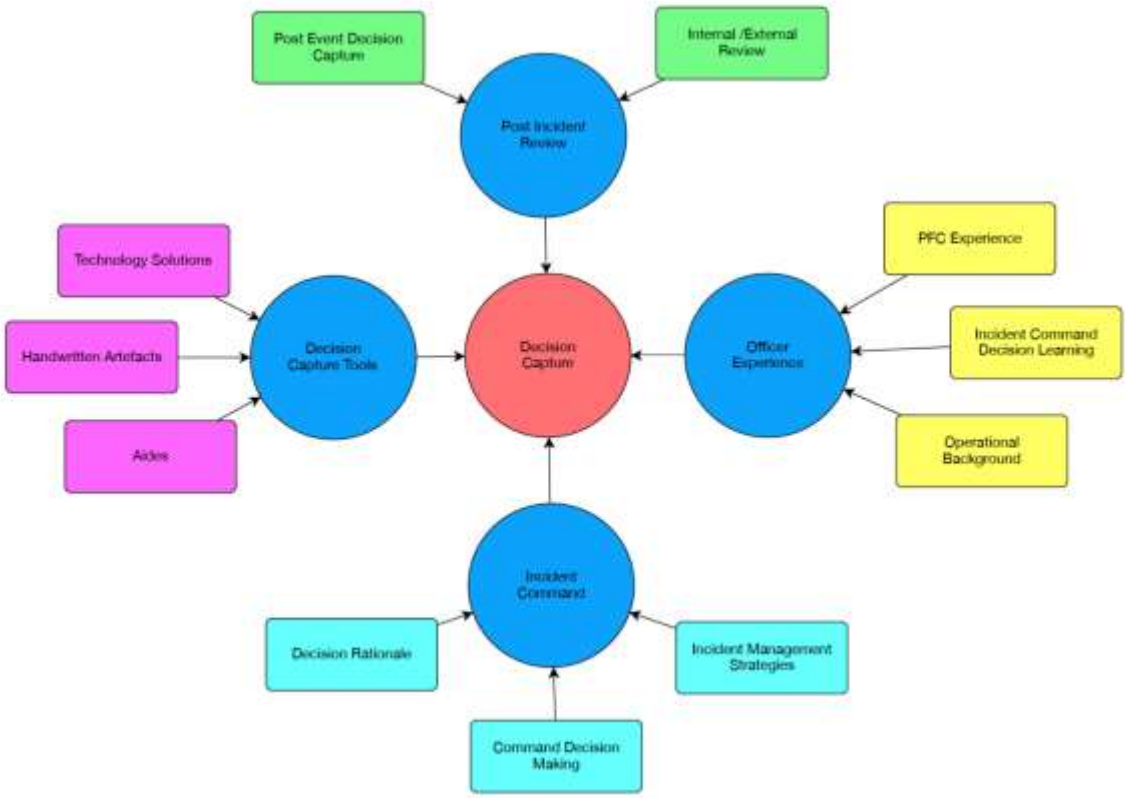

Figure 6 – Concept Map identifying Main Themes

From this mapping, analysis of each identified theme was conducted to find essence of the command decision capture. The four key areas extracted from this analysis were:

- **Officer experience** consisted of three sub-themes including police forward command experience, incident command decision learning and operational background
- **Incident Command** consisted of three sub-themes including incident management strategies, command decision making and understanding the operating environment
- **Decision Capture Tools** consisted of three sub-themes including handwritten artefacts, technology solutions and decision aides
- **Post Incident Review** consisted of two sub-themes including post event decision capture and internal / external review.

The rest of this chapter reports the key findings under each main theme, using appropriate verbatim quotes to illustrate how police commanders captured real time decisions and their supporting rationale in high-risk operating environments.

4.2 OFFICER EXPERIENCE

This section explores the theme of officer experience that was identified by the interview respondents as key element to capturing real time decision information when commanding critical incidents. In this study, the officers interviewed were the District Duty Officers (DDO) who had tactical level command of dynamic and uncertain incidents that require the officer to balance operational implications with front line reality to implement effective resolution strategies. It represents the interview participants' viewpoints and perceptions about the importance of officer experience in commanding critical incidents. Experience here is defined as the sum total of one's training, exposure of events, application of one's skills, opportunities to reflect on successes and failures along the way (Flin & Arbuthnot 2017). In policing, expertise is developed through the regularity of operating in a particular environment. *Table 7* outlines the officer experience of nine study participants who for ethical considerations have been de-identified with a number prefixed by the letter 'P':

Table 7 – Breakdown of Interview Participant's Policing Experience

OFFICER EXPERIENCE					
Participant	**DDO Experience**	**Novice / Expert**	**QPS Experience**	**Operational Background**	**Incident Command Decision Learning**
P1	• Substantive DDO • 6 years	Expert	24 years	• Investigations • Negotiator • General Duties	• MDP • Incident Command Course
P2	• Relieving DDO • 1.5 years	Novice	30 years	• General Duties • Investigations • Training	• MDP • Incident Command Course
P3	• Relieving DDO • 1.5 years	Novice	31 years	• General Duties • Operational Skills & Tactics Instructor	• Incident Command Course
P4	• Relieving DDO • 1 year	Novice	20 years	• Investigator • General Duties	• Incident Command Course
P5	• Substantive DDO • 12 years	Expert	30 years	• General Duties • Investigations	• MDP • Incident Command Course
P6	• Substantive DDO • 10 years	Expert	30 years	• General Duties	• MDP • Incident Command Course • Military Leadership Courses
P7	• Substantive DDO • 8.5 years	Expert	33 years	• Special Emergency Response Team • General Duties	• MDP • Incident Command Course
P8	• Substantive DDO • 12 years	Expert	32 years	• General Duties	• MDP • Incident Command Course
P9	• Relieving DDO • 2 years	Novice	29 years	• General Duties • Negotiator	• MDP • Incident Command Course • National CT Exercise Capability Training

All participants had over 20 years of policing experience and had achieved proficiency of practice in their varying operational backgrounds including the fields of general duties and investigations. Whilst elements of these previous learned experiences support these officers in their duties as a DDO, this experience does not determine whether it supports these participants to identifying workable solutions to resolve complex and time-pressured situations in their command decision approaches. For the purpose of this study, the participants were divided into two groups based on their level of knowledge and experience in the field of incident command. The terms *'expert'* and *'novice'* are used in a strictly relative sense to differentiate these two groups for this study. The *'expert'* cohort were officers with permanent positions as DDOs and over five years of experience in the role and were proficient in performing the functions of police forward commander in the tactical resolution of critical incidents. The *'novices'* cohort, had performed the DDO role in a temporary capacity for a period of two years or less and had limited police forward command experience in managing complex and uncertain incidents. A respondent who had performed the DDO role in a temporary capacity for 18 months highlighted the incident command exposure at novice level:

P2: *A possible hostage situation DV (Domestic Violence) related, I believe that was 2018. Barricaded situation, mentally ill person, fatality, road fatalities. I didn't get a whole lot, I was pretty lucky.*

This statement indicates that commanding a critical incident is a relatively rare occurrence for the novices. It concurs with the previous research that the majority of the functions of a DDO are coordinating the day to day resource management response to routine emergencies such as major crimes and search and rescue operations (Queensland Police Service 2020). All four interview participants (P2, P3, P4 & P9) who had performed DDO functions in a temporary capacity provided similar viewpoints in relation to their limited exposure to incident command.

The three sub-themes of Police Forward Command Experience, Incident Command Decision Learning and Operational Background under the overarching officer experience theme are further analysed and interpreted to understand the respondents' views on how officer experience influences command decision capture in critical incidents.

4.2.1 Police Forward Command (PFC) Experience

This sub-theme of PFC experience was perceived as a fundamental principle in commanding incidents. Police officers have significant experience in dealing with what can be termed routine emergencies. These types of incidents usually require some form of urgent response and subsequent police action to resolve. These occur frequently enough to present a degree of familiarity for the responding officers and by using their knowledge, experience and police training these situations can be effectively dealt with (O'Rourke & Leonard 2018). This section analyses the responses of the participants experience during a critical incident when decisions must be made in uncertain, stressful, complex, and time-pressured conditions. The analysis examines the effectiveness of officers in commanding these types of incidents including their ability under pressure to assess the situation and implement courses of action to make effective decision.

The results indicated that expert DDOs (P1, P5, P6, P7 & P8) were flexible and intuitive enough to deal with uncertain and novel events. The comments given indicate the officers broad range of police forward command experiences:

P6: *Plane crashes, helicopter crashes, search and rescue missions, armed persons, gas leaks, natural disaster, serious road crash, serious mental health issues, out of control events, protests, rioting / public order type issues. There is probably more, there is a lot.*

P7: *This is my job, I have been doing it for nearly eight and half years. I do this regularly, sometimes more than once per shift occasionally. So, it is a system that I have in place.*

The expert DDOs, felt they had through experience and learning developed their own individual approaches to commanding incidents and this influenced how they recorded their decisions and supporting rationale when managing these incidents. These DDOs did not comment on organisational approach or structure to command decision capture.

The interview participants that performed the DDO functions in a novice capacity commented on their limited exposure to commanding critical incidents. An interesting finding arising from their responses was that none of these participants made any reference to considering the consequences of their decision-making including how it

would impact on the end state of resolving the incident. These responses reflect the literature indicating a novice under time pressure reverts to the safety of a rule-based approach to formulate their decision choices with limited consideration of future contingencies (Mishra et al. 2013). The general comments from this group indicated that their focus was to resolve the problem at hand before moving to the next decision choice. The tempo of the incident constrained their decision making and the novice DDOs only discussed single decision options in comparison to the *'expert'* group who identified a range of potential course of action open to police.

This section discussed the sub-theme of PFC experience, whilst there were distinct differences between *'novice'* and *'expert'* DDOs, all nine respondents perceived that when under time pressure in commanding a critical incident, the recording of the key decisions and their supporting rationale was extremely difficult. The cohort did not mention any specific QPS structured approach or experience-based learnings that guided them in how best to capture the critical decision information from a tactical command perspective.

4.2.2 Incident Command Decision Learning

Police officers are required to be operationally proficient as well as perform effectively in high risk environments with their primary objectives being the preservation of life and the protection of property. In some instances, the officer's decision making, and selected resolution options may be subject to scrutiny as a result of coronial inquiry. One of the major challenges as outlined by the interview participants was the lack of opportunities to command critical incidents. The Management Development Program (MDP) in Legal Studies is a course designed by the Queensland Police Service to prepare Senior Sergeants to effectively plan and command incidents in compliance with legislation and procedures, in such a way as to maximise safety of themselves, other officers and members of the community. Officers who participated in the Management Development Program and Incident Command Courses commented that they were exposed to simulation-based training which developed their skills, experience and judgments in resolving dynamic and complex situations. They identified this sub-theme as a critical element in developing their experience to support command decision capture.

These findings concur with the literature that the course creates opportunities to engage in a wide variety of exercises and operating environments. This immersive simulation-

based training provides a unique opportunity for these practitioners to help them gain the requisite set of skills and knowledge to apply to real operations in a safe environment (Alison et al. 2013). The seven Senior Sergeants who participated in this study (P1, P2, P5, P6, P7, P8 & P9), had successfully completed the MDP training to tactically command incidents to a competent level. The learning benefits gained from completing this course are reflected in this comment:

P8: *There is certainly exposure to siege handbooks, certainly exposure to major incident handbooks and there were certainly exposure to writing notes as far as your running logs, intel boards and things like that on the course. It's quite well covered. What's can't be absolutely clear in a in a training environment I guess is the external influences that affect you at the time you make those decisions and do you have the time to write the notes that you want to write; do you have the time to do the best intel board that has ever been produced; how close to the stronghold are you; what have you got e.g. are you in a well-lit area to even make those notes. So, that can't be covered in all of its aspects in that MDP environment.*

This comment suggests that MDP not only provided exposure to command decision-making, but it also developed the respondent's understanding of the importance of making notes to support their decision reasoning. The last part of this statement indicates the training environment does not accurately reflect the external influences faced by DDOs in the field and how these impacts on their ability to accurately record decision information. Two respondents (P7 & P9) referenced this training from a DDO perspective and highlighted it raised awareness of the importance of capturing command decision information. The two novice DDOs (P2 & P9) also expressed learning value in undertaking MDP as it strengthened their incident command skills and is reflected in the following quote:

P2: *I did the two-week incident command course for Senior Sergeants which was part of MDP which I found very, very valuable for someone like me who had come from a lengthy period of training and being away from operational environment.*

Successfully completing the Incident Command Course is a pre-requisite requirement for all officers who perform the duties of DDO (Queensland Police Service 2020). All nine participants had successfully completed this minimum command training requirement to perform DDO functions. The course is open to all ranks and teaches the fundamentals of the QPS Incident Command System. Two of the interview

participants (P1 & P7) who are the facilitators of this training in North Queensland reflected on the course content:

P7: *... we work as DDOs, we are in that initial response. The incident command training that we run is about that first 30 minutes to an hour and a half. It is before the command team gets there, it is before the vehicle support and the command vehicle gets there. It is when it is breaking lose and you don't even have time to scratch yourself: A – making decisions and B – remembering what you have done and why? So that is the area we operate in.*

P1: *I am also trained by the Incident Command Unit back in 2018 to facilitate incident command workshops for supervisors. Since that time, myself and colleague (P7) have run 16 workshops which train all ranks and all types of officers within the Service, the basic fundamentals of the QPS incident command system.*

The above comments and their references to the course indicate that it provided them with the base skills and knowledge to command the initial phases of a critical incident. No respondent provided any direct link between course participation and improving their understanding of the need to accurately record their decision and the reasoning as to why the decision was made.

