Fragmentation in the Fjords

On intra- and inter-organisational coordination during the crisis response operations to the 22nd of July attacks in Oslo and Utøya

Master Thesis Crisis & Security Management

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Foreword

Before you lies the thesis 'Fragmentation in the Fjords'. In this thesis, coordination between and within the crisis response operations to the 22nd of July attacks in Oslo and on Utøya has been analysed, and the two operations compared to each other. This research has been carried out by analysing evaluation reports on the emergency services' handling of the terrorist attacks, formulating a timeline based on these reports, and extracting critical coordination moments from this timeline. The research process took place between February and June 2019, and was the final hurdle before my graduation from the MSc Crisis & Security Management at Leiden University.

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TABLE OF CONTENTS

1 INTRODUCTION

On the 22nd of July 2011, Norway was shocked by its worst attack since the Second World War (Deshayes, 2016). Right-wing extremist Anders Behring Breivik detonated a car filled with fertiliser-based explosives in the executive government quarter, in which 8 people were killed and great material damage was done. This was followed by a mass shooting at the Norwegian Labour Party's youth wing's summer camp, killing 69 people (CNN Library, n.d.). Following the attack, it played and continued to play a significant role in Norwegian public discourse, with Breivik still regularly being covered by news media, and Åsne Seierstad's acclaimed book 'En av oss' [One of Us] (Seierstad, 2014) being republished 4 times and named as one of the 10 best books of 2015 by The New York Times Book Review (The New York Times, 2015).

With the seriousness and scale of the attack being what it is, much has already been written on the topic, from a scientific perspective, a critical evaluation perspective, and a storytelling perspective. Many of the more critical perspectives have brought to light issues in the crisis response operations that have since become famous; the improper communication of the witness tip regarding what car Breivik used to escape Oslo, the police special forces helicopter not arriving at Utøya, and police boats losing engine power en route to Utøya are just some examples (BBC, 2012). In this thesis, an explanatory route will be taken to find out to what extent coordination problems within and between emergency response organisations led to these issues, and how they can be explained according to integration and fragmentation perspectives on crisis response operations. During the crises, the Oslo response operation was more coherent and structured than the Utøya response operation, due to factors such as availability of communication media, the number of organisations involved, and capacity and preparedness to deal with the crises. This had an impact on the effectiveness of the crisis response operations, with positive and negative effects in both operations. To understand how these distinctions came to be and how they can be explained, the following research question will be explored:

> *How did the emergency response services coordinate their operation on the 22nd of July 2011 in Olso compared to the operation on Utøya?*

The aim of this research question is to gain a better understanding of what coordination and communication mechanisms lay behind the mistakes made during the 22/7 attacks, and how these mechanisms facilitated or hindered coordination between and within the services. Especially coordination between operational command and tactical command is important

here, because as this thesis will show, this is where many preventable issues originated. By gaining more insight in what happened and why it happened on that day, the hope is that a contribution can be made to the development of a more effective and coherent crisis response framework.

Furthermore, as an explanatory model for the development of coordination, the fragmentation perspective introduced by Wolbers, Boersma & Groenewegen (2018) will be held next to the communication and coordination practices as a general guideline. The fragmentation perspective essentially describes that actions taken by crisis commanders aimed at bringing the different actors in the operation closer together, can actually create rifts and thereby damage coordination effectiveness (this will be developed further in section 2.4). Seeing as this perspective is relatively young, special consideration to its applicability in practice, and the effects of fragmentation on the effectiveness and efficiency of the crisis response operations will be considered in the discussion.

1.1 Academic Relevance

Firstly, the academic relevance of this research mainly lies in how relatively unexplored fragmentation is as a coordination mechanism within crisis management. This perspective was introduced by Wolbers, Boersma, & Groenewegen (2018), and with it still being relatively young, could benefit from more theoretical backing. By considering a real-life crisis situation through the fragmentation perspective, the applicability of the perspective can be tested, and more importantly, new insights may be discovered that add to the academic discourse on this topic. Furthermore, though the 22nd of July case has been extensively discussed by academics in the crisis management and organisational management fields, this specific perspective has never been applied to the case. Hence, the findings of this research may further add to the understanding of what happened that day and why, which can be useful for future researchers who wish to approach the case inductively.

Secondly, though coordination on 22/7 has been written about before by for instance Bye et al. (2019), Rimstad et al. (2014), and Rimstad & Sollid (2015), a comprehensive comparison of the Oslo and Utøya situations with attention paid to the organisational structures and communication media has not yet been done. Through contributing on this area, a more complete understanding of what happened, what went wrong, and why this happened on 22/7 can be gained.

1.2 Societal Relevance

The societal relevance of this research lies primarily in that furthering understanding of how and why coordination errors took place, what the effects were, and how this can be placed in a broader theoretical understanding, can allow crisis response operations to actively and deliberately fragment and integrate based on what the situation at hand calls for. As will be explained further in the theoretical framework, fragmentation can have both positive and negative effects. By considering these effects in the light of a real-life case, lessons may be learned on how fragmentation can be used to more effectively coordinate within a crisis situation. For example, if the research shows that fragmenting command in a certain situation increases responsiveness without causing significant interorganisational ambiguity, organisations that participate in crisis response operations could internalise this knowledge as standard operating procedures in those specific instances. Hence, this research may contribute to crisis response operations becoming more effective in their coordination by learning more about fragmentation. This is equally true for the organisational configuration of crisis response operations, and how this affects coordination efforts.

2 THEORETICAL FRAMEWORK

In this theoretical framework, the general coordination debate will be taken as a starting point, by discussing different definitions. Then, coordination barriers will be discussed, followed by the dominant perspective on crisis coordination formulated by Okhuysen & Bechky (2009). This will be followed by a brief discussion on how two organisational structures facilitate or harm integration of coordination, followed by the fragmentation perspective introduced by Wolbers, Boersma, & Groenewegen (2018) as an alternative to the integration perspective. Finally, collective sensemaking will be discussed, before briefly wrapping up and bringing the theoretical framework together.

2.1 Coordination in Crisis

Boin defines a crisis as "a state of flux during which the institutional structures in a social system become uprooted" (Boin, 2004, p. 167). This definition is kept intentionally abstract in order to integrate insights from multiple fields associated with crises, ranging from psychology and organisation theory to disaster sociology and public administration (Boin, 2004). Within the context of a terrorist attack, this can be translated to a situation in which regular life comes to a standstill in the affected area, and Boin's institutional structures are uprooted in the sense that daily operations of emergency services must be switched to extraordinary operations. However, spontaneously changing operations in a chaotic environment is challenging, and requires consideration of how organisations behave on their own, and in relation to others. "Disaster creates extreme environmental uncertainty for organizations" (R.R. Dynes & Aguirre, 1979, p. 73), and in order to cope with this uncertainty, it is vital for emergency services to effectively cooperate in their response. This means that proper coordination mechanics must be in place.

Okhuysen & Bechky (2009) provide an overview of definitions for coordination, but eventually settle on the definition provided by Faraj & Xiao: "At its core, coordination is about the integration of organizational work under conditions of task interdependence and uncertainty", and coordination is a "temporally unfolding and contextualized process of input regulation and interaction articulation to realize a collective performance" (2006, pp. 1156–1157). They do this because it "best fits the spirit of this recent wave of coordination research" (Okhuysen & Bechky, 2009, pp. 469–472). There are two main elements in this definition that spring out. Firstly, in referring to 'task interdependence', 'uncertainty', and 'collective performance', Faraj & Xiao say that a chaotic crisis situation necessitates cooperation and task sharing

between organisations in order to effectively respond. Secondly, they refer specifically to 'integration', in the sense that coordination concerns bringing the interrelated work of organisations together into one response operation. Boin & Bynander specify the definition of coordination by splitting it into two different meanings: coordination as collaboration, and coordination as directive action (2015). According to them, coordination as collaboration concerns "people work[ing] collectively to accomplish a set of interdependent tasks or goals" (Boin & Bynander, 2015, p. 124). Here, Faraj & Xiao's task interdependence comes back, on the level of horizontal cooperation. Coordination as directive action, on the other hand, "refers to activities that aim to bring about collaboration" (Boin & Bynander, 2015, p. 124), focusing more on the top-down organisational part of coordination. This fits within the 'integration' aspect of Faraj & Xiao's definition, as coordination as directive action is aimed at bringing organisations together as a matter of strategic and/or operational decision-making. Furthermore, Boin & Bynander's definition also fits one of Faraj & Xiao's factors which suggest a needed reconceptualization of coordination. According to them, there is a paradox in crisis coordination which says that there is need for structured, hierarchical, and formal decision-making to "ensure a clear division of responsibilities, prompt decision processes, and timely action", together with a need for flexibility, spontaneous decision-making, and informal roles due "the need for rapid action and the uncertain environment" (Faraj & Xiao, 2006, pp. 1156–1157). The formal decision-making, then, is coordination as directed action, while informal decision-making is coordination as collaboration.

2.1.1 Coordination Barriers

There are, however, some barriers to inter-organisational coordination, which Eyerman & Strom (2008) have brought back to four main points. These coordination problems occur when multiple organisations share responsibilities, which relates back to Faraj & Xiao's task interdependence. The first barrier is communication, which is essential, but can be hampered due to jargon and protocols for "the rate and nature of sharing information" (Eyerman & Strom, 2008, pp. 92–93). Quarantelli (1991) specifies this by dividing communication within a crisis response operation into intra-organisational flow and inter-organisational flow. Barriers in intra-organisational flow include system overloads, role unclarity, officials assuming non-routine tasks, and reassignments, with the normal channels for communication becoming ineffective as a result (Quarantelli, 1991). Inter-organisational communication, on the other hand, is hampered by unfamiliarity with colleagues in other organisations; regular communications occur between officials that have built up a rapport and know how to

cooperate, while crisis communications means having to work together with unfamiliar officials and organisations (Quarantelli, 1991).

The second barrier is leadership, which "can become a barrier if the agency is unwilling to commit qualified staff and resources to solutions that do not directly affect agency success" (Eyerman & Strom, 2008, p. 93). This is partly based on rational choice theory, where a competitive environment causes leaders to limit expenditure on things that do not directly contribute to their organisation's goals. This means that shared efforts will receive less resource allocation than efforts falling solely under one organisation, hampering inter-organisational effectiveness. Two points made by Quarantelli (1991) also influence leadership within inter-organisational coordination. Firstly, key officials in positions of authority often work long hours during a crisis with high-stress workflows. This makes them susceptible for a burnout, making them physically uncapable of continuing their work while managing a great deal of information, harming the crisis response operation. Secondly, there can be organisational authority conflicts, where organisations cannot agree who has responsibility over an extraordinary task.