The sub-theme of incident command decision learning was primarily discussed in the biographical data questions and the respondents indicated that the QPS training opportunities did strengthen their skills and knowledge to tactically command an incident. The participants commented that training gave them a unique exposure to managing dynamic incidents in a safe simulation-based exercise environment. The general view of the respondents was that these training opportunities did reference the need to capture decision information but did not provide any context or structure on how or what was to be recorded.

4.2.3 Operational Background

The sub-theme of operational background highlighted in the coding data is explored in this section to understand its linkages to the overarching officer experience in accurately capturing command decision making. All nine participants in this study identified diverse operational backgrounds in their responses to the biographical data questions that were designed to gain an understanding of how policing experience shaped the respondents' abilities to command critical incidents. *Table 7* provides a

breakdown of the operational background of this group. The participant responses indicated how varying elements of their operational background added value to their DDO capabilities to command critical incidents. For example, one of the respondents outlined their extensive background in the Special Emergency Response Team (SERT) and discussed how these learned experiences benefited not only from a command perspective but also in understanding the operational significance of capturing decisions and the associated rationale:

P7: *... I was fortunate enough in my career to join SERT very young or junior in my service as opposed to some of their staff today that don't touch this stuff until they are at Sergeant level. As a fourth year connie [Constable] I was living and breathing this. Now I had mentors, I had Inspectors, Senior Sergeants and Sergeant Team Leaders that took us under their wing and we were introduced to this very early in our service. So, even as a Constable at SERT, a team member, we're all expected to be to do an appreciation, record how we came to a decision and deliver a set of orders. So, we were doing that every day of the week at that rank. So, as we progressed obviously is the SERT training intensified the higher up you went. That training was conducted in house, now from the perspective of outside of SERT, there wasn't really a lot of teaching on it.*

This was the only respondent who had exposure to this specialised training for high-risk situations and his responses demonstrated a higher level of deliberation with a greater reliance on situation recognition in his decision choices. This was the only individual to reference the QPS incident command doctrine as an integral consideration in their DDO duties and articulated how it influenced his decision making and the need to record why those decisions were made.

Other participants had similar experiences of leveraging off their operational background to strengthen their approaches to commanding critical incidents. One officer used the skills and experience gained as an Operational Skills and Tactics (OST) instructor as a DDO in commanding incidents for a safe and effective tactical resolution.

P3: *I just started running the job as I would have scenarios OST instructor because an OST instructor, you're running a scenario as the defacto Forward Commander but you're not recording it, you're watching other people making their decisions and I guess that's for me that was why I wasn't recording a decision as well so used to being*

a person it's over viewing a scenario or in this case an actual incident but making the decisions happen. I've learnt from that and then I do now record that.

This response provides how through their learned experienced police officers are continually adapting to improve their skills and, in this instance, understanding the importance of not only making decisions but also recording the rationale behind them. Other responses from participants also made references to specialist functions including police negotiators and exercise capability management that also improved their insights into decision making as Police Forward Commanders.

Another interesting operational background response was related to an officer who had Australian Defence Force (ADF) reservist training in leadership and how this experience strengthened their ability, confidence and understanding to make sound tactical decisions in the field:

P6: *My general duties experience on its own was not enough. Believe it or not, I think I got more out of the army training than I have out of the incident command training. Simply because it was about your mission and mission analysis and making sure you identify what a commander's intent is as opposed to a mission.*

All nine participants outlined their vast and varied policing experience. However, only two respondents (P6 & P7) provided significant commentary regarding how their specialist experience influenced their current command decision making as a DDO. One officer (P6) had received military leadership training and the other had extensive specialist command instruction as a SERT operator and it was clear from their responses that these experiences influenced their command decision making. These respondents detailed the most structured approaches to accurately capturing information for each critical decision point. Both used the QPS radio to clearly articulate their initial commander's intent and tactical plans for incident resolution. This was supported by using handwritten artefacts to document decision making.

The sub-themes of police forward command experience; incident command decision learning and operational background were referenced by all respondents in their biographical data interview responses. Notably, each participant had more than 20 years of policing experience and had achieved proficiency of practice in their varying operational backgrounds. However, this did not equate to competency in commanding critical incidents. It was clear that the frequency of exposure to commanding these

types of situations strengthened an officer's decision making and associated decision capture. The interview data also highlighted these officers had varying levels of QPS command training including exposure to simulation-based command environments. The general comments of the *'novice'* group were that they lacked exposure to commanding critical incidents. Regardless of command experience, both the *'expert'* and *'novice'* groups referenced experiencing difficulties in capturing key decision information when under compressed time pressure with the operational tempo of the incident they were commanding. The primary issue was the incident was still evolving and officers were attempting to generate comprehensive handwritten notes about a previously made decision. Officers tended to sacrifice decision capture in order to maintain command and control of the incident at hand.

4.3 INCIDENT COMMAND

Command is the authoritative and responsible application of intent for the attainment of a common purpose (Queensland Police Service (b) 2017). When applied to incident, command includes the responsibility for the control and coordination of personnel and resources in the successful accomplishment of the intended mission (Queensland Police Service 2019). The incident commander is required to provide a clear articulation of their desired result, the tasks to be undertaken and any constraints. This process is best exercised face to face however it also can be achieved distally through radio or telephone communications. The essential ingredients of command are planning, coordination and communications and without their effective application, the police commander can lose control of the incident.

The focus of incident command is the effective and efficient management of personnel and resources to resolve a situation that has occurred without warning. It is concerned with the preservation of life and the security of property in situations requiring an immediate response. The next section discusses the three sub-themes of incident management strategies, command decision making and understanding the operating environment and provides participants perceptions on how these elements integrate into incident command and the need to capture critical decisions.

4.3.1 Incident Management Strategies

The QPS has identified the below incident management strategies given in *Figure 7* as key to the successful resolution of a critical incident (Queensland Police Service 2019):

Figure 7 – QPS Incident Management Strategies (Queensland Police Service 2019)

The researcher based the analysis of the sub-theme of incident management strategies outlined in *Figure 7* to gain an understanding if these were utilised by the interview participants in managing their chosen incidents and whether these influenced how they captured their associated decisions. *Table 8* extracted from NVivo 12 provides a count of the number of references made to these strategies by the participants in their interview responses:

Node Name	Description	Participants	References
Incident Command Management Strategies		**9**	**44**
Appreciation Process	The QPS appreciation process is all about problem-solving. The first step therefore is to assess the situation or problem (situational awareness) and decide what your aim should be in solving it (decision making).	2	4
Contingency Planning	Contingency planning can also be referred to as planning for the 'What ifs?' What if the offender leaves the house on foot? What if the offender tries to leave in a vehicle? What if the offender stays in the residence?	5	7
ICENRIRE		3	7
Incident Action Plan	IAP includes: defining a situation setting of the plan's objectives allocation of tasks coordination of staff	2	3
Principles of Planning	Simplicity / Coordination / Economy / Flexibility Foresight / Security	1	1
Risk Management		2	4
Situational Awareness		7	18

Table 8 – Coding Nodes for Incident Command Management Strategies and Participant Breakdowns

The above table illustrates that participants referenced at least one component of the QPS incident management strategies but there was no evidence of any one respondent mentioning all seven strategies to complete cycle in supporting their resolution approach to their chosen incident.

Three participants (P2, P3 & P4) made seven references to the mnemonic ICENRIRE (Isolate / Contain / Evacuate / Negotiate / Resolve / Investigate / Rehabilitate / Evaluate). It is a QPS approved sequential framework of proposed actions to assist in management of critical situations (Queensland Police Service (b) 2017). This mnemonic serves as a prompt for a police officer in deliberating resolution strategies to an incident., All three respondents were identified as *'novices.'* One officer described how he applied this mnemonic in resolving an incident:

P3: *That's when I start to look at the ICENRIRE model. The first thing I am looking at is, okay do we need to isolate and contain the incident to start with it. Doesn't matter*

if it's a person or an incident because if there's no person we still have it crime scene that needs to be contained, so I need to write that in my notes and as I said that's a process that I've learnt to write more, the more experienced I've had as it is a Duty Officer.

This finding supports the research in the literature review that when a *novice* is under time pressure, they will revert to the safety of rules-based conventions that have been effective in formulating their previous decision choices (Mishra et al. 2013). These processes are generally well known and easily recalled from memory or supported using a checklist or in this instance a mnemonic.

The construct of contingency planning was also referenced by five respondents (P1, P3, P5, P6 & P7) and how this process was applied and supported the police commander in incident resolution:

P7: *So, once you consider those factors, I look at the options: options open to the offender or the Person of Interest or what it is I am dealing with; the options open to them. In response to those, I'll look at the equivalent options open to police and myself as the commander. From that, we look at the most appropriate option and then we make a plan and we implement that option. As mentioned there earlier, when something is breaking and it's happening in real-time, this process necessitates to be done very quickly.*

This comment indicates that these respondents were focused on developing contingencies to cover possible eventualities in the command response to the incident. The participants also referred to broadcasting these plans over the radio for officers at the incident location to implement highlighting awareness that it would be recorded for future decision reference.

This sub-section explored the sub-theme of incident management strategies which were individually referenced by the interview participants. None of the respondents mentioned the complete application of all the components of the incident management strategies to successfully resolve their selected critical incident. All participants commented on the requirement for a structured approach to planning the incident response. The novice DDOs had greater reliance on the ICENRIRE mnemonic to prompt their option generation reflecting a simplified approach to planning. The findings revealed that the level of complexity in their planning strategies had a

relationship with the officers' experience as a DDO and proficiency in commanding critical incidents.

4.3.2 Command Decision Making

This sub-theme was identified in coding as a key element of incident command and it explored the interview respondents' considerations as police commanders in decision making during dynamic operating environments which involve a cumulation of adverse conditions including uncertainties and ill-defined problems that necessitate making critical decisions (Eyre 2014). A decision is a deliberate commitment to an action intended to yield satisfying outcomes for the police commander (Nja & Rake 2009). For the purpose of this sub-theme, the literature review identified that the Recognition-Prime Decision (RPD) model best described how tactical level police commanders relied on their previous learned experience and intuition to recognise familiar patterns to rapidly classify a situation and with little conscious deliberation select a workable course of action for resolution (Klein 1993). The following quotes serve to support this view and provides explanation of how previous experience supports option generation:

P6: *By then I already know what options are generally available. Some options will be different. A lot of options are not different. Offender generally has: remain in place / surrender / escape on foot / escape on vehicle. They never really change that much because they are the most common ones. You may have some other ones like self-harm or burn the place down but generally they are the four main ones.*

P1: *My decision making in relation to that is to prevent escape, vehicle or person escape from an area and that is to protect police, public and the offender. So, the decision there is to come up with a contingency to isolate the subject in that area and to contain him by using cordons of officers to prevent foot escape.*

These comments imply that previous experience in commanding critical incidents enabled the offices to develop strong mental constructs for problem-solving successful outcome to these situations. These findings support the literature in how tactical level police commanders relied on their previous learned experience and intuition to recognise familiar patterns to rapidly classify a situation and with little conscious deliberation selected a workable course of action for resolution (Klein 1993). Interestingly, one of the participants had implemented a very simple approach to

support their command decision making for critical incidents. The officer had integrated their DDO and military command experiences to formulate this decision approach. The comment below is an explanation of the concept:

P6: *The 'T' method is basically, the letter 'T' depending which side you want to do it. I like police on the left and subject on the right. So, options available to police. Options or results by the subject. So, for example, a classic would be: Go knock on door. What's available to the subject: stay in house; surrender; barricade or attempt to escape. Can flee on foot or vehicle depending on what's there. It is very quick and it can be very basic and after a while you don't need to use it anymore and you become very conversant in it and you just know. Knock on door: he will stay in side. It becomes very quick and its designed to be quick.*

The respondent spent considerable time explaining the process throughout their interview and identified it as a simple approach for capturing decision information in their official police diary to justify the courses of action undertaken in the resolution of the incident. This officer further explained with experience this could be applied to incidents in his cognitive space and these decision outcomes could be easily articulated as verbal commands over the police radio network.