The third barrier is cultural differences between organisations (Eyerman & Strom, 2008). Organisations have their own cultures based on "the educational and social background of staff, as well as the organizational hierarchy, leadership styles, and core agency mission" (Eyerman & Strom, 2008, p. 93). These can seriously hamper coordination, as organisations have to work past their cultural differences first before being able to effectively cooperate. Another factor at play here is institutional loyalty, as officials tend to operate with the goals of their home organisation in mind, rather than those of a temporary collaboration (Moynihan, 2009).

The final barrier consists of legal and structural differences (Eyerman & Strom, 2008). Due to the dynamic evolution all government organisations go through, different budgetary, legal, and structural limitations develop within organisations. This results in "unique internal hierarchies, different processes for working through the chain of command, legal limitations, and varying geographical and topical jurisdictions" (Eyerman & Strom, 2008, p. 93), which can seriously hamper inter-organisational coordination.

2.2 Integration Perspective

Going back to Faraj & Xiao's definition, integration of different activities is the main goal of coordination, and, as Boin & Bynander say, "coordination, then, is what managers do to make this integration of tasks happen" (2015, p. 125). This perspective also fits within Boin &

Bynander's (2015) definition of coordination as directive action, and is as such focused on the formal aspect of coordination. The idea that coordination as directive action is necessary stems from the assumption that the coordination of interdependent tasks of many actors and organisations in complex environments requires guidance, or it will not happen at all (Boin & Bynander, 2015). Finally, Okhuysen & Bechky, who have written a hallmark article by describing a framework for coordination mechanisms, see coordination in the sense of integrating interdependent tasks as a central purpose of organisations (2009).

After providing a brief overview of coordination literature, Okhuysen & Bechky (2009) continue by providing an overview of mechanisms for coordination: plans and rules, objects and representations, roles, routines, and proximity. Based on these mechanisms, they then formulate three integrating conditions of coordination which follow from the use of those mechanisms: accountability, predictability, and common understanding. Accountability is defined as "the integrating condition that establishes who is responsible for particular aspects of the task" (Okhuysen & Bechky, 2009, p. 486). It lets everyone know who is doing what, and what their own responsibilities are within the organisation. This integrates the organisation because it provides role clarity and mutual understanding, and takes away ambiguity and uncertainty about what is being done and needs to be done. Furthermore, it mitigates Eyerman & Strom's barriers by making it unnecessary to continuously discuss who is responsible for what task, and therefore allows organisations to cooperate without constantly having to bridge the barriers. The second integrating condition, predictability, "allows interdependent parties to anticipate subsequent task related activity" (Okhuysen & Bechky, 2009, p. 487). By being able to predict what constituent parts of a task will be executed next, by which organisation, and in which manner, actors can adapt their approach accordingly and thereby be more effective. Predictability is facilitated mainly by familiarity between organisations and specified routines, as this lets actors know what to expect from their colleagues. This mitigates the coordination barriers inter-organisationally, as predictability requires less communication, leadership issues are less relevant as long as these can be expected, and cultural and structural differences can be anticipated and taken into account. The final integrating condition, common understanding, "helps coordinate by providing a shared perspective on the whole task and how individuals' work fits within the whole" (Okhuysen & Bechky, 2009, p. 488). This provides participants with insight into the jointly held goal of the work or process they are dealing with, allowing them to more easily integrate their activities. This is facilitated by plans, rules, routines, and familiarity to create a general situational awareness. Common understanding, too, mitigates

coordination barriers, as cultural and structural differences matter less when everyone knows what they are working towards, and communication issues stemming from misunderstanding and jargon and such are lessened by agreeing on the bigger picture. This integrating condition is also related to the concept of collective sensemaking, which will be discussed shortly in section 2.5.

2.3 Organisational Structure

To facilitate coordination and integration in a crisis response operation, consideration must be given to the organisational structure which manages the different organisations in the operation. Here, there are two main schools of thought: the hierarchical incident command system (ICS), and the more loosely coupled network governance model (Moynihan, 2009). The idea behind an incident command system (ICS) is the integration of all parties involved in a crisis response operation into one common organisational structure (Jensen & Thompson, 2016). This matches formal decision-making, or coordination as directive action, as it assumes command from a single hierarchical decision-making locus. For instance, rather than the fire department, medical services, and the police operating within their own command structures, one overarching command locus is established which coordinates all parties involved. This has the advantage of creating a standardised response to emergencies wherein coordination between organisations is harmonised and cooperation can be more effectively facilitated (Jensen & Thompson, 2016). The ICS has been pushed as an effective solution for crisis response operations worldwide, due to the underlying assumption that it facilitates a "standardised response across all responding organisations in all incidents" (Jensen & Thompson, 2016, p. 173). However, there are some criticisms, which have prompted researchers in the field of crisis management to look for alternative structures (Jensen & Thompson, 2016; Moynihan, 2009; 't Hart, Rosenthal, & Kouzmin, 1993). Firstly, the hierarchical ICS ignores the autonomy and own protocols of different organisations, which touches upon the leadership, cultural, and structural barriers to coordination. Secondly, it neglects the fact that chaotic and ambiguous crisis situations may need flexibility and room for initiative, meaning that informal decision-making and coordination as collaboration is underplayed. Thirdly, by having to pass through several levels of hierarchy before reaching the recipient, the communication of information can be delayed. Finally, it negates the role of unorganised volunteers, does not always work as designed, and is not as applicable to other countries as it is to the USA where most research into the ICS has been conducted, due to the makeup of organisations involved in crisis response.

An alternative perspective on the ICS formulated by Moynihan makes it up to be a network, rather than a hierarchy (2009). This features an incident commander in the centre who coordinates member actors, who in turn have temporary relations with other members depending on what the situation asks for. This allows for much more autonomy and flexibility than the strict command and control model. The network governance model facilitates both formal and informal decision-making; there is a locus of command for formal decision-making, but by allowing for organisations in the network to coordinate their actions around the incident commander, informal decision-making in critical moments is facilitated. Hence, it is a combination of coordination as collaboration and coordination as directive action, and thereby more effective than the traditional command and control model in dealing with unexpected situations. However, it does have some drawbacks; predictability is decreased due to more autonomy which is not communicated, accountability is unclear due to authority being shared and the legitimacy of centralised control being weakened, and both of these integrating conditions for coordination are affected if there is a lack of positive working relationships and trust (Moynihan, 2009). Furthermore, the network governance model relies heavily on effective communication and leadership, and is more affected by cultural and structural differences between organisations, due to lessened central authority in facilitating and mitigating these barriers. Therefore, the network governance model is more susceptible to Eyerman & Strom's coordination barriers.

2.4 Fragmentation

Though the integration perspective described in section 2.2 is the dominant view on crisis coordination, there is some dissent with regards to its applicability under the conditions of ambiguity and discontinuity present in a crisis situation. One of these is the fragmentation perspective, introduced in the article 'Introducing a Fragmentation Perspective on Coordination in Crisis Management' by Wolbers, Boersma, & Groenewegen (2018). In their article, the authors identify the mechanisms that cause integration efforts during coordination to inadvertently lead to fragmentation due to ambiguity and discontinuity. The starting point is the desire of crisis responders to achieve "structured role systems, common expectations of workflow, and shared task knowledge" in order to coordinate effectively (Wolbers et al., 2018). This mirrors the integrating conditions for coordination presented by Okhuysen & Bechky (2009). However, an integration perspective does not provide the scope to explain why and how ambiguity and discontinuity arise during crisis situations, while a fragmentation perspective is better suited (Wolbers et al., 2018). Within the fragmentation perspective,

coordination practices that are aimed at integration lead to fragmentation due to the raising of unintended boundaries between different actors. These coordination practices used by commanding officers in crisis situations are working around procedures, delegating tasks, and demarcating expertise (Wolbers et al., 2018). These practices have their respective triggers which create a requirement for some form of information, and thereby lead to the coordination practice. Furthermore, the practices follow one another; working around procedures creates the trigger for delegating tasks, which in turn creates the trigger for demarcating expertise.

The practice of working around procedures stems from crisis situations being dynamic and unpredictable, which often does not match with established guidelines and procedures (Wolbers et al., 2018). In order to deal with the unfolding crisis situation, officers may need to work around these codified guidelines and procedures through creative solutions in order to achieve their goals directly, rather than following prescribed processes. If this is communicated effectively with other organisations, predictability is restored, as they will know how to anticipate based on the creative solutions; due to Eyerman & Strom's barriers, this communication may be hampered. Due to the breakdown of predictability, a normative boundary is raised between the actors, resulting in ad-hoc adaptations rather than effective anticipation of what is to be expected (Wolbers et al., 2018). The consequence of working around procedures is therefore fragmentation. Though the lack of predictability can have negative consequences due to improper anticipation, there is also a positive implication: ad-hoc adaptations facilitate improvisation, in which the most pressing issues are tackled in the most effective ways possible at that moment, rather than following procedure (Wolbers et al., 2018). This is due to multiple coordination sequences playing at the same time, in which each actor cooperates with other actors on the spot as necessary to solve the issues at hand. This is reminiscent of the network governance model, and working around procedures facilitates informal decision-making, which is necessary in an uncertain crisis situation in order to adapt to the circumstances.

In a playing field where ad-hoc adaptations take place, it is challenging for officers to gain a sufficient overview of the situation in order to make the right decisions, if they at the same time are actively involved in the incident. In order to gain general overview, officers must delegate tasks to their personnel to avoid losing situational awareness; however, this also means giving up control, resulting in a lack of overview of their own domain and insufficient accountability (Wolbers et al., 2018). In response, officers prefer to take control over their own domain to ensure their tasks are carried out properly, rather than taking distance and coordinating from a

more strategic level with other emergency services. As a result, separate pockets of control form due to the functional boundary being reinstated, rather than Okhuysen & Bechky's accountability being shared between all actors (Wolbers et al., 2018). This breaks down formal decision-making, as a central commanding authority has less influence on what separate organisations do; however, informal decision-making is improved, as organisations can more rapidly adapt to unexpected situations. Hence, a potentially positive implication of this practice is that functional compartmentalisation can take place, in which actors take responsibility for what is within their area of expertise and work parallel to the other actors without constant deliberation (Wolbers et al., 2018). However, the coordination barriers identified by Eyerman & Strom again become stronger, as command which bridges the organisations is broken down, causing the coordination lines that existed to diminish the boundaries to disappear.