All participants referenced command decision making. There was consensus across the participants that decisions made as part of their resolution response were captured in some form whether electronically such as a recorded radio transmissions or handwritten notes. However, no other supporting decision information was captured and the comment below best describes this issue:

P5: *Well you can certainly see what decisions were made but you wouldn't see what the options were. You wouldn't hear what the options were. You would just know the end decision that was made. The recording of what other options were there, will not be over those radio communications. But, yeah definitely the end decision will be recorded on it because you'll hear that from the instructions given out to the crews. Or, the attempts to instruct the crews as to what we wanted him to do.*

In critical incidents, the police commander gains situational awareness and their first decision response is to establish a commander's intent that describes the desired end state for the resolution of the incident (Queensland Police Service 2019). Five of the nine participants (P1, P2, P5, P6 & P8) referenced the importance of the commander's

intent in providing clear instructions on the desired end state and this was delivered verbally via the police radio transmissions. The comment below is an example of this:

P6: *First of all, things I need to capture in my decisions is my Commander's Intent which I give and what the mission is. I identify what options are available to the offender / subject.*

This sub-section discussed the elements of command decision making and in general, the respondents indicated command experience strengthened their decision-making capabilities to respond to these critical incidents. The interview respondents outlined the importance of gaining situational awareness and providing initial command direction to the police officers on the ground of what was to be achieved. The participants expressed a need to capture this decision information. The initial approach was to use the QPS radio network or handwritten notes to document decision making.

4.3.3 Understanding the Operating Environment

This section discusses the sub-theme of understanding the operating environment and how this influences command decision making and the subsequent recording of this decision information. *Table 9* is extracted from NVivo 12 and provides the number of participants who referenced the three elements of situational awareness in their interview responses:

Node Name	Description	Participants	References
Situational Awareness		**7**	**18**
• Perception	Identify the key elements Time, place, environment, injuries, material, integrity of vehicle / structure.	7	11
• Comprehension	How do I understand what is happening now? What has happened thus far? What are the barriers? What sources of assistance are available?	5	6
• Projection	What is potentially going to happen? How can this be mitigated? How can this be assisted?	1	1

Table 9 – Coding Nodes for Situational Awareness and Participant Breakdowns

These results illustrate that majority of the respondents (P1, P2, P3, P4, P5, P8 & P9) applied situational awareness to perceive and comprehend the potential threats in their

operating environments. Only one officer (P1) articulated the projection element in referencing the future or end state of the incident in considering mitigation strategies.

The participants responses provide context that police commanders are provided varied and competing sources of information as they are on route to the incident scene and that is how their initial situational awareness of the operating environment is constructed:

P1: *Well you try and get situational awareness on arrival or on route to the scene and I knew the situation was at a unit complex and there was always going to be the what ifs if someone walk out of the unit beside him or the unit below or people driving past. What if people wanted to come into the unit, a lot of those things come to mind and I used my troops to my advantage. I always empower my troops to provide me with any situational awareness to assist or enhance my situational awareness.*

P9: *I was at that point, once I had the situational awareness from the team that went forward. Was basically changing my mission to making sure we were providing a safe place for QAS to do their job.*

These findings confirm that in their DDO roles, it is unlikely that these officers were first on the scene at the incident. These officers took command distally and asked the first responding officers at the scene to provide information on what they could see and hear. The comment below is reflective of the issues of space, environment and location officers face when attempting to gain situational awareness distally:

P5: *By not being at the scene, I didn't know the dynamics of the environment. So, I didn't know how big the block was. I didn't know how many escape points the offender had. Without having eyes on the stronghold, it is very hard to have a situational awareness of exactly what the environment is. So, my situational awareness was in regards to this one was fairly limited.*

This comment highlights the challenges experienced by DDOs in comprehending their operating environment when they cannot view the incident location. As police commanders, these officers searched for additional sources of information from family members and friends of the individuals involved in the critical incident. As identified, without complete situational awareness if was extremely difficult for the commander to include future state considerations in their initial command briefings. All respondents indicated their awareness that QPS radio communications were recorded

and they could use this captured audio data later to provide evidentiary support of their situational awareness at the time they made decisions.

The sub-themes of incident management strategies, command decision making and understanding the operating environment were referenced by all the respondents in their interviews regardless of their level of DDO experience. Notably, all the interview respondents were using the QPS radio network first to gain situational awareness of the incident and second from this initial knowledge, were making command decisions to commence resolution actions. The respondents' comments highlighted that the *'expert'* cohort brought more complexity in their planning approaches with greater focus on the end state of the incident. This was reflected in increased discussion around contingency options. However, all respondents used the QPS radio network as their decision capture approach for the initial phases of incident command until they had gained an element of control of incident. At this point onward, the interview respondents considered other methods of decision capture such as handwritten notes or digital technologies to record command decisions.

4.4 DECISION CAPTURE TOOLS

These findings discuss the decision capture approaches applied by DDOs in their initial command response to a critical incident. *Table 10* is extracted from NVivo 12 and provides the number of participants that referenced Decision Capture Tools in their interview responses:

Node Name	Description	Participants	References
Decision Capture Tools		**9**	**148**
Body Worn Camera	BWC	9	26
Digital Recorder	Micro Recorder / Voice Recorder	7	17
Handwritten Notes		9	35
Local Computer Aided Dispatch	Includes LCAD and QCAD	2	4
Log Entry	Major Events Log / Siege Management Log	3	3
Photographs		2	2
Radio Communications (Recorded)		8	24
Telephone (Recorded Lines)		2	2
Using a Scribe		6	20
Electronic Capture	includes computer generated logs.	1	2
Handwritten Capture	Includes Diary / Notebook Entries and Logs (Siege Management Handbook and Major Incident Log)	5	13
Whiteboard		4	15

Table 10 – Decision Capture Tools and Participant Breakdowns

Table 10 identifies a variety of decision capture tools that were used by the interview respondents in recording command decision information. The data was broken down into three sub-themes: handwritten artefacts, technology solutions and decision aides. The following sections describe the different approaches used by the participants in recording decision information under each theme.

4.4.1 Handwritten Artefacts

This section explores the sub-theme of handwritten artefacts and examines how the respondents applied these approaches in the capturing of key command decisions and associated rationale.

As outlined in *Table 10*, all nine interview participants referenced the use of handwritten notes as a decision capture tool. However, there were contrasting levels of application in the recording of decision information. There was a total of 35 references to handwritten notes and the responses below outline some of the main variations in the processes of recording decisions:

P1: *Yes, we do use notebooks post-event. There is not really much time during the event to use a notebook making a decision.*

This comment indicates that the operational tempo of the incident did not provide sufficient time to make contemporaneous notes and it was left until the conclusion of the incident, when they had cognitive space to recall decisions and document information post event. The participants had difficulty in real time decision capture but were focused on maintaining situational awareness of the incident. One of the participants stated:

P2: *I try and make as many notes at the time as I possibly can but I don't like to have your head down in a notebook or head down in a in a diary, which is why I generally I would get a scribe.*

This statement highlights the delicate balance between capturing decisions and the need to be in the moment to command the incident at hand. This respondent will engage an officer to undertake the decision recording process. The respondents felt that their decision capture had evolved with their experience as a DDO in attempting to record as much information as possible. However, time pressures impacted on the complete capture of decision information. One of the participants had significant operational experience as an investigator and this had influenced his approach to making contemporaneous handwritten notes to accurately record what had happen. The commentary highlights the significant of taking meticulous notes for court purposes but there is a need to record information such as situational awareness to support why a decision was made.

P5: *It has changed over the years and that's probably through experience. Initially, I would record everything my diary which was a routine I had got into as a detective. I found that if you are meticulous with your notes, it can be very beneficial in the court at a later stage when you are giving evidence however and saying that through experience I discovered that the difference between investigating a matter as a detective where you arrive post-event compared to controlling an incident as it's occurring which I found I was doing regular as a District Duty Officer. They are different and I found that the method that I was using as a detective wasn't as efficient. Simply because in the diary I could not record what in my mind was my situational awareness was, I just couldn't record it all in a short period of time in the diary to fully backup the decisions I was making.*

The theme of time pressure continued to emerge and how it impacted on the legibility of the handwritten notes:

P7: *I have a diary, an Official Police Notebook is a little too small, when I am dealing with stuff like that. Under pressure, your writing doesn't tend to be the neatest. So, I have gone with the diary with is an A4 page. It gives me plenty of space to make my notes.*

Three interview respondents (P1, P2 & P8) referenced using an incident log as their capture method for recording event information including any decisions made. The below comment highlights contemporaneous notes can also be captured in an Incident Command Log which is designed to record the decision and the time it was made including any supporting information:

P8: *When I say make notes at the end, a lot of the times those notes are the log. Your notes at the time is your Incident Command Log. This running log generally is my notes at the time because it contains all of my decisions and the times I made him and the situation at the time of the decision.*

This sub-section explored the sub-theme handwritten artefacts. All interview respondents referenced some element of manual note taking practices to capture their command decision making. The participants had over 20 years of policing experience and the use of official police notebooks or diaries was their practiced approach to capturing general incident information. This was reflected in their responses. Regardless of experience, the respondents commented on difficulties in accurately capturing decision information that increased with time pressures and more complex incidents. These participants also mentioned the available technology solutions to improve this capability gap with handwritten artefacts.

4.4.2 Technology Solutions

A dramatic and rapid transition to technology in policing is perhaps the most visible sign of change. The current challenge for police is to adapt these technologies into incident command without discarding other proven techniques or losing credibility in presenting evidence in court proceedings. This section analyses the sub-theme of technology solutions in the decision capture process and examines its impact as a decision capture tool for police commanders in critical incidents.

As outlined in *Table 10*, eight interview participants (P1, P3, P4, P5, P6, P7, P8 & P9) referenced the use of radio communications to record decisions. There was a total of 24 references to this method of decision capture. The participants indicated the QPS radio network was the primary communications platform used to command and control staff and resources at a critical incident. The officers used this platform on a daily based and there was common awareness that decision information transmitted over the radio was recorded. These officers were also aware that key elements of decision making also being captured in a typewritten format in the Local Computer Aided Dispatch (LCAD) system.

P1: *A lot of the decisions were articulated on air over the radio and would be recorded on the LCAD system. So, stuff like I am talking to the mother, I am talking to him and so that sort of stuff was articulated on air and stuff like he has indicated to me he is coming out that was articulated on the radio as well. So, crews were sort of given an idea at the time around information and decisions. As well as my commander's intent and my mission as well so they were well are of what I expected and what I wanted to happen.*

The interview respondents referenced the importance of using the radio to communicate and record their decisions. This approach was highlighted as particularly relevant in their initial command response as the DDO is attempting piece together critical information to gain an understanding of what is happening as well as determining what policing resources are available. The following comment is reflective of the overarching views of participants on a strong dependence on the QPS radio network to record their decision information.

P8: *That is generally through my first briefing to crews and commander's intent. So, if I in this particular job, I turn up or even before you turn up you are getting bombarded with information over the phone via Comms (Police Communications Centre) and the radio. But when you turn up and I piece all that information together, I will give a commander's briefing over the radio and I relay the situation as it is at that time. That's all recorded via the recording mechanisms at Comms and it is deliberately done on air for that purpose.*

The interview respondents highlighted that in these dynamic and quickly evolving situations, handwriting notes was not an effective option for accurate decision capture. The respondents indicated that the radio allowed for the broadcasting of their initial

commander's intent and their expectations of what actions should be undertaken by officers at the scene. There was general awareness that the radio network would at minimum capture the decision and the time it was made. In the following comment the respondent identified whilst the decisions were being recorded, it was unlikely this approach would capture any reasonings as to why a decision was made.

P4: *I think I probably rely on that using it of the radio a lot because most of our decisions are our put through there. So, that doesn't identify why I am making those decisions but when I made them so that is probably recorded.*

Whilst the cohort response indicated a strong dependence on the QPS radio network as a primary source of decision capture there was a capability gap in capturing all decision information.