In a state of increased uncertainty following from the delegation of tasks, safety can quickly become an issue in crisis situations. Rather than communicating exactly what a threat is and allowing the other services to decide how to deal with the threat, a lack of time will often force an officer to deal with the situation by demarcating expertise, where they take responsibility of the situation and all other services must follow suit (Wolbers et al., 2018). However, in doing so, a knowledge boundary is created between the respective officer and the other services, resulting in a breakdown of collective sensemaking. Rather than reaching a common understanding necessary for integration, a multiplicity of interpretations is formed as different officers try to make sense of what is safe and what is unsafe, without sufficient insight from the other actors to get a proper overview of the situation. This therefore leads to further fragmentation. This is an issue, as different interpretations of what is safe can in turn lead to unsafe situations. However, there is a potentially positive implication to the demarcation of expertise: due to the multiplicity of interpretations, the different actors will engage and negotiate with each other in order to "coordinate their actions temporarily and locally" (Wolbers et al., 2018, p. 1539). This again matches with the network governance model, which means that the coordination barriers become stronger, while informal decision-making is enhanced at the cost of effective formal decision-making. Hence, flexibility and agility are increased, while inter-organisational cooperation on a larger scale suffers.

2.5 Collective Sensemaking

Finally, a word must be said on collective sensemaking, as this is fundamental to the integrative conditions for coordination formulated by Okhuysen & Bechky. Sensemaking is an integral

part of a crisis response operation, as having a clear picture of what is happening is fundamental to making the right decisions, both collectively and individually. Weick describes the underlying idea of sensemaking as "that reality is an ongoing accomplishment that emerges from efforts to create order and make retrospective sense of what occurs" (1993, p. 635). Within this perceived reality, actors are using knowledge gained through education, storytelling, and past experiences to make sense of a constantly changing situation (Wolbers & Boersma, 2013). This occurs within the highly dynamic and chaotic environment of crisis response, which puts pressure on the sensemaking process. As Weick cites, "individuals are […] creating and sustaining images of a wider reality, in part to rationalize what they are doing" (1993, p. 635). This stands in contrast to people acting in relation to an already established wider reality. Hence, individuals are constantly trying to understand what is happening around them, and base their decision-making on what they perceive. According to Cornelissen, Mantere, & Vaara (2014), sensemaking is influenced by language, emotions, and materiality. Language can shape sensemaking by creating linguistic frames that result in a certain path-dependency; once a civilian has been named a suspect, it is difficult to divert from that frame. Emotion is considered contagious, in that one individual expressing emotion when communicating can spread this emotion throughout the entire organisation, which may colour the sensemaking process. Finally, material cues can prompt alternative readings, and experience with certain surroundings and landscapes can result in more effective sensemaking than would be feasible in unfamiliar surroundings. The most important takeaway from the influences described by Cornelissen, Mantere & Vaara (2014) is that sensemaking is not an objective practice; rather, it is constantly being shaped by both internal and external influences which create a frame of understanding for the crisis responders. Without this general frame the process of sensemaking could not exist, as context is required to form an understanding. However, a frame can also colour the resulting understanding, and lead to interpretations of the perceived reality which may not match with the actual practice. A good example of this which will follow in the analysis is the sensemaking taking place in the Oslo Crisis Command Group during the TV2 evacuation (section 4.1.3).

Within crisis situations, collective sensemaking is equally important as individual sensemaking. Because each actor has their own expertise getting an exhaustive image of what the crisis situation entails, what threats and opportunities are present, and what the best course of action is, requires constant deliberation between different actors bundling their experiences. If collective sensemaking is successful, the emergency response actors can collaborate

effectively on dealing with the crisis at hand. However, as has been explained, fragmentation can damage collective sensemaking, which could result in inadequate decisions due to incomplete information.

2.6 Bringing it Together

As has been established in this theoretical framework, there are two streams of coordination: coordination as collaboration, and coordination as directive action. These match informal decision-making and formal decision-making, which are both necessary in a crisis response organisation to deal with the dynamic and uncertain nature of crisis response and effective inter-organisational coordination, respectively. There are some barriers to inter-organisational coordination, but these can to an extent be mitigated by integrating the crisis response operation through achieving accountability, predictability, and common understanding. Though integration can be achieved through formal and informal paths, using a hierarchically structured ICS is most effective as coordination can be integrated top-down, while network governance is more susceptible to the coordination barriers hindering integration. As an alternative perspective, fragmentation describes the effect of coordination practices when extra efforts are not made to integrate following their use, leading to ambiguity and discontinuity in the uncertain crisis situation. However, this can have positive effects, which will be a part of the focus of this thesis. Finally, collective sensemaking is an important part of crisis coordination and especially integration, but it suffers under fragmentation.

3 METHODOLOGY

3.1 Research Design

To answer the research question, an inductive, qualitative comparative case study design has been chosen. This means that the cases of Oslo and Utøya will be compared based on findings deduced from the analysis method of process tracing (will be discussed further in section 0). Based on the comparisons, differences and similarities will be highlighted, which will then be compared to the theories worked out in the theoretical framework. This will be done with a focus on processes, which relates to the qualitative nature of this research; no theory is being explicitly tested, and the research question focuses on the processes during the crisis response operations rather than the actual end results. Furthermore, seeing as some trends are shared across both cases such as the use of the local incident command post system, the commonalities and larger picture will be considered as well; however, where similarities are seen, the differences will also be noted.

3.2 Case Justification

For this thesis, the case of the 22/7 attacks is taken as a starting point. The choice for the Oslo and Utøya cases has been made due to four main reasons. Firstly, there were significant complications in intra- and inter-organisational coordination, which makes the cases interesting to look into. Secondly, the crises followed one another, with the uncertainty and chaos from the first attack influencing the response to the second attack. This makes them ideally suited for a comparison, and for tracing the processes that led to the operations being as they were. For instance, looking at the situation before and after the tipping point between the two crises can yield insights into the integration and fragmentation perspectives. Thirdly, there were large differences between the crisis response operations in the two cases. For instance, geographical scale, ease of communication, preparedness of emergency responders and their equipment, ease of reaching the crisis location, and ambiguity due to the quick succession of the crises in relative proximity all played a role in how the crisis response operations functioned. These cases therefore have plenty of independent and dependent variables between them, while still taking place in the same country, in the same time frame, and to some extent with the same crisis responders. This makes for an interesting comparison. The third and final reason is more personal in nature, as the author of this thesis has the Norwegian nationality and was in the country when the crises took place. Hence, there is a personal interest in learning more about

the topic, both to further personal understanding of the events, and to contribute to prevention in the future.

3.3 Data Collection

To collect data for answering the research question, a number of evaluation reports and other sources were consulted. More specifically, the general government evaluation report (NOU, 2012), and the evaluation reports by the Directorate for Civil Protection (DSB, 2012), Medical Directorate (Helsedirektoratet, 2011), the Oslo Police District (Oslo Police District et al., 2012), and the general Police Directorate (Politidirektoratet, 2012) were consulted. These reports all featured a certain degree of timeline building, which despite some incongruencies between the reports proved useful for working out the process. This was then supplemented by some secondary sources; Agrell (2013) and Renå (2017) as criticisms on the process and evaluation reports, the book by Seierstad (2014) for contextual understanding, and, amongst others, Bye et al. (2019), Pedersen (2016), Renå (2018), Rimstad & Sollid (2015), Rimstad et al. (2014) to clarify and add to moments that were not fully clear after the evaluation report search. The articles used for clarification and contextualisation were extremely rich and varied, especially with regards to their focus; some focused on Oslo, others on Utøya, some on all organisations, others on a specific organisation. This variety and richness in secondary sources was invaluable in furthering insight into what happened on 22/7. Finally, to get an idea of what the public perceived during the crisis response operation, live blogs from The Guardian (Godfrey & Siddique, 2011), The Telegraph (Irvine, 2011), and NRC.nl (van den Dool, 2011) were consulted. Based on this data, a comprehensive timeline of what occurred where and when during the crisis response operations was drawn up, with special attention paid to coordination practices and their effects.

In terms of reliability, there were two incongruencies in the evaluation reports. Whereas the evaluation report by the Oslo police district downplayed the issues they experienced, the NOU report was overly critical. This was identified by Renå (2017, 2018), and as such, this was taken into consideration during data collection. Aside from this issue, no major reliability issues were identified. Furthermore, seeing as data collection focused on temporal data points rather than the analyses of the organisations, the data collected could be cross-referenced with the other reports for validity, and left little room for bias introduced by the organisations.

Once the process timelines had been drawn up and ambiguities worked out, the timelines were used to finds instances in the crisis response operations where coordination was ineffective,

especially with regards to the underlying dynamics and factors that caused this ineffectiveness. Here, the secondary sources were invaluable as they to some extent had already identified key issues in the crisis response, which gave a starting point for further data collection and analysis. Especially Renå's dissertation (2018) was extremely comprehensive, and aided in identifying the main coordination streams. The moments where communication and coordination were ineffective were then explored further to find the root cause, which was linked back to operational issues experienced. The key events, coordination streams, and operational issues are what will be discussed in the analysis.

3.4 Operationalisation

The main concept of this research is coordination, which has been worked out in the theoretical framework. Seeing as the crisis response operations consisted of multiple organisations with several command levels, four variables can be extracted from the main concept: intra-organizational vertical coordination, inter-organisational vertical coordination, intra-organisational horizontal coordination, and inter-organisational horizontal coordination. Following the dominant integration perspective on coordination formulated by Okhuysen & Bechky (2009), there are three main goals associated with coordination: establishing accountability, achieving predictability, and reaching a common understanding. These goals have been adopted in the operational definitions, which can be found in table 1. The raw data has been categorised at the hand of these operational definitions. For instance, communication between the scene commanders at the local incident command post in Oslo has been categorised as inter-organisational horizontal coordination, as it occurred between several organisations at the tactical level. On the other hand, an order by the fire brigade chief to the fire scene commander to evacuate Utøya quay due to a bomb threat has been categorised as intra-organisational vertical coordination, as it was a communication moment between the operational level and the tactical level within one organisation. By choosing these operational definitions, coordination between the emergency response services can be analysed on several levels, which gives a broad, mutually exhaustive, and collectively exclusive view of what happened on 22/7. This is necessary to answer the research question fully.

Concept	Variables	Operational definitions
Coordination	Intra-organisational vertical coordination	Communication between the strategic, operational, and/or tactical levels within one organisation aimed establishing accountability, deciding on a course of action for predictability, and/or reaching a common understanding
	Inter-organisational vertical coordination	Communication between the strategic, operational, and/or tactical levels of two or more organisations aimed establishing accountability, deciding on a course of action for predictability, and/or reaching a common understanding
	Intra-organisational horizontal coordination	Communication at the strategic, operational, or tactical level of one organisation aimed establishing accountability, deciding on a course of action for predictability, and/or reaching a common understanding
	Inter-organisational horizontal coordination	Communication at the strategic, operational, or tactical level between two or more organisations aimed establishing accountability, deciding on a course of action for predictability, and/or reaching a common understanding

Table 1 - Operationalisation of coordination

3.5 Analysis Method

For analysing the data, the method of process tracing will be used. This method is concerned with "understanding how things evolve over time and why they evolve in this way" (Langley, 1999, p. 692). In practice, this means that the process of the two cases will be mapped out by using the timelines formulated during data collection, with a special focus on coordination and communication processes. More specifically, the temporal bracketing strategy will be used to highlight certain key events and processes. This means that the entire process will be broken up into temporal blocks which are analysed more carefully, leaving irrelevant information out (Langley, 1999). The blocks will be bracketed based on how long they were relevant within the crisis response operation; for instance, the use of the Norwegian Public Safety Network was constant throughout, while the TV2 evacuation was relatively short. Within the frames of key events and processes, only data relevant for those events and processes will be selected, creating the temporally bracketed blocks. As a research method, this is derived from Giddens' structuration theory, which describes that actions by people happen within and are influenced by structures, but that these actions also influence the structures in return. This means that the

contexts of interaction are needed to understand social systems and processes, rather than taking incidents and processes as they are and without further ado (Giddens, 1984).