As outlined in *Table 10*, all nine interview participants referenced the use of BWC to record command decisions. There was a total of 26 references to this method of decision capture. The comments below reflect on this decision capture approach:

P1: *I guess the introduction of body worn camera you should have told how to use them when you are executing a power so not everyone would use them to capture decisions. Probably would be to encourage to educate everybody to use them in a capacity to capture decision-making and the benefits of it.*

P3: *We now have the body worn cameras, so at any critical incident not only do I hit record but I make sure my staff hit record as well because it captures not just my decision-making but also them as well, which can greatly assist the coroner down the track or any Judiciary.*

P5: *I found that over time we now had body worn cameras come into play and they do tend to assist with recording of what your situation awareness is because you get a visual as well.*

These comments were reflective of the overarching views of this group and indicate that using BWC to capture command decisions was a new technology for DDOs to understand and apply to their functions. The respondents did not identify any current structured approach to using this technology to record their command decisions. The *'novice'* participants (P2, P3 & P4), all referenced activating the BWC to let the device continuously record all their decision processes from the start to finish of the incident. In contrast, the permanent DDOs with command experience raised operational

concerns such as capturing tactical methodologies and robust discussions relating to resolution options when applying this approach:

P1: *And again there are pros and cons, some people might not want the decisions to be captured on it. I know some DDOs do not want body worns put on during a briefing or a debriefing which captures methodologies.*

P8: *This is also the source of some discussion amongst even my peer group and there is no consistent answer on it. There is some that will turn the body camera on at the start of an incident and just let it run and others will not. They will turn on their body cam or make it a record of the decision when made but not the general conversation or the to and fro that might go to come to that decision.*

Whilst interview respondents did raise concerns about when and what to record in the decision process. They in general indicated the need to go further than just recording their decisions to capture the associated rationale including their situational awareness at the time of making the decision. This would require the police commander to clearly articulate and verbalise their decisions processes on BWC. The cohort indicated that this was difficult in dynamic environments as their initial decisions were under time pressure and there was limited opportunity to step away and articulate the reasoning behind it. This highlights the reoccurring theme in decision capture regarding the balance between accurately recording decision information and commanding the incident at hand. It is difficult for officers to rationalise their thinking as to why the decision was made and also continue to coordinate the policing response. This highlights the reoccurring theme in decision capture regarding the balance between accurately recording decision information and commanding the incident at hand. The comment below reflects this challenge and the participant highlights the decision making is paramount and the contemporaneous information capture regarding the decision is secondary.

P5: *I have changed to attempting to digitally record everything that was occurring at the time, that way. It didn't work all the time but my intention was to digitally record as it was occurring and that as I was to make a decision, I would briefly outline my situation awareness at the time. That being my intention it didn't always happen because of the short time frames and the dynamic environments that you are often in. I'd still be making decisions without it actually fully outlining on the digital recording, my situational awareness.*

BWC is a new and emerging technology for police commanders and the cohort responses identified that officers were still gaining an understanding of how to successfully integrate this capability into improving their approaches to decision capture.

Digital voice recorders are a similar technology solution to BWC and this has been integrated into the decision recording process for police commanders for a number of years. As outlined in *table 10*, seven interview participants (P1, P3, P4, P5, P6, P7 & P9) referenced the use of digital recorders to capture audio information surrounding decisions. There was a total of 17 references to this method of decision capture:

Participants 1 and 9 were negotiators and had training in using the digital voice recorder as a decision capture tool to not only record the decision but also in verbalising why the decision was made.

P1: *I have a personal digital recorder with me and I step away with the time and I articulate the decisions when it was made and the information I knew at the time. Upon making that decision, any other relevant factors that is recorded in the digital recorder.*

P9: *So, using an old school digital recorder as the primary record of why decisions are made. Just for ease of reference and sort of gives the opportunity for recording if anyone else is there to help influence that decision that was made at particular point in time.*

These statements generally reflect on how participants used the digital recorder to capture decision information. A reoccurring theme in their comments was that under time pressure it is difficult to digitally record their decisions. The other aspect identified was that verbalising decision rationale is a learned skill and unless trained it is hard to logically articulate why a decision was made as outlined in the comment below:

P5: *I have changed to attempting to digitally record everything that was occurring at the time, that way. It didn't work all the time but my intention was to digitally record the audio of it was occurring and that as I was to make a decision I would briefly outline my situation awareness at the time. That being my intention it didn't always happen because of the short time frames and the dynamic environments that you are often in.*

This section discussed a range of technology solutions used by the study respondents to capture command decisions and their supporting rationale. It is evident from the participant responses that they had awareness of how to best apply these technology solutions but attempting to harness a structured approach to decision capture was still lacking. This finding indicates that an increased operational tempo of an incident and the limitations of the technology used impacts on the ability of these respondents regardless of command experience to capture anything more than general information surrounding the decision and the time it was made. The most difficult part in the decision capture was identified as the recording of the rationale behind the decisions taken. Only digital recorders were considered to support the DDOs in capturing the reasoning behind the decision. However the DDOs indicated that they required training to logically articulate why a decision was made.

4.4.3 Decision Aids

This section discusses the sub-theme of decisions aids that support police commanders in the decision capture process. A decision aid is something that improves the effectiveness of a police commander in making decisions and performing tasks under time-pressured decisions. As outlined in *table 10,* six of the interview participants (P1, P4, P5, P6, P7 & P8) referenced the use of a 'scribe' as a decision aid. There was a total of 20 references to using a scribe. Some of the main variations in the processes of recording decisions were reported as which are reflected in the comments below. These comments also reflect how the 'scribe' aids in their decision making by remaining near the commander and attempts to accurately record decision information.

P7: *Basically, I tell them you need to be on my hip and be ready to record, what I tell you. I will tell them in my words, exactly what I wanted to say. If I take a phone call from the negotiator, I say righto make a note I have spoken to the negotiator at this time and we discuss this, he wanted to know this, this and that, my concerns were and this was the decision made. It's a critical role and I'm not sure whether it's applicable at all but I can tell you it's a very important role and it's a hard one because there are case studies internationally of recent times where a Commander has had a scribe and the scribe has been making notes but what's happened is that the notes recorded by the scribe didn't accurately reflect the commander's thinking process.*

P8: *For example, at a critical incident whether it be a siege or other type job, I will direct another staff member to commence a log. That log could take the place of a*

formal Siege Incident Log or a Major Events Log but the information that the decision that I make are all captured on that log. The rationale for me making the decision however is generally not captured on the log. That could be for a variety of factors not the most including the timeliness of or the speed at which decisions can be made and in the speed in which critical incidents evolve. There certainly wouldn't be time for your scribe to effectively cover all of the aspects of your decision-making process.

The respondents indicated that the use of a 'scribe' was dependent on resource availability and generally, the officer selected was a junior in rank. This individual was required to make handwritten notes in an official police notebook or a major event log. The respondents indicated that the 'scribe' was required to record details and their ability to facilitate this function was impacted by the operational tempo of the incident.

The other decision aid that was mentioned by the respondents was whiteboards. Participants (P1, P2, P6 & P7) referenced whiteboards to capture important decision information regarding the incident at hand.

P7: *Yeah certainly, we have on our DDO vehicle, we have a pod that is set up equipment wise. It is a bit of a mobile command centre, we have a briefing board that slides out from underneath the rear tray and that is a whiteboard. We draw up for our maps and our stronghold diagrams and start making notes on that slide out briefing board.*

Participants (P1, P2 & P7) were Townsville based officers and were involved in instructing or assisting in the Incident Command Courses. They referenced the importance of using whiteboards to capture their decision making such as mapping the incident location including location of policing resources and capturing information about the person or persons involved. This comment supports their approach:

P1: *I am pretty big on when we teach in incident command that we have maps on our vehicle of the stronghold and the surrounding areas and where our crews are. So that the forward command post has situational awareness should we need to have SERT or other specialist units come in.*

In contrast Participant 6 was a Cairns based officer commented on the problems with using whiteboards as a decision aid including there is a limited space to accurately document decisions and the potential for valuable information to be accidently wiped off without being recorded.

P7: *The problem I have got with that is, actually I have a lot of problems with it. You only have to lean on it the wrong way and you rub it off. Secondly you can run out of space there is no pages on it to use. Thirdly, anybody can see it, anybody can see it with a long-range camera particularly media and film it. It's not great, I am not a fan of it.*

Another important element of using a whiteboard mentioned was accurately capturing any information on it from a post-event perspective. Two participants (P1 & P7) who were Townsville based Incident Command Instructors discussed the use of a smart device to photograph the whiteboard decision information.

P1: *Generally post-event we take a photograph of that map via phone or by camera and keep that on the file server or whatever so we can review with colleagues of any decisions I have made or even debriefing with the troops depending on the resolution.*

The sub-theme of decision aids explored the data relating to the use of a 'scribe' as decision capture approach, who was generally a junior officer assisting the police commander in taking notes. Some respondents referenced the use of a 'scribe' to reduce their decision capture workload. However, the general comments indicated that it was not a simple process to implement. It involved directing the junior officer on what information needed to be recorded and this was in the form of handwritten notes or log entry. The other discussion element was the use of a whiteboard to capture critical decision information. The respondents were split in the value of using this approach. The decision aids described by the respondents were primarily focused on capturing decision information using a form of manual notetaking. These approaches are impacted by the operational tempo of the incident and the increased speed of decision-making creates difficulties in accurately capturing not only the decision but also the reason why it was made.

This section explored the three sub-themes, handwritten artefacts, technology solutions and decision aids to describe the respondents use of decision capture tools to record their command decision information. Handwritten notes were the most widely referenced capture method. However, there was an evolving transition to using technology solutions to record the critical decision information. The respondents outlined how the QPS radio network was used for capturing the initial decision information and the transmission of the commander's intent and key planning elements to the officers on the ground. There were contrasting comments around how the BWC

could be integrated into this process. Concerns were raised over what information should be recorded from a command perspective and there was also no structured approach from an organisational perspective on best practice. The respondents indicated BWC captured audio and video data, but the commander needed to articulate their decision reasoning as part of this capture process which required training and experience. The respondents identified a capability gap in the connectivity of the decision capture tools from an end-to-end perspective of the decisions made in the resolution of the incident.

4.5 POST INCIDENT REVIEW

Decision-making in critical incidents is challenging and stressful due to the dynamism, complexity and uncertainty of these environments and this has significant impacts on the police commander's capability to capture accurate and timely decision information. This section examined the sub-themes of post incident decision capture and internal/external reviews to gain an understanding of approaches used by the interview respondents to capture information after the event and how this impacted on their command decisions being reviewed. *Table 11* is extracted from NVivo 12 and provides the number of participants that referenced Post Incident Review themes in their interview responses:

Node Name	Description	Participants	References
Post Incident Review		**9**	**41**
Post Event Decision Capture		**9**	**23**
• Debrief		3	3
• Log of Events	includes DDO Log / Significant Event Message / Executive Briefing Note	6	10
• No Additional Recording		4	5
• Preparation of Statement		3	3
• Review of Decision Capture Information		1	2
• Update Handwritten Notes	includes Official Police Notebook / Diary	4	4
Post Incident Critical Review		**9**	**18**
• Coronial Inquest		5	7
• Ethical Standard Command		4	6
• Senior Management	includes Commissioned Officers	4	5

Table 11 – Coding Nodes for Post Incident Review and Participant Breakdowns

4.5.1 Post Incident Decision Capture

This sub-section explores the post incident decision capture responses to gain an understanding of the approaches used by the interview participants to recall and record key decision information after the event. QPS policy requires the DDO to complete a log of events that is designed to keep senior management informed of incidents of importance that have occurred during the shift (Queensland Police Service 2020).

As outlined in *table 11*, six of the interview participants (P1, P2, P3, P4, P7 & P8) referenced the use of the log of events as a post incident decision capture method.

There was a total of 10 references regarding the use of an electronically captured log designed to provide an overview of the incident to brief senior managers.

P1: *Yep, we did have to do a DDO log in relation to that, I captured that via a DDO log and significant event message. So I guess in a way that is still notes taken at the time, notes written down where I had to recount what had happened. The significant event is a short and concise version of what happened and the log is a precis of that as well.*

P7: *Look basically you'd understand, we do it in dot point summary of the incident with the critical factors and the decisions made by the DDO at the time. Generally, we will put in a few points as to why we made certain decisions.*

These quotes indicate the type of information that was being captured post event in these typewritten logs. Primarily it was an abridged version of what had occurred, and the respondents indicated it only had very limited information relating to decision rationale. The comment below highlights significant time delays in the completion of these logs:

P7: *Talk to the crews and then come back to the station and probably as soon as practicable after it finished I would do my log entry and get it done but in this example we are talking about the siege or barricade type situation that went for nearly two hours.*

From an evidence perspective, the issue of whether these electronic notes would be considered contemporaneous under judicial review was also raised.

One of the elements probed was to understand whether the respondents reviewed their decision capture including notes and other electronic recordings from a holistic perspective, post event to determine if there were any decision capture gaps. Only four participants (P1, P2, P6 & P8) commented on this process and the following comment is reflective of their need to capture additional information:

P6: *Not necessarily. If they have been apprehended, they have been apprehended. Cause I know that I have recorded electronically, and my notebook is being used basically as a log. So if anything comes back, I say here is the tapes, this what was done and here are the notes to go with. Otherwise, I am just duplicating for the sake of it.*

The interview participants did not provide any real reference to a structure or framework that they used to reviewing the electronic and handwritten artefacts at the conclusion of the event or on return to their home stations. Their general comments were around the need to undertake a review, but this was from the perspective of theoretical discussion point. As indicated above, the respondents were aware their decisions had been captured in some format such as radio transmissions, handwritten notes or body worn camera but did not have a structured process to review this recorded information.

Another post event element that was examined was in relation to the preparation of statements for judicial proceedings arising from the incidents referenced in their interviews. None of the nine respondents had been requested to prepare court related statement arising from the critical incidents that they had chosen to discuss as part of this study. Interestingly, none of the five permanent DDOs had ever been requested to prepare any statements that specifically examined their decision making in relation to critical incidents they had commanded. Only one of these DDOs articulated the connection between decision capture and preparing a statement for coronial inquest.

P8: *You capture the information, so that later on you can produce a detailed statement of the events; you can answer questions in relation to the events if it turns into a critical incident and there's an Ethical Standards overview or a coronial overview. Just to go back to and know the times of your decisions and the times of the events that happened at the scene.*

Three interview respondents (P1, P7 & P9) referenced the use of conducting a debrief with the officers involved as part of the post incident review process. However, none of these officers made any specific reference to facilitating an incident debrief to review their decision making or as an additional approach to identifying post event information to support their situational awareness and decision rationale.

P9: *Yeah so, I did a debrief that night with this one back at Indooroopilly Police Station and as a result of that we just asked for feedback from the guys that attended. You know did you need anything else; would have done it in differently. And I took notes on that.*

The respondents referred to taking notes but did not provide any further explanation of the integration of this information into the overarching post event decision capture.

This sub-section provided an overview of the findings associated with post event decision capture. The findings indicated that the primary focus of the DDO was to construct a log of events to provide a short-précised overview of what had occurred. Whilst the respondents alluded to capturing rationale behind decisions made, there was limited information provided to support how this occurred. The other interesting element raised was that the respondents were aware that decision information might have been collected in variety of forms including handwritten notes, taped radio communications or audio/video capture but there did not appear to be a holistic review to gain an understanding of any gaps that potentially could have been addressed in a post incident review.

4.5.2 Internal / External Review

In Queensland, like other Australian States and Territories, deaths associated with policing operations are classified as reportable deaths (Coroners Act 2009). The State Coroner has a statutory obligation to investigate all reportable deaths and the subsequent examination must be afforded the highest level of scrutiny, transparency and accountability to determine the circumstances of the death, and what, if any actions should follow to prevent similar incidents from occurring (Moses et al. 2011). An inquest will focus on the critical decisions made by the police commander and will question why certain courses of action were undertaken to resolve the incident. The QPS internally, has the Ethical Standards Command that provides active investigation oversight of 'police related incidents' across Queensland. This sub-section reviews the sub-themes identified by the interview respondents in relation to the impact of a review of their command decision-making and associated capture of key decision information.

As outlined in *Table 11*, all nine of the interview participants referenced the internal / external review of their decision making in a critical incident. There was a total of 18 NVivo references made to this element. In relation to the external review, none of the critical incidents selected by the nine respondents had been subject to coronial inquest. Five participants (P2, P4, P5, P6 & P9) mentioned judicial proceedings reviewing their decision making was foremost in their mind and influenced the decision capture approaches.

P5: *The judicial side of it is all detective based but I've always had in the back of my mind as a DDO when I'm at these incidents, is that it how you can be asked questions in the courtroom under cross examination and that's why I've tried to modify what I do as a DDO.*

The respondents raised concerns about the depth of scrutiny that would be made by a coronial inquest regarding the quality and accuracy of decision information that was recorded during a critical incident. There were general comments regarding the dissatisfaction the way decisions were recorded when giving evidence as there was limited supporting decision capture information and the subsequent difficulties in recalling events using cognitive memory.

P5: *I'm not comfortable with my memory. I know there is a lot of areas there I can be challenged and ideally, I would have liked the recording of my decision making to be a lot better than what it was in that incident, if I was sitting on a cross examination in a courtroom. I'm not personally happy with my recording of that incident and I don't know how I could have done it better.*

Four participants (P1, P7, P8 & P9) commented on the internal review process and referred specifically to the Ethical Standards Command (ESC) of the QPS who have responsibility to independently investigate 'deaths in policing operations' and this is undertaken in conjunction with the State Coroner (Queensland Police Service 2020). Interestingly only one of the critical incidents identified by participants was subject to an ESC investigation and it related to a complaint about one element of resolution process and not the associated decision making. It is clear from the comments of the responding participants that their approaches to decision making and associated information capture were influenced by this internal oversight. The respondent highlights the importance of accurately capturing the decision and the surrounding reasons as to why the decision was made.

P8: *You capture the information, so that later on you can produce a detailed statement of the events; you can answer questions in relation to the events if it turns into a critical incident and there's an Ethical Standards overview or a coronial overview. Just to go back to and know the times of your decisions and the times of the events that happened at the scene.*

Only one respondent referenced being questioned by ESC regarding decision-making but not how the decision was captured.

P8: *I have never been the subject of a criticism from Ethical Standards about the quality of the information that I have recorded. I have certainly been questioned robustly about the decision itself but never about to capture mechanism of it.*

Whilst there were references to senior management, no reference was made to any review process or questioning of their command decision making at the local level. The participants did not reference any influence being exerted on them by their local managers regarding what command decision making should be captured. The findings identified that the respondents had limited external or internal review of their critical incidents. The general comments indicated the consequences of having their decisions potentially scrutinised by a coronial inquest were influenced by the way they captured decision information. Interestingly, with the vast DDO experience across participants, no respondent identified having their decision capture approaches scrutinised during either internal or external review.

This section explored the sub-themes of post incident decision capture and internal / external review and considered how these influenced the decision capture approaches of the interview respondents from a post event review perspective. Respondents referenced the use of DDO logs as a process for capturing a precise of the critical incident in an electronic format sometime after the conclusion of the event. There were references to using this approach to capture decision rationale however this information was considered insufficient to answer how and why the decision was made. Another point of interest raised in this finding related to whether, at the conclusion of the incident, the respondents reviewed the decision capture information from a holistic perspective in terms of information gaps in why a decision was made and what was the officer's situational awareness at the time. No participants identified any process to review the captured decision information post-event. Whilst the participants had vast experience in the tactical level command of critical incidents, very few of them had been subject to either internal or external review regarding their command decision making or had been asked to justify the reasoning behind those decisions.

4.6 CONCLUSION

This chapter summarised the results of the analysis, connects the analysis to the research question, and demonstrates consistency in the analysis with grounded theory methodology. Nine participants were interviewed for this study. The selected participants had performed the functions of a District Duty Officer (DDO) and were responsible for tactical level command decision making in the initial policing response to critical incidents. The semi-structured interviews were designed to understand how these officers in their command functions captured real time decisions and their supporting rationale in dynamic, complex and high-risk operating environments. All interview participants had over 20 years of policing experience and had achieved proficiency of practice in varying operational background. However, some of the participants had very limited field experience in incident command. The terms *'expert'* and *'novice'* were used in a strictly relative sense to differentiate these two groups for this study in terms of their work experience. The *'expert'* cohort consisted of five officers who had permanent positions as DDOs with over five years of experience in the role and were proficient in forward command to tactically resolve critical incidents. The second cohort *'novices,'* consisted of officers who had performed the DDO role in a temporary capacity for a period of two years or less and had limited police forward command experience.

Consistent with grounded theory methodology, there were three levels of analysis, open coding, selective coding, and theoretical coding. From the open coding process 73 coding nodes emerged. Constant comparison analysis using mind-mapping and NVivo 12 software was applied that helped in producing 11 selective codes that emerged from the categories identified in the open coding. Additionally, constant comparison was used to discover the relationships between and within the open and selective codes, leading to the themes of officer experience, incident command, decision capture tools and post incident review. These four themes resulting from this study summarised the contributing factors for tactical level police commanders in capturing real time decisions and the supporting rationale during critical incidents. These four themes were also reflected across the literature review:

- The academic literature highlighted the Recognition-Prime Decision model as best describing how tactical level commanders rely on their previous learned experience and intuition to recognise situations and

generate options for resolution. This reflects data generated for the theme of **officer experience**.

- The QPS Police Command Framework provided the philosophy and principles that are pivotal to success in commanding critical incidents. The literature identified elements such as situational awareness and contingency planning were critical to the command decision-making process similar to the data collated for the theme of **incident command**.
- The literature discussed the evidentiary relevance of handwritten artefacts in decision capture and explored the emerging technology solutions with potential to improve the accuracy and efficiency of recording decision information. This was reflected in the data generated for the theme of **decision capture tools**.
- The coronial findings from the Lindt Café siege were discussed extensively and the level of scrutiny placed on the police commanders including criticisms made of the manual recording practices applied in decision capture. Elements of these discoveries were generated in the data for the theme of **post incident review**.

Regardless of incident command experience, both the *'expert'* and *'novice'* cohorts referenced these four contributing factors in how they captured decisions and their supporting rationale in dynamic and evolving high risk policing environments. Additional findings on the similarities and differences discovered across this demographic included the influence of command experience providing officers with increased complexity in their planning approaches with a focus on the end state of the incident. It was discovered commanders relied on the QPS radio network as decision recording mechanism during the high tempo periods of incident management. These time constraints impacted on using traditional notetaking practices for decision capture. Whilst the interview respondents identified decision information could be collected in variety of forms including handwritten notes, recorded radio communications or direct audio/video capture, there was no structure or framework to facilitate a holistic review of their overall decision capture to gain an understanding of any gaps in this process that may be addressed in a post incident review. Chapter 5

summarises this critical analysis and discusses the four themes identified from the analysis.

CHAPTER 5: DISCUSSION

To return to the Lindt Café siege that has been discussed throughout this thesis, the subsequent coronial inquest witnessed an unprecedented elevation in the levels of scrutiny into the key decisions made by police commanders in the resolution of this incident. The inquest findings identified these commanders had applied manual recording practices to capture critical decision information relating to the siege. Counsels assisting the families of the deceased were critical of the haphazard approaches and argued this practice of decision capture was inadequate as there was little recording of decision reasoning. It was considered almost entirely absent from the logs and other records, including personal notes made by the commanders. During the inquest, when questioned, these police commanders agreed that due to the dynamic nature of the event, the notes taken provided a very limited record of the key decision points and supporting rationale for courses of action that were selected (NSW State Coroner 2017).

This thesis has been written in the context of the researcher's 35 years of policing experience in the Queensland Police Service (QPS) and this has provided a unique organisational insight into police decision-making at varying levels of experience and proficiency. One of the recurring themes that appeared in the research results was that, at all levels, commanders were still operating in a traditional analogue paradigm to record their decisions. Primarily, this consisted of hand or type written information captured at the time of making key decisions. The researcher was unable to identify any structure or framework that supported commanders in capturing this information in a manner that would accurately record the decision reasoning to a suitable evidentiary standard. This shows a gap in professional practice that would benefit from further exploration and discovery through evidence-based research.

To further explore this decision capture issue, the research focused on a core group of senior non-commissioned police officers who in their roles as District Duty Officers (DDO) are required to perform tactical level command functions in the initial response phase to resolving critical incidents. This chapter reviews the findings from the nine interview respondents who had performed the role of DDO on either a permanent or temporary basis and provides expanded discussion in answering the research question:

How do police commanders capture real time decisions and their supporting rationale in dynamic, complex and high-risk operating environments and what impact does it have on organisational effectiveness in responding to critical incidents?

The data from the interviews generated four major themes for discussion that provides the context how police commanders in critical incident capture real time decision information:

- Officer Experience;
- Incident Command;
- Decision Capture Tools; and
- Post Event Review.

The chapter considers these four themes and integrates the published knowledge that was identified in the literature review to add relevance and value to these discussions.

5.1 OFFICER EXPERIENCE

Officer experience amounts to the sum total of one's training, exposure of events, application of one's skills, opportunities to reflect on successes and failures along the way (Flin & Arbuthnot 2017). The interview participants consisted of nine officers who had over 20 years policing experience in the QPS and had achieved proficiency of practice in varying operational backgrounds. Whilst elements of these learned experiences have transitioned to support these officers in their DDO duties, it does not have a direct bearing to their capability to command critical incidents. This section provides discussion around two findings that arose from interview regarding officer experience and how it has influenced the approaches to decision capture. The first finding discusses *'novice'* and *'expert'* commanders' incident command experience and its relationship to how decision information is recorded. The second finding further explores if past experiences and intuition adds value to this decision capture process.