Using the temporal bracketing strategy yields complex results with moderate to high accuracy and a moderate generality (Langley, 1999). This means that though the results are likely to be accurate, they are not easily generalisable until they are checked with other cases. Furthermore, deducing clear conclusions is more complicated than when using a more quantitative strategy, as the temporal bracketing strategy yields anecdotes, experiences, and processes that are not easily quantified into a statistically significant analysis. Luckily, this is not the goal of this research. Rather, the goal is understanding what happened during key events and processes, and how the different processes affected one another and the outcomes. The research question is not aimed at establishing concrete, statistical results; gaining a general image of what theoretical lessons can be drawn from the Oslo and Utøya cases is enough.

Based on the raw data collected and the subsequent categorisation of this data, the temporal bracketing strategy was applied. After identifying the main coordination streams within and between organisations, the cases and instances which featured the most coordination practices and mechanisms with remarkable results were separated from the general timeline, and worked out in more detail. Remarkable results in this context are understood to be situations such as an operational commanding body largely decoupling from the rest of the crisis response operation, or notable differences in the effectiveness of mobilisation in a hierarchical organisation as opposed to a flat organisation. Ergo, situations in which intra- and/or inter-organisational coordination took place which were relevant within the scope of the theories described in the theoretical framework were temporally bracketed.

However, it must be noted that the well-documented nature of the 22/7 attacks means that there is a wealth of information available within the scope of this thesis. This has made it challenging to determine which situations to include and exclude in the analysis, as a totally comprehensive accounting could fill many books on the topic. The information included in the analysis are regarded as sufficient to discuss the cases in-depth, without getting lost in the expansiveness of the cases; also, the cases temporally bracketed can be regarded as illustrative for parts of the crisis operations that have only been mentioned in passing. However, be aware that for some issues presented in this analysis, the full complexity of the situation has been brought back to key actors and incidents, to ensure brevity and clarity. For a more in-depth detailing of the events on 22/7, the sources referenced in section 3.3 can be consulted.

4 ANALYSIS

On the 22nd of July 2011, at 15:25, right-wing terrorist Anders Behring Breivik detonated a car bomb in front of H block, the office of the Prime Minister of Norway and the Ministry of Justice and the Police. Within 2 minutes the emergency response services called out *en masse*, and 30 minutes after detonation a local incident command post[1] was fully staffed. At the same time, the Crisis Command Group (operational leadership of the police in a crisis) was called together, emergency call centres assumed the role of operational coordinators, and other measures were taken to contain and resolve the crisis. Due to the incident occurring in the summer vacation on a Friday, few people were at work; this meant that there were relatively few casualties, but also that key operational and tactical officers were away on vacation. This complicated the crisis response operation and increased ambiguity, as reserve officers were staffed and capacity overview was limited. At 20:00, the crisis response operation was scaled down, though emergency workers remained active in the area for days after the incident. 8 people were killed and at least 209 injured due to the explosion.

While the national focus was on Oslo, Breivik drove to Utøya, where the youth organisation affiliated to the Norwegian Labour Party was holding its annual summer camp. He arrives at a ferry landing near the island at 16:55, lands on the island at 17:18, and starts firing at the persons present 4 minutes later. It takes 2 minutes before the emergency medical services are informed of the shooting, after which a scramble takes place to inform all relevant crisis response services of the shooting and get them to the scene. This is complicated by the lack of effective communication media in the area around the island, with radio coverage being spotty and the Norwegian Public Safety Network not having been implemented. At 18:25, the emergency response unit Delta finally arrives on the island, and at 18:34, Breivik is arrested. 69 people died on the island, and 110 were injured.

During the crisis response operations, a number of issues relating to coordination can be identified. In Oslo, a partial decoupling took place between the Crisis Command Group (CCG), and the operational commander at the emergency call centre and the incident scene commander. Furthermore, information regarding the car Breivik was driving and a description of Breivik was received quite early in the operation but not communicated effectively, a lengthy evacuation procedure took place at the TV2 office due to a bomb threat which was identified

[1] The system used for tactical coordination between the emergency services. For a detailed accounting of the incident command structure used in Norway in times of crisis, see the appendix.

as phony but not halted, and mobilisation of officers and resources was more effective within the medical services than the fire services and the police. These issues will be discussed first. The operation in Utøya will follow, with a focus on the operational issues experienced there, communication issues which led to ineffective coordination, and self-organisation and self-coordination at the tactical level during the crisis response operation. Finally, a comparison will be made between the two cases, focusing on communication media, and the organisational structures in the two significantly different environments.

4.1 Oslo

For the situation in Oslo, four main issues have been identified for further consideration relating to coordination and communication: general operational problems within the police's operational staff and operations centre, the handling of the car tip, the handling of the bomb threat at the TV2 office building, and mobilisation efforts. These will be discussed in this order. The focus in Oslo is mostly on the police, as that is where most problems relating to coordination and communication aspects took place. This not only shows from the tone and focus of evaluation reports indicating that the police was the most problematic organisation; Pedersen et al. (2016) have found that police officers experienced significantly less control during the operations when compared to medical personnel and firefighters.

4.1.1 Operational Situation

During the Oslo bombing, coordination at the tactical level was quite successful, in part due to a great delegation of responsibility by the operational level. However many actors being replaced by their backups, the operations centre being understaffed, and off-duty police officers aiding in the crisis led to coordination issues on the operational level. The biggest issues were within the Crisis Command Group (CCG), which consisted of the operational staff made responsible for the crisis response operation within the crisis command system. The CCG has responsibility over organising, leading, and using available resources, and is made up of a staff chief, and officers responsible for personnel (P1), intelligence (P2), operations (P3), logistics (P4), information (P5), judicial issues (P6), and the police priest (P7) (Oslo Police District et al., 2012). Furthermore, the operations centre played a role, which has the tasks to maintain situational awareness on an operational level by speaking to witnesses, and mobilise additional forces in conjunction with the incident commander and the CCG.

When the Oslo attack took place, the first operations officer (P3) arrived at the operational staff centre at 15:40. When he arrived, he interpreted the situation as a terrorist attack, but was

unable to get further information from police systems. The officer in question was an experienced incident response commander, but was unaware of the specific tasks associated with his role as P3, and as such also unfamiliar with the police systems available. This resulted in P3, and the rest of the CCG, not accessing the police operative system (PO-log), while this is the most important tool for sharing written messages within the police during a crisis situation (Renå, 2018). Hence, they could not view messages flagged by the operations centre as important in general or relevant to a specific CCG function. This constituted a significant blind spot in the CCG's situational awareness, and hampered them in effectively coordinating resources. Furthermore, the officer in the P3 role was a substitute, and unaware of the standard procedure of communicating with the operations commander at the operations centre. Contact with the operations commander was one of the easiest ways for CCG to gain situational awareness through operations commander's interpretation of witness testimonies, and to coordinate the mobilisation of additional forces (Bye et al., 2019). Rather, P3 bypassed the operations commander in mobilisation and coordination, and did not contact the operations commander until 17:00, after the first staff meeting had taken place. Furthermore, the CCG still had not logged on to the police operative system (PO-log) at 17:26, 30 minutes after their first meeting (Renå, 2018). This contributed to a limited understanding of the situation, which in turn led to the car tip being missed by the CCG, which will be discussed after this segment. Though its decoupling may have meant that the CCG could focus more on the crisis than on constant communication, it resulted in limited situational awareness, which significantly hampered their situational awareness and sensemaking process. The issues described here match with Eyerman & Strom's communication barrier to coordination, as role unclarity and officials assuming non-routine tasks hampered intra-organisational communication flows. As a result, the incident command structure did not work as designed with decoupling between levels of the decision-making hierarchy, which is one of the known issues raised against the use of ICS.

In addition to the issues described above, three more matters are worth noting. Firstly, the operations commander at the Oslo operations centre handed full operational responsibility on the ground to the incident commander at the scene due to capacity issues, and did not supervise or manage as is prescribed in the procedures of emergency response organisations (Bye et al., 2019). On the one hand, this removed a step in the hierarchy, and allowed for faster mobilisation and coordination based on the needs directly observed by the incident commander; on the other hand, this also meant that such decisions were taken without a grander

operational overview of police capacity, and left the incident commander with less time to dedicate to tactical issues. This delegation of responsibility took place because the operations commander did not have an overview, and was aimed at clarifying accountability. However, the result was a further decoupling between the operational and tactical levels with separated pockets of control as a result, and a step towards network governance through flattening of the hierarchy, which the officials in Oslo were not prepared for. Secondly, the decoupling of the CCG constitutes a combination of the coordination practices described by Wolbers, Boersma & Groenewegen (2018). Due to unfamiliarity with the protocols and procedures, P3 worked around procedures by decoupling from the operations commander, effectively delegated a decision-making role to the operations commander in terms of coordination by being unavailable, and demarcated expertise by focusing on what he was experienced in, namely operations command (though ineffective). This was not done with accountability, predictability, or a common understanding in mind; it occurred due to ignorance rather than active choices. As a result, the operations commander had to be more proactive in a coordinating capacity (an ad-hoc adaptation), separate pockets of control were established, and due to segmented sensemaking a multiplicity of interpretations followed. Finally, many at the operations centre experienced the CCG as an additional burden, as they had to submit any actions for approval to the CCG instead of directly implementing them, which takes time (Renå, 2018). Combined with the issues at the CCG, this may have resulted in inefficient decision making, as a greater delay than necessary may have been placed on the implementation of important operational decisions. Ignoring these procedures and directly implementing important decisions, rather than neatly following the incident command structure, could potentially have improved effectiveness, as well as given the CCG more space to organise and structure their work. This is one of the issues with formal decision-making processes in crises, and may on the tactical level have been somewhat mitigated by decentralisation and a move towards network governance, but operational decisions still had to pass through a decision-making body that was difficult to reach and unfamiliar with their roles.