5.1.1 Novice v Expert

The literature review identified there was a fundamental difference in incident command decision making among the novice and expert officers, establishing that experts rely on their previous knowledge and experience to deliberate about the

situational aspects of the decision problem whereas novice commanders are focused on implementing a workable solution to the issue at hand (Calderwood et al. 1987). All nine respondents involved in this study had over 20 years of policing experience, however their level of incident command exposure was used as the determinate between the two groups. For this thesis, the *'expert'* cohort comprised the respondents who had permanent positions as District Duty Officers (DDO) and their interview responses demonstrated a proficiency in their initial command response to critical incidents. The second cohort, referred to as *'novices',* were officers who had performed the DDO role in a temporary capacity and their interview responses reflected limited exposure to police forward command. The literature review presented arguments that *'novice'* commanders, when confronted with a novel or uncertain incident would revert to more abstract reasoning in contextualising the problem and justifying action alternatives and this will be achieved with limited consideration for the end state of the incident (Klein et al. 1986). Contrary to the literature, the *'novice'* commanders in this research did not revert to abstract reasoning in assessing their respective courses of action. Rather they reverted to a rules-based approach using the ICENRIRE mnemonic to aid their decision approaches. This would be attributed to their extensive previous policing experience.

The *'novices',* had similar viewpoints on their limited exposure to commanding critical incidents and interestingly, none of these officers in their interview responses made any linkages to the end state in the resolution of their selected incidents. This cohort focused on making the decision and resolving that element of the incident before moving to the next issue. The findings showed *'experts'* showed more complexity in their planning approaches with a greater focus on the end state of the incident. This was reflected in their increased discussion around contingency options. The *'experts'* increasingly commented around the need to capture supporting reasoning as to why decisions had been made. However, when probed on what they were recording, it was more about the decision itself and commander's intent and actions of the officers on the ground.

Whilst there were significant distinctions between the *'expert'* and *'novice'* in their approach to commanding incidents, all respondents indicated that when under time pressure and operational stress of managing the situation, their decision capture focused primarily on recording the decision made. None of the respondents regardless

of experience had formulated a consistent approach to accurately recording the reasons why decisions were made or capturing the influencing elements of the operating environment that contributed to their decisions.

5.1.2 Previous Experience and Intuition

The literature review identified Klein's (1993) Recognition-Primed Decision Model as a decision approach best describing how police commanders rely on their experience to recognise situations and identify viable courses of actions without comparing or evaluating options in dynamic operating environments. Limited conscious deliberation occurs in this process however there is reliance on recognition of the situation and intuition to solve the incident at hand (Sinclair et al. 2012). Intuition is built on a commander's previous experience and provides a rich catalogue of cues and patterns to draw upon at the subconscious level to rapidly generate workable resolution options (Kaempf et al. 1996). The literature review indicated that it was unlikely that commanders would be able to articulate this element of intuition as there was limited conscious deliberation (Klein et al. 1986). This element was reflected in the interview responses of the officers and needs further research to establish why difficulties were experienced in justifying their decision reasoning for selected courses of action.

None of the nine interview participants made any reference to theoretical concepts of decision making such as Recognition-Primed Decision Model in their responses. Whilst there was no specific questioning around these concepts, none of the participants made any reference to intuition or previous experience being used to support their decision making. The interview responses of the five *'expert'* commanders demonstrated more organised mental constructs of how they resolved their incident of choice. These respondents were able to clearly articulate the multiple courses of action that were available to the person involved in their selected incident at each identified decision point and this was complemented with a comprehensive suite of options available to police to counter those actions. Whilst the officers did not verbalise this process as part of their responses, it was clear that they were using a form of mental simulation to evaluate whether their selected courses of action would actually achieve the desired outcomes prior to directing officers at the scene to initiate those actions. The four *'novice'* commanders were less confident in this process but were aware the individual/s involved had multiple courses of action open to them,

however they did not articulate any structured or organised approach as to why they selected a particular course of action to resolve that element of the incident. There were clear differences between the *'expert'* and *'novice'* decision approaches to their incidents of choice however these differences did not transition across to their decision capture. From the interview responses, both cohorts identified that when under significant operational pressure with the initial phases of commanding their incidents there was limited opportunity to record their decisions or the supporting rationale.

This section discussed previous experience and intuition to understand how decision capture was influenced. From the interview responses there were significant distinctions between the *'expert'* and *'novice'* cohorts in their approach to commanding incidents, however under time pressure and operational stress of managing the situation, regardless of experience it directly impacted on officer's capacity to accurately recording important decision information. The respondents did not provide any references to theoretical concepts of command decision making. The *'expert'* cohort did apply more organised mental constructs to generate workable courses of actions as compared to the *'novice'* cohort who had limited structure to their decision making. However, it seems this experience did not transition to improved decision capture by either group.

5.2 INCIDENT COMMAND

In dealing with critical incidents, the police commander gathers an understanding of their operating environment, plans the appropriate response, and deploys available resources to achieve their desired outcome (Queensland Police Service (b) 2017). The principal considerations for a commander are the preservation of life and the protection of property which drives incident planning. Two areas of discussion arose from the results relating to the theme of incident command. The first was situational awareness and understanding how a commander distally gathers information to generate an operating picture to support their decisioning making. This discussion focuses on the interview responses of how situational awareness was captured and the influences of technology solutions in recording this information under time pressure. The second area of discussion is Police Command Framework and whether it provided appropriate

guidance to commanders in their decision making for the resolution of critical incidents.

5.2.1 Situational Awareness

The literature review recognised the importance of situational awareness in aiding effective decision making when commanding the policing response to critical incidents. Situation awareness can be described as assessing the problem and decision making is determining what should happen to solve it (Calderwood et al. 1987). The recognition of these situational dynamics is a key driver for a police commander to commence their planning process in generating options for the resolution of the incident. The interview data identified that the respondent officers were unlikely to initially be on scene and would be required to command the incident distally. The first response officers at the incident scene provided environmental cues of what they could see and hear, and this would be transitioned to the commander via QPS radio network. The tempo of these operating environments was dynamic and even more so when the commander was not on the scene. In order to evaluate their operating environment, the commander was managing multiple sources of information, as referenced by the interview respondents, including telephone conversations with family members or friends to gain knowledge of the individual/s involved.

All the interview respondents outlined they were cognisant QPS radio communications were recorded and this included any cues relating to the operating environment that were transmitted by the first response officers at the incident scene. However, there was limited commentary to support how information ascertained from other sources such as telephone calls with family members was recorded. The operational tempo of the incident influenced how this situational awareness was documented regardless of command experience of the officer. Handwritten notes were the most likely approach to record this information. However, in time pressured situations, the commander did not have the cognitive capacity to accurately document in writing their perceptions of the elements and comprehension of their meaning in relation to the critical incident.

The literature review discussed the correlation between experience of regularly operating in a high risk environments and the use pattern recognition from past experience to fill information gaps in the situational awareness of police commanders (McMaster et al. 2012). These are primarily cognitive processes and are difficult for commanders to articulate. The interview participants had significant discussion

regarding the use of new technologies such as body worn cameras (BWC) to support these decision capture processes. Whilst the BWC may capture what the commander is seeing and hearing in their operating environment, it does not document what they are thinking. Articulating thoughts, is a learned process. Some of the respondents identified that where time and space permitted, they attempted to use this opportunity to verbalise their situational awareness and decision reasoning. Only two respondents provided any explanation of how this process operated and both had leveraged their learned experiences as police negotiators. Whilst their approaches used a digital voice recorder, it involved stepping away from the command post to a quiet location, gathering their thoughts and talking through their cognitive processes as to why and how the decision was made.

5.2.2 Police Command Framework and Decision Model

The literature review identified that the Police Command Framework was introduced into the QPS to standardise the way incidents are approached and commanded. The Framework comprises two components: The Police Command Doctrine and the Fundamentals of Command. This framework describes fundamental concepts pivotal to command success including the recommendation that every decision, and the process used to arrive at that decision should be recorded (Queensland Police Service (b) 2017). This framework was introduced in the lead up to the Gold Coast 2018 Commonwealth Games and there was significant organisational investment in training for assigned police commanders and their command coordination groups to apply this framework to effective decision making during critical incidents associated with this international event.

On analysis of the data, no respondent made any reference to the Framework, the Police Command Doctrine or the Fundamentals of Command. Situational awareness and commander's intent were referenced in participant responses, but no reference was made to the Framework. Although the Framework is designed to standardise the systems of command practice in the QPS, the participants did not allude to the Framework in their practices. Each participant had developed their own individual decision approach to resolving critical incidents. It may be inferred there was limited understanding of the Framework and its application to incident command. The research identified this inconsistency in practice as a potential learning gap for tactical level commanders.

The QPS does not currently have a structured decision model, however the Fundamentals of Command identifies a four-phase linear model to assist commanders in gaining situational awareness and formulating decisions (Queensland Police Service (b) 2017):

Figure 5: Fundamentals of Command – Decision Methodology (Queensland Police Service (b) 2017)

The Framework provides very limited discussion or instruction around this linear model or how it is to be applied to command decision making. There are basic references to decision recording in the document but there is no linkage between this four-phase linear approach and capturing rationale associated with a decision made.

The interview data identified only one participant who made any reference to a decision model. The comment did not mention the Framework or the linear decision approach. The respondent who made this comment was an instructor of the incident command course and it was likely; this experience provided this officer with a broader knowledge of command theory. The appreciation process is a recognised decision support tool which is currently referenced in the Framework. There were no references to the QPS Competency Acquisition Program document, 'Appreciations and Operation Orders' in the interviews. It can be inferred from these findings that study participants may not be applying the Framework and associated decision support tools to guide these officers in commanding critical incidents and to support their decision capture approaches.

This section discussed the findings on the importance of situational awareness in command decision making and highlighted the current difficulties expressed by the respondents in verbalising their cognitive processes to record their situational awareness and decision reasoning. It also discussed the research results related to Police Command Framework and the limited knowledge exhibited by the interview participants regarding how the Framework supports their command of critical incidents and ultimately recording of decision information. Further research is required that explores the development of an operationally consistent decision model that has

application across all aspects of the QPS including supporting officers in incident command decision-making and the effective and timely capture of decision information.

5.3 DECISION CAPTURE TOOLS

Every decision that is made or not made by a police commander may be subject to scrutiny at a court proceeding or an inquiry. It is therefore vital that every critical decision, and the process used to arrive at a decision, is recorded (Queensland Police Service (b) 2017). The method of recording and amount of detail depends on the size and scale of the incident. The interview respondents identified ten platforms that were being used to record their decisions and associated rationale. This section discusses the three platforms primarily used by the interview participants and how they were applied to record command decision information in dynamic and uncertain operating environments. It also discusses how time pressure and the operational tempo of the incident reduces the cognitive capability of the commander regardless of experience to effectively use these platforms in accurately capturing decision information.

5.3.1 Handwritten Artefacts

For a police commander to make sense of competing streams of information they must develop a robust mental construct to acquire an understanding of their operating environment, the constraints, and contingencies to action workable choices in the resolution of an incident (Johnson et al. 2013). This thesis focused on the Queensland Police Service and its current practices for capturing real time decision information in the tactical level command of critical incidents. All nine interview respondents referenced the use of handwritten notes as a decision capture tool. However, there were contrasting levels of application of it in decision recording. The findings indicate that the operational tempo of an incident did not provide sufficient time or cognitive space to make contemporaneous handwritten notes.

Significantly, the two DDOs were very particular in recording comprehensive handwritten notes in their official police diaries. Both had evolved their decision recording processes with their experience as a DDO and their responses demonstrated a desire to not simply capture the decision but to record their cognitive processes to support why the decision was made. In contrast, five officers applied an entirely

different approach using a white board to capture critical decision information. Two of these respondents were QPS Incident Command Course instructors and it can be inferred that their considered applications of best practice for decision capture influenced the other three Townsville based participants. These participants referenced the use of white boards to capture their initial decision information. It included a diagram of the incident location, the positioning of policing resources and key information about the person/s involved. They also articulated taking handwritten notes in a notebook took their focus away from the situation and was not tactically sound or effective. The DDO vehicle was set up with whiteboards and this was used as the accepted platform to capture decision information. As part of their capture process, the officers would regularly photograph the boards to document decision information at certain times during the incident. Some participants were able to recall the cues and context around their operating environment, however it was clear that the information recorded on these whiteboards was limited. These results show regardless of what method of note taking is applied, the best practice for decision capture will require multiple recording platforms for the commander's decisions to withstand scrutiny if reviewed.