4.1.2 Car Tip

Following a vague tip at 15:31, at 15:35, the first witness called the operations centre to report a concrete sighting of a person in police uniform with a helmet and pistol leaving the bombing site in a car with registration number VH 24605. The operator who answered the call cut the conversation short due to an overbearing amount of calls; however, the operator wrote the details down on a note and left it on the operations commander's desk in the operations centre.

However, the note was not noticed until 17 minutes later, and the witness not contacted until 3 minutes after that. The information was logged in the PO-log at 16:01 and flagged important for P2, who did not see it until 2 hours later due to the incorrect connection to the PO-log from CCG. The description of the suspect was passed on to the incident commander and the Delta incident commander, a request for a national alarm was sent to Kripos (the National Criminal Investigation Service) at 16:05 (set out at 16:43, 17 minutes after the suspect parked near Utøya), and the police districts of Asker og Bærum, Romerike, and Follo were alerted between 16:09 and 16:16. However, the descriptions are scrambled due to continuous encoding and decoding information in order to translate it from oral conversations to the PO-log. For instance, in the national alarm, the first 2 letters of the license plate were missing. Finally, at 17:47, a description of the suspect and his car is given on the general police radio, and at 17:56, the CCG orders the identification of the owner of VH 24605.

Two main issues are at work which prevented the car tip from being picked up and spread timely. Firstly, as noted by Renå (2018), the operators and other actors acted reasonably within their frame of understanding during the crisis, and therefore, their actions are not directly to blame for the slow communication of the information. Rather, the communication systems for sharing important information were lacking, which resulted in most communication having to take place by passing notes and telephone calls. If the switchboard operator had had direct access to an interorganisational warning system in which the suspect description could be reported with the highest priority, this issue could theoretically have been resolved. Secondly, the CCG could have played a role in spreading and acting upon the information quickly; however, they did not receive the suspect description until he was already shooting on Utøya. By maintaining insufficient communication lines with the operations centre and being out of their dedicated PO-log channel, they missed important information, while the CCG was one of the most critical actors to involve. Thus, it is imaginable that the decoupling of the CCG in this situation indirectly contributed to Breivik not being caught before he arrived at Utøya.

Aside from the issues in protocol compliance described above, an explanation can be found in the theory. The car tip was passed on to the incident commander, Delta, Kripos, and the national alert system almost 2 hours before the CCG ordered identification of the car renter. The information thus was passed on to other organisations significantly more quickly than one step up in the organisational hierarchy. This mirrors the idea that network governance is more effective in quickly forwarding information than command and control structures; if the operations commander had waited for the CCG to order an escalation, the national warning

would have been set out much later. The decoupling of the CCG described in the previous section obviously played a role as well, but as has been shown, this was an indirect consequence of the use of an ICS. Furthermore, this case shows how uncertainty, ambiguity, and discontinuity can follow from separate pockets of control forming within an ICS.

4.1.3 TV2 Evacuation

At 16:16, a report came into the police concerning suspicious objects outside of the TV2 building, near the government quarter. In response, police units were directed that way, and ordered to evacuate the building and examine the objects. The evacuation took in total 4 hours and 40 minutes from the first report, required significant resources and human capital to carry out properly, and was one of the main subjects of discussion during the first CCG meeting at 16:55, instead of for example the identity of the suspect. Eventually, the threat turned out to be a false alarm, which was already recognised and reported by the first patrol to arrive at the scene, at 16:19. However, police logs show that this information was lost to the operators, and therefore never communicated to the incident commander (Oslo Police District et al., 2012).

This situation shows the dire impact that incomplete communication lines and segmented organisational structures can have on collective sensemaking and the decision making that follows from it. Though it was known at 16:19 that the objects were harmless, records from the CCG meeting at 16:55 show them explicitly talking about a "bomb", and this frame of reference continued until 4 hours later (Renå, 2018, p. 179). Hence, large amounts of resources were dedicated to fighting a perceived threat that did not exist, nor was never confirmed as existent. The misallocation of resources in this situation can be related to three main causes. Firstly, there was a high degree of chaos at the operations centre due to understaffing and the high volume of information passing through it, which makes it easier for vital information to be lost. Secondly, the segmented nature of the CCG meant that they were not as proactive in asking for clarification from front-line actors via the operations centre as they could have been, and that they were effectively in an echo chamber within which 'suspicious objects' quickly become bombs through the process of collective sensemaking. Finally, a lack of direct communication lines between patrols and the incident commander, with those communications going through the operations centre, meant that vital information had to travel by proxy, which increases the chance of it becoming jumbled, misinterpreted, or lost. Direct communication lines could have mitigated this issue.

In the TV2 case, the effect of separate pockets of control can be seen on the process of sensemaking. Due to the decoupling of the CCG and the delegation of responsibilities from the operations commander to the incident commander, coordination barriers were created between those three levels, but also between the incident commander and tactical personnel due to task overload. Hence, the true nature of the bomb threat did not reach commanders. Furthermore, the only information that reached commanders and the CCG was that there was a bomb threat, and presumably due to the terrorist attack frame they were operating in, they did not ask for a specification of what the exact threat was, and whether it was a threat at all. Rather, especially the CCG completely adopted the frame, and by acting on a potential bomb threat came into a vicious cycle of reinforcement of this perspective, leading to the definitive conclusion that there was a bomb. Hence, sensemaking in the separate pockets of control reinforced and implanted the idea that there was a bomb, a frame that could have easily been avoided by asking tactical personnel directly what their interpretation of the situation was.

4.1.4 Mobilisation of Resources

Between 15:33 and 15:39, the incident commander called from the scene to the operations centre, requesting them to 'press the biggest button' by mobilising all police resources, including Delta. This created a frantic situation for the operations commander: there was no unified messaging system which made mass mobilisation challenging, and using the system through which all CCG members could be mass-messaged would mean closing down alarm systems, which the operations commander wanted to avoid in order to not miss any important alarms. As a result, the operations commander became more of an operator, calling the CCG and other police branches within Oslo Police District manually by phone. This lasted until P1 took over the mobilisation role from the operations commander 80 minutes after the bomb went off, after which the operations commander could become more involved in operational oversight and coordination. However, this also meant responsibility for mobilisation lay with an organisation (CCG) which did not have full information and correct priorities, as indicated in the previous two sections. Regardless of the dispatch issues, a large number of police officers self-dispatched before being reached through the operations centre, which meant that the incident commander had a large capacity for response, but that the operational level missed capacity oversight, and thereby some situational awareness.

In contrast, mobilisation in the medical services seemed to operate more effectively. Within 1 minutes of the bombing, the emergency medical call centre Oslo & Akershus (EMCCOA) had

dispatched a rapid response vehicle (which self-dispatched before receiving the directions from EMCCOA (Rimstad & Sollid, 2015)), a motorcycle ambulance, and an ambulance scene commander, and by 15:29 another 10 ambulance units had been dispatched. At 15:32, the ambulance scene commander requested the EMCCOA to escalate by issuing a disaster alert, after which another 41 ambulances were dispatched by 15:51. Next to this communication line, the trauma centre coordinator in the government quarter had direct communication with the Oslo University Hospital, advising them to implement a yellow-stage state of alert at 15:48, and a red-level state of alert at 16:08. Seeing as mobilisation was kept separate from other medical communications to hospitals and such, and ran through the organisation normally responsible for mobilisation (the EMCCOA), there was an effective task division which was not interrupted by other responsibilities or switches in command structure due to crisis. This made for a relatively successful mobilisation effort in which little time was lost due to command structure hierarchies. The tactical command structure aided the medical services as well, as the EMCCOA did not need to maintain as much situational awareness and oversight as the police operations centre due to the ambulance scene commander taking responsibility for coordination in this regard. This also facilitated a quick, ad-hoc solution to the problem of a casualty overload at the clearing stations. Early in the crisis, the ambulance scene commander requested that the EMCCOA organise a bus transport from the clearing station to a nearby first aid post, a solution to limited capacity in ambulances which meant many lightly injured people could be helped much quicker than if they had had to wait.

In comparison, the fire department suffered from a lack of capacity at their emergency call centre and a command hierarchy, which impeded the mobilisation of neighbouring fire brigades in Nedre Romerike, Asker og Bærum, Søndre Follo, and Nordre Follo. The emergency call centre was staffed with just two operators, who had responsibility over communicating and coordinating with the fire commander, managing incoming emergency calls, and mobilising neighbouring brigades. This resulted in the fire commander requesting support from the neighbouring fire brigades at 15:35, but the actual requests not arriving until 20-30 minutes later, as they also had to pass through the local emergency call centres. Aside from this capacity issue, mobilisation was without major issues, and the first firefighters at the scene even self-mobilised while maintaining communication for oversight.

Based on the experiences of the organisations, three main issues can be deduced. Firstly, the more hierarchy is present within the command structure, the larger the time delays due to having to follow the chain of command; the EMCCOA was able to dispatch a large number of

ambulances in a very short amount of time, while the police and fire department had to pass through several layers of hierarchy before the orders reached the persons doing the groundwork. The issue experienced by the fire department and the police is a known problem within command and control structures, where coordination barriers can form between layers which slows down communication and coordination. The medical service mobilisation effort, on the other hand, was more reminiscent of a network governance structure, with the EMCCOA having direct communication lines to all ambulances under its command. As the theory predicts, mobilisation went much faster here, though this is in part because coordination took place intra-organisationally, which mitigates most of the coordination barriers identified by Eyerman & Strom. Secondly, outdated communications systems can seriously hamper efforts to respond to a crisis, as they slow down mobilisation efforts, and hamper the actors who have to manually mobilise in carrying out the tasks they are supposed to do, such as maintain situational awareness and a general overview in the case of the operations commander. Finally, regardless of the effectiveness of mobilisation, there will be a degree of self-organisation; the medical and ambulance scene commanders left before they were dispatched, as did the Oslo fire department HQ callout leader, and many police officers reported directly to the incident commander as the operational level missed oversight. This puts more responsibility in the hands of tactical commanders, which can be effective in that they have a better understanding of what is needed on the ground. However, it also hampers operational coordination efforts, which could lead to increased uncertainty in cases where the geographical crisis response area is less concentrated than it was in Oslo and scene commanders have less oversight themselves.

4.2 Utøya

In the case of the Utøya crisis response operation, there are fewer concrete examples of issues than in Oslo. Though the helicopter which never came and the sinking of one of the boats ferrying police to the island are famous examples of problems during the operation, they can be blamed on insufficient preparedness by the police. Compared to the car tip and the TV2 evacuation, these examples are therefore not related to organisational failures or communication issues, and therefore fall beyond the scope of this thesis. However, there were significant problems in Utøya, mostly pertaining to operational coordination, and horizontal and vertical communication, both intra- and inter-organisational. The operational situation and communication issues relating to coordination will therefore be discussed more in-depth, with the operational section focusing on the actors involved and their relations to one another.