The handwritten artefacts, regardless of whether they were handwritten notes in a diary or on a whiteboard, were influenced by the operational tempo of the critical incident. In the initial phases of command, it was difficult under time pressure to gain situational awareness from multiple streams of information to initiate decisions on courses of action. There is a need to explore other technology solutions to understand if there are more effective processes to capture decision information.

5.3.2 QPS Police Radio

Since the 1930s, the QPS has relied on radio technologies as their primary means of internal communications and in times of crisis; today a police commander will use this technology to direct personnel and resources to achieve their decision outcomes (Crime and Misconduct Conduct Commission 2004). This radio communication infrastructure in Queensland is managed by a network of Police Communications Centres that use a computer-aided dispatch (CAD) systems to coordinate the policing response to calls for service. All radio communications are digitally recorded in the Police Communications Centre responsible for the relevant area of operations. Précis

information relating to these communications can be manually captured and typed into the CAD system by the assigned radio operator for later reference.

As a technology solution, the literature review did not identify any police related research around police radio communications as a command decision capture tool. Most of the respondents referenced the use of the QPS radio communications network as a platform to record command decision information. The research participants used this technology, firstly to gain situational awareness of the unfolding incident and then, based on these cues, formulated and broadcast their commander's intent and their expectations of what actions should be undertaken by officers at the scene. The research findings showed that the operational tempo and associated time pressures, limited the effectiveness of handwritten notes as a decision capture option and the recorded radio communications was their preferred approach.

The findings identified that apart from the initial commander's intent and officer expectations, the general decision information being recorded on the QPS radio network was the decisions themselves and the potential that the recording process would provide the capability to time stamp when the decision was made. The respondents regardless of incident command experience were both comfortable and confident in using the radio network to direct and coordinate policing resources to resolve the incident at hand. Although, this technology platform assisted the officers in coordinating and managing critical incidents but there was no structure identified on best practice of how to verbalise and capture why a decision was made via the QPS radio network.

The other significant result from this research was that none of the respondents had reviewed the recorded communications holdings for their selected incidents. In general, no practice or structure for reviewing this platform's data capture was mentioned. All respondents were aware these communications were recorded. The general feedback was that for the initial stages of any critical incident, this was the most likely method of decision information capture. Based on the researcher's knowledge of Police Communication Centres, there are time delays in any requests for QPS radio recordings that arise during a critical incident. This element did not come up in the research findings considering this time delay may be a primary reason why the decision capture from radio communications is review post event.

It can be inferred from the above discussion that QPS radio network is an important tool for a commander as it enables a timely and effective platform to communicate critical command information to all policing resources involved in the incident resolution. The radio also enables the police commander to maintain situational awareness of their operating environment in dynamic situations to make decisions based on the most timely and accurate information. From a decision capture perspective, the recording of QPS radio communications is an effective approach for elements of the critical incident. However, it cannot operate in isolation and will need to be supported by other decision capture methods. There will be critical decisions made by the commander that due to operational sensitivities will not be broadcast on the radio network will require to be recorded by a different method.

5.3.3 Body Worn Cameras

In 2019, the QPS became the first policing agency in the Asia Pacific region to implement a body worn camera (BWC) regime (Queensland Government 2019). All policing jurisdictions in Australia have implemented similar technology platforms to equip officers with a wearable video and audio device designed to capture an impartial record of events and interactions with members of the public. The policy intent of the initial implementation of this technology was to reduce the incidences of violent confrontation, use of force and malicious complaints against officers (Queensland Police Service 2020). Currently there is no QPS policy regarding its application to police commanders in managing and coordinating critical incidents. Whilst this is relatively new technology the findings showed the importance of BWC for DDOs to assist in capturing command decision information. There was no structured approach or practice identified in the findings of how this technology would be used to support a tactical level commander in capturing their decisions. Some *'novice'* commanders identified their approach to decision capture with BWC was to initiate recording from the commencement of the event to its conclusion in a single capture. These may be considered simplistic practices. The BWC would capture everything that the officer saw and heard during the incident. However, these recordings would not capture the cognitive processes of why decisions were made and the subsequent reasoning for option generation.

Some *'expert'* commanders expressed concerns regarding the continuous recording approach. There was a concern that the conversations in the Police Forward Command

Post discussing specialist response options and general resolution tactics should not be recorded as these were considered operational methodologies. The New South Wales Police Force Body Worn Video Camera Standard Operating Procedure specifically provides clarity on this point raised by these respondents indicating recordings or images dealing with strategy, methodology and tactics used to resolve an incident should not be captured.

As identified earlier, the Operational Procedures Manual and the Digital Electronic Recording of Interview and Evidence Manual provide the QPS policy guidance on the use of BCW but does not provide any direction for police commanders on what elements of police decision making should and should not be recorded. The findings suggest the need for a structured approach to support the commanders regardless of experience on best practice for managing BWC decision capture and maintaining the integrity of policing methodologies and tactics.

In general, the research findings indicated the DDOs were still developing their processes of how to best use BWC to support their command decision making. It was perceived as an untapped resource that that had potential to add value to the future coordination and command of critical incidents. The *'expert'* commanders discussed the value of being able to view the BWC imaging from officers at the incident scene and to see and hear those critical environmental cues to gain a comprehensive operating picture of what was happening on the ground. Even the most experienced commanders felt that in high tempo and dynamic operating environments, it was extremely difficult to find the time and space to step away and verbalise their command considerations for decisions made. These results show that there is a need to harness the capabilities of this technology to best capture command decision making. To achieve this a structured learning approach is required to guide police officers on how to effectively articulate their situational awareness and decision rationale.

QPS is transitioning most of its recording processes to electronic platforms that allow for officers to be able to conduct their core duties in the field without returning to their home stations. The most compelling finding that arose out of the discussions around BWC, was how the junior officers were using this technology in general. The findings indicate that some officers no longer used handwritten artefacts to record police information. Junior officers were utilising BWC as their primary decision capture method for any policing interactions with the community. As seen in the literature,

these results indicate that it is highly plausible that traditional note taking practices and report writing to capture evidence or a witness' version of events will be eventually made redundant by these emerging technologies (Bowling & Iyer 2019). This transition requires additional academic investigation on the significant impacts it might have on decision capture for incident commanders.

The results reveal that the decision capture tools used by tactical level commanders appeared to be operating in isolation. Whilst the officers used different decision capture processes to suit their individual needs, it was evident that the level of decision information being captured was primarily around the decision itself without any supporting rationale or relationship to the situational awareness at the time of making the decision. The findings did not identify any organisationally consistent approach to capturing critical decision information across the entire period of the incident. It is evident from these results that there is a need for an end-to-end review structure as part of the post incident evaluation approach that provides commanders with the opportunity to understand the decisions made and determine whether all the decision information has been appropriately captured.

5.4 POST INCIDENT REVIEW

In instances of significant injury or loss of life, the police commander's decision making may be subject to scrutiny by internal review or coronial inquiry. The accurate and comprehensive recording of decision information becomes vital in justifying why decisions were made. Two areas arose from the results relating to the theme of post incident review. The first was post event incident logs that provided opportunity for DDOs to record decision information at the conclusion of an incident and the associated evidentiary value of this process. The second element was how internal reviews and coronial inquests influenced a police commander's approach to decision capture.

5.4.1 Post Event Incident Logs

QPS policy requires the DDO to complete a log of events that is designed to keep senior police management informed of incidents of importance that have occurred during the shift in their respective areas (Queensland Police Service 2020). The document is an electronic artefact in the form of a typewritten log and in some instances, the DDO may use this document to capture elements of their decisions to

provide context as to why certain actions were undertaken to resolve the incident. This information is captured post event and provides an abridged version of what has occurred. The findings did not find any evidence of any consistency of process as to when these log entries were made. Findings indicated that factors such as attending other incidents or time taken to return to their home stations resulted in delays of over two hours before the log entry was made. The findings identified this recording process as a dot point summary of the critical factors including aspects of decision making. However, there was no reasoning or clarity mentioned why the decision was made. The findings indicated that the DDO logs would have sufficient information to stimulate recall of the incident and provide the capability to refresh the officers' memories of the decision and why it was made. The literature review indicated that notes should be made as soon as possible to capture a permanent record of the incident. In the absence of such recordings, the courts have determined that memory over time does not improve and people tend to fill-in or reconstruct lost memories so they can make sense of the incident (Lacy & Stark 2013).

Findings indicate that very few officers either use handwritten notetaking regarding their selected incidents or use their memory recall to discuss the incident and the reasoning behind the identified decision points. The nature of this research was not designed to explore the fallibility of the respondent's memories or the subsequent implications on their testimony in court cases. The findings indicate that the incidents selected were over twelve months old and the respondents were able to draw on their memories to provide in depth discussion on their situational awareness at the time, providing clarity on the reasoning as to why certain courses of action were undertaken at each decision point in the incident. This finding appears to be in conflict with the research of Lacy and Stark (2013) who highlighted the 'imperfection' of memory as the respondents in their study were only able to retrieve about 50 percent of information one hour after the event. Memory distortion continued to occur with the passage of time. The findings of this study indicated incidents selected by the participants for the research were relatively rare and novel events and as such were strongly embedded in their memories.

5.4.2 Coronial Inquests

In Queensland, like other Australian States and Territories, deaths associated with policing operations are classified as reportable deaths (Coroners Act 2009). These

inquests examine the critical decisions made by the police commander and question why certain courses of action were undertaken to resolve the incident. Only one of the incidents selected in the research involved a death in policing operations however it was not subject of a coronial inquest. The results indicate that the officers, from a command perspective, may consider the influence of coronial proceedings as a driving factor to ensure their critical decisions and supporting rationale are effectively captured. The results indicate that the officers may be circumspect about the depth of scrutiny that would occur if an incident they were commanding was subject to a coronial inquest. Based on the decision capture approaches, the findings indicated that only limited decision information was currently being recorded and officers had to leverage their memory recall of the incident to support their decision reasoning. The Lindt Café siege has highlighted that leveraging off memory recall is not an acceptable approach to command decision capture as it can place the relevant commander and policing jurisdiction under immense scrutiny to justify their understanding of the risks the situation and why particular courses of action were selected in the resolution response.

The findings show that officers had the awareness of the importance of recording decisions but were not able to provide a coherent approach. The above findings indicate that numerous platforms were used by officers to capture decision information including QPS radio network, handwritten artefacts and BWC / digital voice recorders but the officers had limited understanding of what information had or had not been recorded. These findings reflect that the current decision capture practices are fragmented and do not include any post incident review process to identify what decision information has been recorded and subsequent decision gaps that would require further information. There is an opportunity as part of this process to develop a review framework that supports commanders to identify these decision gaps as part of the post incident review.

5.5 LIMITATIONS

It is important as part of this discussion to highlight the limitations of this thesis. The interview respondent group was relatively small with a total of nine participants who had over 20 years policing experience in the Queensland Police Service. These

interview respondents had performed the functions of District Duty Officer (DDO) on either a permanent or temporary basis. They were subsequently divided into two smaller sub-groups, *'expert'* commanders and *'novice'* commanders based on experience in incident command to explore if command experience impacted on the capture of decision information in high-risk policing environments.

Due to efficiency of research and time constraints, the researcher did not apply a random selection approach to choose the interview participants instead the cohort was selected through convenience sampling and identified the following volunteer respondents: four officers from Cairns, four officers from Townsville and one officer from Brisbane. The limitation was whether the discussions raised by these participants is reflective of the broader DDO population in the Queensland Police Service and whether decision capture gaps raised by this cohort have wider implications to policing in Queensland.

Whilst the research specifically alluded to the Lindt Café Siege and the subsequent coronial recommendations relating to decision capture and impacts on the News Wales Police Force. The thesis focused on the exploration of this issue of decision capture from a Queensland centric perspective. Therefore, there could be limitations to its application to other law enforcement jurisdictions. Whilst these limitations are acknowledged, the literature review did establish a gap in decision capture research surrounding incident command. This thesis attempted to fill this gap and generated future exploration and discovery into this field of research.

5.6 SUMMARY

The findings identified significant distinctions between the *'expert'* and *'novice'* commanders who participated in this study in their decision approaches to commanding incidents. However, when these officers were under time pressure managing these dynamic and evolving incidents, the cohort regardless of experience identified operational stressors directly impacting on their capacity to accurately record key decision information. The interview participants identified a broad range of decision capture tools that were used to record aspects of their command decision making. It is evident from these discussions that the level of decision information being captured was primarily around the decision itself without any supporting rationale or

relationship to their situational awareness at the time it was being recorded. Each respondent had developed their own individual approaches to decision capture. It was clear that there was no organisationally developed structure to guide these officers on the best practice to record command decision information. The practices applied by the interview participants appeared fragmented in their approach and did not include any post incident review processes to identify what decision information had been recorded and any subsequent decision gaps.