Finally, there was a high degree of self-organisation, in the absence of effective mass-communication; this too will be discussed.

4.2.1 Operational Situation

At the moment that the first emergency call came into the EMCC Buskerud and was forwarded to the Nordre Buskerud Police District (NBPD) at 17:24, the main NBPD station at Hønefoss was staffed with 7 persons: an operational commander, 3 policemen on duty cleared for weapons use, a policewoman who had stayed after her shift who was cleared for weapons use, and two officers not cleared for weapons use. This was a relatively low staffing, which resulted in the operational commander being left alone at the station to coordinate, while everyone else left as quickly as possible. Consequently, communication was spotty; when Søndre Buskerud Police District (SBPD) called NBPD at 17:27 to inform them of the aid they were sending NBPD did not answer, whilst NBPD did answer in the same minute when OPD called to confirm awareness of the situation and offer assistance. The assistance SBPD was offering consisted of all patrols that could be recalled to the main station in Drammen, a small sized city. However, several attempts to make contact and establish a meeting point failed, resulting in all patrol cars from SBPD being sent to Hønefoss station instead of directly to Utøya. As for OPD, they informed NBPD that they were preparing to send a helicopter, and that Delta was most likely coming. Furthermore, there was a Crisis Command Group (CCG) during the Utøya crisis situated in Hønefoss, but by their own admission, the operational staff had not had considerable training in their roles, and felt uncertain in carrying out their work (NOU, 2012). Also, NBPD was a small district with little experience in large-scale operations, and the high degree of self-organisation and initiative limited situational awareness for the CCG. This meant that the CCG was not a considerable actor in terms of coordination of the crisis response operation. Finally, Delta HQ was another actor, who had to maintain contact with its own troops in areas with limited communication capacity, and NBPD for coordination.

Aside from the police forces, there were three fire departments involved, namely those of Ringerike (RBR), Jevnaker (JBR), and the Drammen region (DRBV) with their deputy fire chief residing in Hønefoss police station, four hospitals that fall under the Vestre Viken hospital trust (Bærum, Drammen, Kongsberg, and Ringerike) and Oslo University Hospital, and the Norwegian Civil Defense. The 110 (fire department), 113 (medical services), and 112 (police) centres were also involved on an operational level, though there was much uncertainty due to bad communication here as well, resulting in the former 2 making own decisions which were

not checked with the police. Fire brigades called out proactively with boats, and 113 coordinates their efforts without much insight into what the police needs. However, self-organisation also knew its limits, as the 110 operators were somewhat inexperienced with shooting situations and did not have standard operating procedures to fall back on, leading to them relying on the police for directives (Renå, 2018). Finally, the operational situation on the ground was spread out as well, with 3 areas designated as casualty clearing stations and the local incident command post being moved.

Due to the scattered nature of the different actors on a strategic and operational level in the Utøya crisis response, it is reminiscent of the network governance model described by Moynihan (2009); there are many actors that would normally operate on equal footing, without a specific chain of command. On paper, the NBPD and its CCG should have been the commanding district in this scenario as it lay within their jurisdiction; however, due to the inadequate communication channels, low staffing at NBPD, and inexperience with intra- and inter-organisational coordination during such a large crisis, they were limited in fulfilling this role (Renå, 2018). Also, Renå (2018) finds that the operations commander at Hønefoss is overloaded by the surge of information streams and pending problems, effectively leaving NBPD without a clear command structure, just like in Oslo during the early phases of the crisis. This is compounded by the fact that operations commanders have been found to be taken less seriously than incident commanders by forces on the ground (Bye et al., 2019). Furthermore, though there was some communication with the CCG in Oslo, their internal issues, occupation with the situation in the city, and limited situational awareness of the operation in Buskerud meant that they could not be of significant assistance. The situation around Utøya therefore matches the network governance model, including its susceptibility to inter-organisational coordination barriers. Differences between the organisations in terms of communication media, crisis preparedness, and situational awareness prevented them from coordinating their actions effectively, which in turn affected collective sensemaking, as no shared understanding could be formed of what support was needed and would be supplied. Furthermore, the naturally formed task delegation resulted in separate pockets of control, each of which formed their own interpretation of the events based on what they deemed necessary based on their expertise, and limited communication with other organisations. Interesting here is that there was no explicit working around procedures which preceded the limited situational awareness; rather, the fragmented playing field of organisations within a loosely coupled network grew naturally.

Finally, it is remarkable that the result of the loosely coupled network governance model was a high degree of self-organisation, which will be discussed more in-depth shortly.

4.2.2 Communication & Coordination

The geographical area surrounding Utøya was not covered by the TETRA system, which facilitated access to the Norwegian Public Safety Network. This is an emergency communication system, wherein any tactical or operational unit with a connected radio can communicate with all other responders. This system was rolled out in all neighbouring areas, Oslo included, but not yet in the Nordre Buskerud region, hampering communication between first responders. Furthermore, general telephone and radio coverage in the area was limited, and responders were too occupied to constantly be listening in on radio chatter, which resulted in significant communication issues during the crisis response operation. This can best be described by considering a number of examples in which communication was ineffective.

There were some significant examples of intra-organisational non-coupled or partly-coupled information in the police. The most damning of these is the limited communication lines between NBPD and SBPD. Due to not establishing what the meeting point was from NBPD, SBPD sent its reinforcements directly to Hønefoss police station, after which they had to be forwarded to Utøya, arriving there at 18:59. In later evaluations, it was found that if SBPD reinforcements had been sent directly to Utøya, the first patrol could have arrived at 18:30, and thereby could have played a much more meaningful role in the crisis operation early on. This can be explained by the coordination barriers which are likely to occur in a network governance model, most notably inter-organisational communication. Had effective communication media and a coordinating operational command with overview covering both organisations been in place, they could have instructed the police units to head directly for Utøya. However, in praxis predictability and a common understanding was limited due to the coordination barriers, resulting in the delayed arrival. Another instance of non-coupling of information was when a patrol asked what the meeting point was one minute after the operations commander indicated Vanførehjemmet as meeting point over the radio, which is indicative of ineffective communication lines. Finally, on an operational level, the operations commander of OPD told the NBPD operations commander at 17:48 that a helicopter was incoming, potentially with Delta. Around the same time, the CCG in Oslo told the NBPD commissioner (who was on holiday) that Delta was definitively on its way, information which did not reach the operations commander of the NBPD (Renå, 2018). This occurred while the first Delta patrol had already

been directed towards Utøya at 17:30, and 26 Delta officers had been dispatched from Oslo at 17:46. This is indicative of a multiplicity of interpretations existing at the operational and strategic level due to coordination barriers and the assumption of a common understanding.

Another great issue was the lack of shared direct communication lines between the emergency response organisations. For instance, when Ringerike fire department (RBR) called 110 at 17:56 to find out whether assistance was necessary after seeing police cars speed by, 110 was unable to inform them of what was necessary; RBR eventually found out that boats, equipment for water rescue, and stretchers were required after listening in on the medical services' radio. Similarly, when medical helicopters landed near Utøya to ferry casualties to nearby hospitals, the helicopter pilots had to leave their vehicles and walk over to the incident commander to gain a situational report, which they could then pass on to other medical units via the shared medical radio system. Finally, when the fire brigade chief at Hønefoss police station overheard that there may be a bomb threat at the quay where a casualty clearing station was established, the chief immediately communicated this with the fire scene commander at 19:35. The fire scene commander disregarded this information and chose not to evacuate due to the large number of casualties. However, when the incident commander and the medical scene commander received the same information one minute later, he did agree to evacuate. This is remarkable, as an officer took the word from horizontal partners over that of a vertical superior. One possible explanation is the fire commander accepting the orders of the incident commander due to him being in uncertainty, then assessing the expertise of the incident commander as greater than his own or that of his operations commander, and a common understanding being reached once the incident commander bridged the knowledge boundary by identifying the clearly visible van as a threat.

The examples illustrate communication issues leading to problems in effective coordination, situational awareness, and collective sensemaking. The lack of effective communication meant that a common understanding of what was happening and what everyone was doing was difficult to facilitate on an operational level, and hence limited in the mobilisation phase. Also, this led to a greater degree of independence on the ground once a local incidence command post had been established. The functioning once there was a tactical command hierarchy was experienced as functioning well, with a greater dependence on other tactical forces than operational command (Rimstad et al., 2014). This can also be seen in the trust that the fire scene commander placed in the incident commander over his own operational commander when there was a potential bomb threat at the quay. Another example of this is the medical

helicopters, who had to pass information from the tactical commanders to their organisation, rather than information flows going top-down. Hence, it can be said that the ineffective communication channels led to greater tactical inter-organisational dependency, horizontal and vertical partial decoupling between organisations and of the operational and tactical levels, and more bottom-up information flows than top-down.

4.2.3 Self-Organisation & Self-Coordination

Aside from the self-organisation of the emergency services, there was a significant rescue effort from civilians who were staying at a camping nearby or lived in the vicinity of Utøya. While these civilians were of much help to the emergency services (Renå, 2018), and the value of bystander initiative in a crisis situation has been demonstrated (R. R. Dynes, 1994), this matter falls outside the scope of this thesis, and will therefore not be discussed further.

With the only mass-communication medium available being an SMS-based warning system for the Crisis Command group (CCG) (Renå, 2018), and other communication methods being limited as described above, there were difficulties with mobilising emergency responders. Concurrently, the limited situational awareness which was especially present in the early phases of the operation and the highly time-dependent nature of the crisis resulted in a dependency on self-organisation and independent coordination. Following, two examples of this will be discussed. Finally, there is another minor example, namely that of RBR which called itself out with boats and rescue materiel. However, this example concerns an organisation acting proactively on incomplete information, rather than individuals taking initiative or decentralised command. Hence, the previous discussion of this example will suffice for further theoretical discussion after the analysis.

The first example of self-coordination pertains to a delegation of tasks and responsibility from the incident commander to the first patrol car (P-30) to leave Hønefoss police station, in the early phases of the operation. When P-30 leaves at 17:38, the incident commander orders them to acquire a visual and observe the situation while he prepares the boat, without any further instructions. This is because the incident commander assesses that they will be able to coordinate themselves better once they establish situational awareness than he can do at that moment (Renå, 2018). Once they arrive at 17:52, they observe that there are no satisfactory boats at the quay leading to the island, and suggest that the meeting point should be moved up to near the quay. 5 minutes later, the incident commander arrives near Utøya at Vanførehjemmet and reintegrates P-30 under his control, now that he has his own situational

awareness. By decentralising through delegating the task and giving P-30 some autonomy, the incident commander was more quickly able to gain sufficient situational awareness to act once at the site, effectively using P-30 as a reconnaissance unit. This helped with collective sensemaking once they met up again, and even though information such as a large number of civilians helping beyond sight was missed, the autonomy granted to P-30 helped with increasing certainty and situational awareness during the early phase of the operation. Vital here is that the information gained by P-30 was coupled back to the incident commander, bridging the knowledge boundary and thereby creating a common understanding of the situation, as well as increasing predictability on-site.

Secondly, at 18:00, an off-duty police officer was watching the prime minister's conference in which he mentioned shooting on Utøya. Rather than sticking to the procedures of calling in as available and awaiting orders, the officer calls a colleague, and a friend with a boat, and drives to the NBPD station in Vikersund with his colleague. Here, they gather armour and weapons, before leaving at 18:24 and meeting up with their friend who has arrived with the boat. They then drive to Utøya, arriving at 18:50 (Renå, 2018). In comparison to the NBPD's 62 minutes from station to Utøya, their mobilisation time is 50 minutes, helped by the boat being prepared upon arrival and not having to wait for clearance or approval. Hence, by falling outside of the (troubled) command structure, they were able to mobilise and deploy on site significantly faster than on-duty officers. Once on site, they were absorbed into the crisis response operation. This situation was a very limited example of effective network governance coordination, with a few actors acting on equal footing completely outside of vertical command structures. Due to their personal relations and the small scale of the coordination, there were no coordination barriers, facilitating quicker coordination than would have taken place through a command hierarchy. Also, by joining the greater crisis response operation after working around procedures to join the effort, predictability was maintained as the incident commander was aware of their presence and capacities.

4.3 Comparison

In this comparison, the focus will first be on communication media and what effect it had on the crisis response operations. Following that, the organisational structures of the crisis response operations will be compared, first on a tactical level, then more generally.

4.3.1 Norwegian Public Safety Network

In 2006, a bill was passed in parliament which granted the Justice department the power to roll out a digital emergency network which would span the country. Nødnett, or the Norwegian Public Safety Network (NPSN) would be set up based on TETRA technology in two phases, and fall under the responsibility of the Directorate for Emergency Communication. The first phase became operational in June 2011, and covered the Søndre Buskerud, Asker og Bærum, Oslo, Romerike, Follo, and Østfold regions (NOU, 2012). This notably excludes the Nordre Buskerud region, in which Utøya lies. On 22/7, the NPSN was therefore available in Oslo, but not around Utøya.

Within 10 minutes of the bomb exploding in the government quarter at 15:25, the Directorate for Emergency Communication (DNK) and Nokia Siemens Networks (responsible for day-to-day operations) were made aware of the incident. At 15:50, DNK activates systems for network monitoring of voice traffic and radio terminals in the NPSN, and following evaluations at 16:30 and 16:58 show that the network experienced heavy traffic, but was stable and functioning properly. As has been shown in section 4.1.4, the regions in which the NPSN had been rolled out were also the regions which responded to requests for backup from the police and the fire department, as they were easily contacted. Traffic monitoring showed that approximately 1300 NPSN radios were used in the Oslo crisis response operation, and this facilitated inter-organisational coordination; rather than being dependent on information coupling through the operational and strategic levels before reaching the target, tactical units could speak to one another directly, bridging inter-organisational coordination barriers. As can be expected, little evidence was found of ineffective horizontal inter-organisational coordination in Oslo due to insufficient communication media.

This stands in stark contrast to the situation around Utøya. As has been discussed, there were significant hurdles in both intra- and inter-organisational communication due to improper radio coverage, and the absence of TETRA. For instance, there was uncertainty about the deployment of Delta, Norway's elite police organisation, due to communication issues at the strategic and operational levels. The uncertainty resulting from the crisis situation made it difficult for the operations commander in Hønefoss police station to stay updated with every other actor as his main communication medium was the telephone, and the status of the incoming Delta operatives therefore only became clear once they physically entered the area covered by Nordre Buskerud police district's radio network. Examples such as these eventually resulted in a

decentralisation of inter-organisational cooperation to the tactical level where commanders could coordinate face-to-face. Compared to the Oslo crisis response operation, there were far more inter-organisational communication barriers in Utøya, the effects of which were compounded by the fact that the network governance model is more susceptible to inter-organisational coordination barriers. Hence, it can be said that the use of NPSN played a significant role in the effectiveness of coordination in Oslo and Utøya when compared to each other.

4.3.2 Organisational Structures

During the crisis response operations, the Norwegian tactical system for crisis response was used, called the local incident command post system. A full accounting of the intricacies of this system can be found in the appendix. In this section, the use of the local incident command posts will be discussed first, before taking a broader view on the organisational structures of the crisis response operations.

Once the bomb in Oslo exploded at 15:25, a rapid response vehicle immediately self-dispatched carrying the incumbent preliminary medical commander and ambulance commander, who were subsequently alarmed by the emergency medical call centre Oslo & Akershus, and arrives at the scene within 3 minutes. While they and their personnel start setting up an initial casualty clearing station, the police incident commander arrives five minutes later, followed by the fire commander at 15:35. At 15:37 the incident command post was established on Einar Gerhardsens plass, at which all scene commanders were present, with the medical commander being a temporary placeholder for the head of the Oslo University Hospital air ambulance section, who arrived at 15:55. At this moment, the incident command post was properly staffed, from which the scene commanders coordinated their actions face-to-face. Due to organisational difficulties at the operational level, institutional disregard of operational commanders within the police (Bye et al., 2019), and the crisis zone being relatively small, the scene commanders were able to effectively coordinate with each other without much interference from operational command and with high situational awareness. This resulted in, for instance, the ambulance commander instructing the dispatch centre to mobilise nearby hospitals, while this decision is normally made by the hospitals themselves (Rimstad & Sollid, 2015). This high degree of self-organisation avoids the ambiguity described by Moynihan, as it focuses command within the incident command post rather than muddling command hierarchies via interference from the operational level. In a crisis situation that spreads out over a large area or has several incidents

taking place, this could result in a lack of situational awareness and sensemaking. However, due to the locality and singular nature of the incident in the government quarter, the local incident command post effectively facilitated inter-organisational coordination, breaking down communication-related coordination barriers.

Meanwhile in Utøya, when it became clear to the emergency services that an attack was taking place, the geographical spread of organisations to be involved and low preparedness at an operational level resulted in initial ambiguity in how the situation would be handled. A few relevant examples are misunderstandings about where to establish casualty clearing posts and command posts, improper situational awareness at operational level leading to limited delegation of tactical forces who in turn had to self-organise, communication and coordination difficulties as a result of not having a joint communication channel and limited capacity in terms of communication devices, and insufficient collective sensemaking. With this situation as a backdrop, the response to the Utøya shooting had to be formulated.

The first location designated as the incident command post was at the quay from the mainland to Utøya, which featured a casualty clearing station; however, before long, the incident command post was moved to Elstangen, as this featured a landing area for medical helicopters. The command hierarchy was not yet complete at the quay, and incident commanders started arriving at Elstangen at 19:00, with other medical commanders overseeing the casualty centres at Sundvolden hotel and Ringerike hotel. At Elstangen, communication between the commanders was less intensive than in Oslo, due to them having to be more actively involved in the operation; there were short briefings of a few minutes every 15-20 minutes, rather than continuous communication. This resulted in horizontal communication being more processed by the commander giving the information, and the operational command having a more active role in coordination of the different organisations (Rimstad et al., 2014). This contributed to diminished shared situational awareness between the organisations, resulting in, for instance, air ambulances having to receive their information in the short period of time that they were landed before communicating it to their colleagues. Geographical distance too played a role in this, as there were no direct communication lines between medical commanders at different locations and the incident commander at Elstangen, resulting in communication having to pass through the medical communication system by proxy. However, the commanders all indicated that they experienced the inter-organisational functioning as successful at the incident command post (Rimstad et al., 2014). As a final note, the commanders behaved more

independently at Utøya than in Oslo, relying on their expertise to make decisions rather than seeking advice or guidance from their commanding colleagues (Rimstad et al., 2014).

The main difference in effectiveness of the command posts lies in the organisational hierarchy on the scenes. In Oslo, the crisis area was reasonably small, and effective communication media were available; this meant that the incident commander could take command of the situation by coordinating the other scene commanders, effectively creating an ICS at the tactical level. At Utøya, however, the geographical spread of different locations meant that a network governance model was formed, with limited communication media. This resulted in more coordination barriers than in Oslo, with separated pockets of control as scene commanders were busy coordinating their own forces over the spread-out operation. However, seeing as the scene commanders found their inter-organisational tactical coordination effective, it must be assumed that the regular meetings between the scene commanders were sufficient in reaching predictability, accountability, and a common understanding.

The situations and the tactical levels can also be extrapolated to the greater crisis response operations. Whereas the Oslo crisis response operation was hierarchically structured according to the command and control model, the Utøya operation was more reminiscent of the network governance model. This has two main reasons: the number of organisations involved in the operation, and the spread of the operation. In Oslo, the emergency response organisations were relatively large in terms of personnel and capacity, meaning that little involvement of other police departments, fire brigades, or medical services was required. This meant that there was a relatively small number of organisations to deal with, which makes a hierarchical command more effective as there are few operational and tactical nodes to deal with. Furthermore, the spread of the operation was limited both geographically and in terms of communication lines, making for more effective and efficient coordination on the scene. The Utøya operation, on the other hand, featured many smaller organisations which had to be coordinated, leading to limited oversight within the Crisis Command Group. Also, the spread of the operation was much larger both geographically and in communication lines, making central command challenging. Therefore, network governance without a clear central commander evolved. In terms of effectiveness, there were positive and negative points in both operations. Whereas the Oslo operation experienced problematic intra-organisational coordination barriers but more effective inter-organisational coordination, the Utøya operation experienced both intra- and inter-organisational barriers, which were to some extent mitigated by self-organisation and

self-coordination. Due to these differences, it is difficult to conclusively say which operation was most effective; rather, drawbacks in both should be noted as learning opportunities for future crisis response coordination.

5 DISCUSSION

In bringing the findings of the analysis back to theory, two main topics can be identified: the organisational configuration of the crisis response operation and its effect on coordination, and fragmentation in coordination in the crisis response operation. As such, these two topics will be covered below; the organisational section will focus on what insights can be drawn from the Oslo and Utøya cases, while the fragmentation section will look back on the fragmentation perspective worked out in the theoretical framework, and how the Oslo and Utøya cases relate to these. In the organisational section, three additions to current literature will be formulated, while the section on fragmentation will feature two additions.