The findings show tactical level commanders such as the District Duty Officers are responsible for the initial command response to critical incidents and these officers are dealing with multiple sources of information in compressed timeframes. Regardless of experience, it impacts on their cognitive capacity to make effective command decisions. These operational stressors also impact on the capability to articulate and record the reasonings as to why the decisions were made. One of the principal outcomes of this study was to develop a conceptual and practical framework to assist police commanders in capturing real time decisions and their supporting rationale in dynamic, complex and high-risk operating environments. The next chapter outlines this model and makes recommendations for future research consideration by the QPS to improve organisational capacity in decision capture in high-risk policing environments.

CHAPTER 6: CONCLUSION

The aim of this study was to explore how police commanders capture decisions and their supporting rationale in dynamic, complex and high-risk operating environments. A qualitative approach was adopted using a core reference group of senior non-commissioned police officers in the Queensland Police Service (Queensland Police Service) who as District Duty Officers (DDO) are required to perform tactical level command functions in the initial response phase to resolving critical incidents. The study provided insights on a range of decision capture approaches police officers applied when commanding dynamic and evolving incidents. Although this was a relatively small-scale exploratory study, it allowed the researcher to gather meaningful contexts and experiences of the interview cohort providing a high level of consistency in the findings relating to how these officers captured critical decisions in high tempo operating environments.

The research findings indicated that in the resolution of these critical incidents, these tactical level commanders deal with complex and varied sources of information that are critical in gaining situational awareness. Regardless of experience this information impacts their cognitive capacity to make effective command decisions. Stressors including time constraints and the operational temp of the incident limit a commander's capability to not only record but also articulate their decisions and the supporting rationale as to why they selected a particular course of action. Furthermore, in terms of the impacts of operational effectiveness, QPS did not have a standardised structure or framework to assist police commanders in capturing real time decision information to withstand scrutiny if reviewed. The next section discusses the Framework that was developed based on the study findings outlined in Chapter 6.

The final section of this chapter identifies a summary of recommendations and these embody a range of subthemes that represent topics for future research and/or intervention relating to decision capture.

6.1 DECISION CAPTURE FRAMEWORK

The coded data from the interview cohort generated four major themes that were identified as central to decision capture and these were extensively discussed in the

previous chapter. From these discussions, a conceptual three-tiered decision support mechanism evolved that could assist in providing the capacity to improve organisation effectiveness in responsive decision capture:

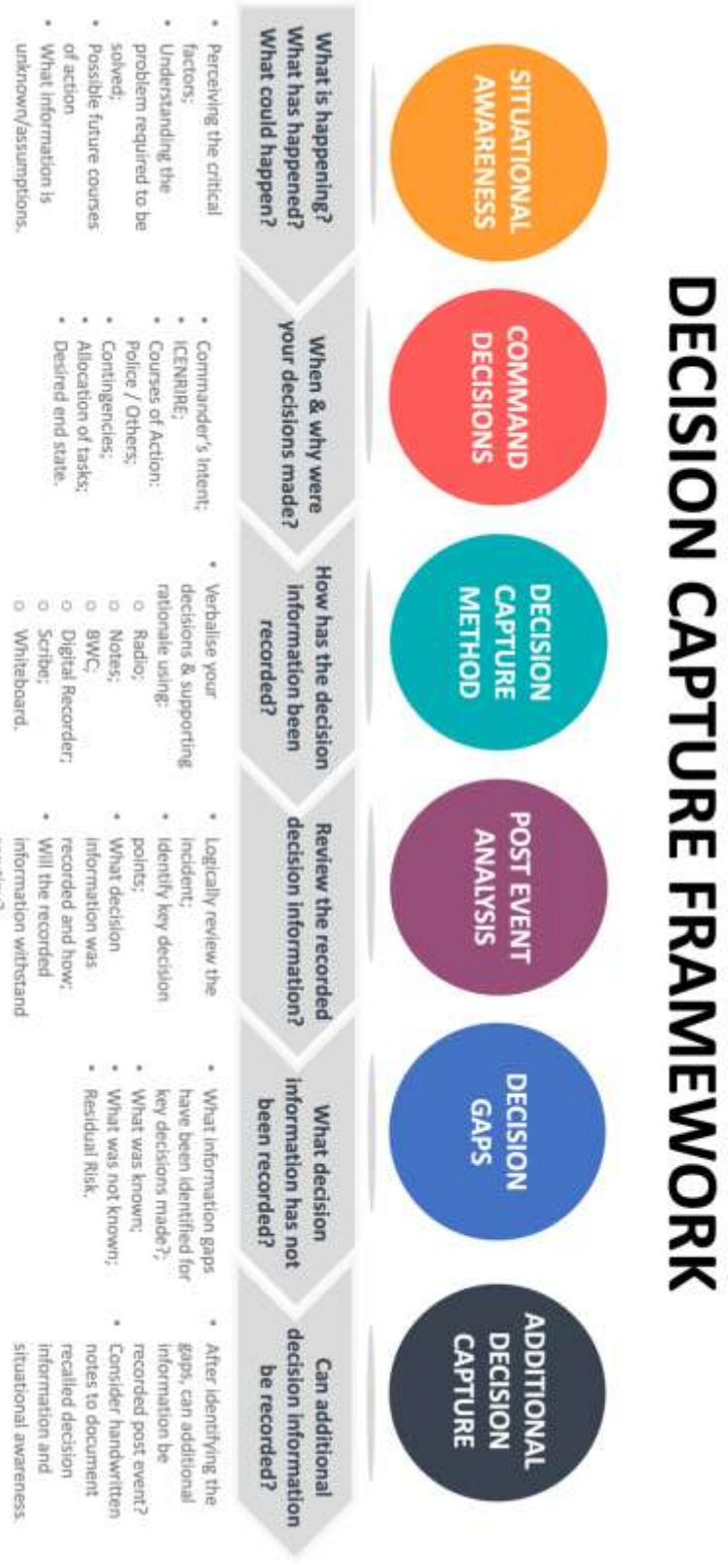

Figure 8 – Three Tier Decision Capture Framework

Tier One of this framework consists of the six elements of a linear pathway to aid tactical level police commanders in responsive decision capture and this mechanism provides a series of considerations across the critical incident timeline:

Situational Awareness

An informed awareness of the situation means the identification, comprehension and projection of all potential threats in the commander's operating environment. This situational awareness serves as the cornerstone of command decision making and initiates the planning processes in managing and resolving the incident.

Command Decisions

After gaining an appreciation of their operating environment, the police commander can determine from the factors known or assumed, the best course of action to adopt based on the given circumstances. The commanders must rely on their previous knowledge and experience to deliberate on these situational aspects to understand how they will impact on their decision problem to determine a workable course of action.

Decision Capture Method

Every decision that is made, or not made, by the police commander may be subject to scrutiny of an internal review or a coronial inquest. It is therefore vital that every critical decision, and the process that was used to arrive at the decision, be recorded. There are numerous decision capture methods and commanders can utilise varying approaches to suit their individual needs. Decision capture is more than just recording what is seen and heard. It requires the thought processes behind a decision to be verbalised and captured in some format.

Post Event Analysis

The operational tempo and associated time pressures of a dynamic and complex incident can impact the capacity of a commander regardless of experience to effectively and accurately record their decisions and supporting rationale. There is an organisational need for police commanders to facilitate a post event analysis of their decision making in order to understand the key decision points of the incident and what information was actually recorded. The commander also needs to consider how decision information was captured and where it is stored.

Decision Gaps

The primary outcome of this post event analysis is to identify what key decision information has not been captured and why. This process is twofold, firstly to provide opportunity to facilitate post review recording of the missing decision information and secondly adopt a continuous learning approach to strengthen future decision making and improving processes for responsive decision capture.

Additional Decision Capture

It is acknowledged that the best practice from credibility and reliability perspective is to capture this critical information at the time the decision was made. However, this is not always achievable in these dynamic and complex operating environments. At the conclusion of an event and with time to reflect, the commander can logically order their thoughts and provide a timeline construct of the critical incident. By adopting a structured approach, the police commander can gain clarity on the gaps and can initiate a process to record the outstanding decision information. Each commander can adopt their own individual approaches as to how the post event decision information will be recorded.

Tier Two of this framework consists of supplying a key question to each of the six elements of the linear pathway to aid the commanders in verbalising the cognitive processes as to why decisions were made including the supporting rationale and ensuring sufficient information is captured to withstand scrutiny if their decisions were reviewed:

Situational Awareness

What has happened? What is happening? What could Happen?

Command Decisions

When and why were your decisions made?

Decision Capture Method

How has the decision information been recorded?

Post Event Analysis

Review the recorded decision information?

Decision Gaps

What decision information has not been recorded?

Additional Decision Capture

Can additional information be recorded?

Tier Three of this framework provides a series of probes to each of the six elements of the linear pathway providing a number of considerations to prompt commanders in their approaches to decision capture:

Situational Awareness

- Perceiving the critical factors;
- Understanding the problem required to be solved;
- Potential future actions of police / others;
- What information is unknown (assumptions).

Command Decisions

- Commander's intent;
- ICENRIRE (Isolate; Contain; Evacuate; Negotiate; Resolve; Investigate; Rehabilitate; Evaluate);
- Courses of Action – Police / Others;
- Contingencies;
- Allocation of tasks;
- Desired end state.

Decision Capture Method

- Verbalise decision and supporting rationale using:
    - Radio;
    - Notes;
    - Body Worn Camera (BWC);
    - Digital Voice Recorder;
    - Scribe;

- Whiteboard.

Post Event Analysis

- Logically review the incident;
- Identify key decision points;
- What decision information was recorded and how;
- Will the recorded information stand scrutiny?

Decision Gaps

- What information gaps have been identified for key decisions made;
- What was known;
- What was unknown;
- Residual risk.

Additional Decision Capture

- After identifying the gaps, can additional information be recorded post event;
- Consider handwritten notes to document recalled decision information and situational awareness.

This decision capture framework has been designed as a simplified structure that can be used by police commanders to support their decision capture approaches during dynamic and evolving critical incidents. The three-tiered approach enables the officer as they gain confidence and experience with the Framework and its systems, to revert to only using a single tier as this will provide them with sufficient guidance to accurately capture critical information associated with the identified decision points across the incident being commanded.

This framework evolved from the qualitative data collected from this study and has considered the issues raised by the interview cohort to provide a mechanism that may assist future police commanders in responsive decision capture that will also have the capacity to withstand scrutiny if reviewed. The next section outlines a range of recommendations that are based on the research findings.

6.2 RECOMMENDATIONS

The interview participants and subsequent findings and discussions identified a range of areas for attention in relation to intervention and research. The following recommendations for future research are based on the study findings:

1. There is limited and variable level of understanding by tactical level police commanders in the application of the QPS Police Command Framework to support their command decision making in successfully resolving critical incidents. The findings of this study have identified a learning gap that may require QPS training intervention to strengthen understanding of this framework including application of its core concepts to improve the standards of professional practice in responsive and effective command decision making.
2. Internationally, policing jurisdictions are implementing combined risk and decision models to provide a unified process for all police officers to make informed and coherent decisions. These models are embedded into their everyday decision practices. A key component of these models is reinforcing the requirement to record their decisions and the reasoning as to why the decision was made. These decision models require further exploration to discover if they provide an operationally consistent approach across all elements of policing including command decision making in high-risk policing environments.
3. The study findings identified that the efficiency of handwritten artefacts such as notetaking are impacted by the operational tempo of the critical incident and in the initial phases of command it is difficult under time pressure to gain situational awareness from competing streams of information and to initiate decision to determine the appropriate course of action. There is a need to explore alternate solutions including future technologies to discover more effective and accurate approaches to decision capture.
4. Body Worn Cameras (BWC) are an emerging technology solution for all aspects of policing and currently there is limited policy direction on their application by police commanders in decision capture approaches during the management of critical incidents. Research could explore best practices for managing BWC decision capture as well as determining a structure that maintains the integrity of

policing methodologies and tactics without impacting on the overarching evidentiary value of this method of decision capture.

5. The study findings identified that it is highly plausible that the traditional note taking practices of policing jurisdictions to capture evidence will eventually be made redundant by the emerging technology solutions. These new approaches will require additional research exploration to understand their application for police commanders in commanding decision making and whether the captured data will withstand scrutiny from an evidentiary perspective.

The study findings and recommendations highlighted organisational learnings for the Queensland Police Service and potential solutions to improve the professional practices of tactical level police commanders in responsive decision capture approaches in dynamic, complex and high-risk operating environments.

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