5.1 Organisational Structure

In the theoretical framework, coordination as directive action (formal) and coordination as collaboration (informal) were discussed. Looking at the cases, the strongly hierarchical crisis response operation in Oslo matches most with coordination as directive action, while the more loosely coupled operation around Utøya matches more with coordination as collaboration. Concurrently, Oslo is what can be described as a comparatively fixed crisis; there was a single incident at one location, the organisations that were to be involved in the response operation were clear when the incident took place, and though there was the bomb threat at the TV2 office, the circumstances and consequences were relatively stable during the operation. Utøya, on the other hand, was more dynamic; the incident and its effects evolved while the response operation was already underway, there was initial unclarity about which organisations would be involved in what capacity, and due to ineffective information coupling the circumstances and consequences were perceptively in flux. Based on the findings in the analysis, it can be said that, despite coordination barriers, formal coordination was effective in Oslo, while informal coordination was more effective around Utøya. In a fixed crisis situation, coordinating via a hierarchical system can be effective because the perceived facts do not constantly change. This means that slight delays in coordination due to information having to travel through a hierarchy do not have a significantly negative impact on the operation, and that operational oversight and coordination can benefit the tactical situation by relieving pressure on tactical commanders. In a dynamic crisis, however, informal coordination is more effective, as constantly changing facts make it necessary for actors to quickly adapt to the new situation, which does not work if orders first have to travel through a hierarchy. Rather, coordination as collaboration in this context means that tactical actors can keep each other updated and act with

greater independence from commanders. Thus, when a crisis occurs and a response must be formulated, it is wise to consider the nature of the crisis, and adapt the crisis command structure accordingly.

However, this does not necessarily have to be an active choice. As has been observed in the cases, there was more uncertainty about capacity and needed response in the Utøya operation. As a result, the crisis response operation started leaning more towards a network governance model. However, the intended structure for all crisis response operations in Norway is an ICS with decentralised responsibility, and in the Utøya case as well, a Crisis Command Group (CCG) was installed with the aim of structuring the response similarly to the Oslo operation. At no point was an active decision made to switch from a command and control model to a network governance model; this evolved naturally based on the different inputs and ambiguities that evolved during the crisis situation. This happened both on a structural level and within the actors themselves, with the mindset of the fire commander during the evacuation of the Utøya quay being a prime example. Rather than trusting what his operational superior stationed in the same building as the CCG said, he disregarded orders, and only decided to evacuate once his scene commander colleagues said this was prudent. This behaviour goes against Moynihan's idea that personnel are more loyal to their own organisation than a temporary incident command structure (Moynihan, 2009), but more importantly, shows a mindset switch in the tactical officers from accepting orders from higher-up, to taking into account input from different directions. This shows that the structure of a crisis response operation is not necessarily fixed beforehand but dynamic depending on the situation, and is sensitive to contingencies that may develop during the operation. A lesson that may be drawn from this finding is that it may not always be prudent to strongly enforce a hierarchy of command from higher-up if it appears that an operation is decentralising and fragmenting; rather, taking a step back and allowing the operation to develop in accordance with the situation can result in a more effective crisis response operation that is better suited to what the crisis demands.

Finally, though the theoretical framework concluded that a network governance model is more susceptible to coordination barriers, it is also more effective at mitigating them. When an ICS experiences coordination barriers, these are entrenched in the hierarchical structure of the ICS, and difficult to break through; the decoupling of the CCG in Oslo, for instance, was only resolved once the critical phases of the crisis had subsided. However, in the network governance model, the greater degree of flexibility in communication lines allows for actors to bypass coordination barriers more easily. For instance, the inter-organisational communication

barrier of ineffective communication media around Utøya was bridged by medical helicopter personnel by speaking with the incident commanders while casualties were loaded on to the helicopters. By doing so, the personnel was then able to distribute situational information and coordinate bottom-up via the medical radio network. Within a strong ICS hierarchy, this would in principle be against the top-down coordination chain of command, and a communication barrier between operational commanders of the police and medical services would make coordination difficult. Thus, the flexibility of the network governance model can facilitate mitigation of inter-organisational coordination barriers, while the hierarchical nature of command and control models features more entrenched coordination barriers that are less easily bridged.

5.2 Fragmentation

There is a key difference between the findings of this thesis, and the theory worked out by Wolbers, Boersma & Groenewegen: whereas their described fragmentation takes place on a single organisational level, the fragmentation found here is more focused on the relationship between the operational and tactical levels. This difference manifests itself mainly in how the process of fragmentation went. The cases of Oslo and Utøya do show the coordination practices, and the fragmentation characteristics that are likely to follow. However, these do not follow the neat process model drawn up by Wolbers, Boersma & Groenewegen (2018). Rather, the coordination practices ran through each other such as with the delegation of tasks and working around procedures, created both greater and lesser situational awareness at the same time, and caused vertical pockets of control to form while horizontal cooperation increased. This shows in multiple ways. With regards to coordination practices running through each other, it occurred several times that an action taken by an actor was a combination of the coordination practices. For instance, the decoupling of the Oslo CCG negated procedures because P3 of the CCG was not aware that he had to be in close contact with the operations commander at the emergency call centre, constituted a delegation of tasks as some of P3's responsibilities inadvertently landed with the operations commander (who further delegated to the incident commander), and was a demarcation of expertise because P3 decided to focus on what he knew he could do over what the tasks associated with his position were. This was an ad-hoc adaptation which came from different interpretations of what P3's tasks were, which resulted in separate pockets of control, which in turn resulted in a multiplicity of interpretations between the different pockets of control. At the same time, the delegation of tasks resulted in varying situational awareness at different levels of the hierarchy, with that of the CCG being

limited due to little information passing to them, the operations commander's situational awareness decreasing due to an increase in workload, and the incident commander's situational awareness increasing due to having to take more responsibility over the tactical situation. His increased situational awareness did not travel upwards due to coordination barriers between the different levels, preventing a collective sensemaking process and common understanding. The same occurred at Utøya, with the operational command of the police delegating most responsibility to the incident commander, leaving them for the most part in the dark with regards to situational awareness.

Furthermore, while operational coordination practices led to separate pockets of control between vertical levels, horizontal coordination at the tactical level increased as a consequence. Both in Oslo and around Utøya, the incident commander had a great deal of responsibilities delegated from operational command, increasing dependency on colleagues at the tactical level. In Oslo, constant deliberation between the scene commanders at the local incident command post took place, and the cohesive operation at that level indicates that the integrating conditions of predictability, accountability, and a common understanding were likely reached. The same is true for Utøya, where short meetings in intervals helped integrate the tactical response. Hence, perhaps paradoxically, the evidence from these cases seems to suggest that fragmentation and integration can exist next to each other when considering several levels of crisis coordination; whereas there may be separated pockets of control vertically, there may at the same time be horizontal shared accountability at the tactical level. Moreover, when considering several levels, the findings suggest that the process of fragmentation is more iterative, fluid, and unordered than the process model would make one assume (Wolbers et al., 2018, p. 1536). Several coordination practices can take place at once, the triggers are fuzzier, and both fragmentation and integration can be the result of a single coordination practice. This finding could be interesting to work out further based on more case research in the future.

As a final note, fragmentation may actually positively affect the effectiveness of a crisis response operation. In the cases, this is most visible in the practice of delegating tasks. Once the operational command levels delegated operational responsibility to the incident commanders, they effectively gave the officers with the highest situational awareness responsibility over managing the operation. In both cases, communication with the operational level was limited for the incident commanders, and by receiving operational authority, they could make vital coordinating decisions based on insight that the operational levels did not have. Hence, decision-making was made more effective by the delegation of tasks, as there

was a better possibility for the right decisions to be made. However, while this may be temporarily effective as a solution to chaotic moments in crises, it is not a durable solution; the incident commander already has much to do on a tactical level, and a task overload could be seriously detrimental to the incident commander's functioning. Therefore, though a positive effect can be concluded in the cases discussed here, further research should be done into how much responsibility an incident commander can handle before becoming overloaded, and what time frame should be attached to the delegation of operational tasks.

6 CONCLUSION

At the start of this thesis, the following research question was posed:

> *How did the emergency response services coordinate their operation on the 22nd of July 2011 in Olso compared to the operation around Utøya?*

In order to answer this question, timelines have been made of the crisis response operations, from which key moments and coordination streams in the operations have been drawn. Specifically, key sub-cases were operational issues in both operations, the processing of the car tip, evacuation of the TV2 office, and mobilisation of resources in Oslo, and communication and self-organisation around Utøya. Furthermore, the two operations have been compared in terms of the effectiveness of the use of the Norwegian Public Safety Network, and the organisational structures of the operations. These sub-cases have been temporally bracketed and analysed in terms of coordination, with a focus on ICS literature and fragmentation. Based on this analysis, it has been found that the crisis response operation in Oslo was conducted using a hierarchical incident command structure, while the operation around Utøya was more reminiscent of the network governance model. In matching with the command structures, the Oslo operation mostly experienced coordination barriers that were vertical and intra-organisational, while coordination barriers in the Utøya operation were more horizontal and inter-organisational. The coordination barriers in the Utøya operation were more easily bridged, because the network governance model allows for greater flexibility in communicating with different actors than a hierarchical command and control structure.

In terms of fragmentation, it has been found that this was certainly present in the crisis response operations, though it took place more intra-organisationally than inter-organisationally. Furthermore, the coordination barriers and fragmentation allowed for a greater degree of self-organisation, self-coordination, and coordination at a tactical level where situational awareness was the highest, resulting in more effective decision-making. However, fragmentation effects such as the creation of separate pockets of control also meant that sensemaking processes became recursive and compounding, with the initial potential bomb threat at the TV2 office eventually being perceived as a definitive bomb in the Crisis Command Group in Oslo, while tactical personnel found that it was a phony threat. Furthermore, the breakdown of predictability, shared accountability, and common understanding between the tactical and operational levels in the Utøya response left the operational level a lame duck, with most coordination taking place at the scene by the incident commander and scene commanders from

the other emergency response services. This means that fragmentation of coordination in a crisis response operation can have both positive and negative effects.

Based on the findings in the analysis, some additions to current literature on crisis command structures and fragmentation have been formulated. For crisis command structures, it was found that the nature of a crisis (fixed or dynamic) can determine whether a formal or informal approach to decision-making is more effective, that the network governance model can dynamically evolve even if the intended command structure was the command and control model, and that the network governance model can be more effective at mitigating coordination barriers than a command and control model. For the fragmentation perspective on coordination, it was found that fragmentation between vertical levels of command does not neatly follow the process model designed by Wolbers, Boersma & Groenewegen but is more iterative, fluid, and unordered, and that fragmentation can have a positive influence on the effectiveness of crisis response operations. As a recommendation for future research, it is prudent to critically compare these conclusions to other crisis response operations, to discover whether they are generalisable, or can only be induced from the 22/7 crises. If the findings are valid irrespective of variables such as country, command structure, or duration of the crisis, they may provide a valuable addition to the academic field of crisis management, and specifically ICS- and integration/fragmentation literature.

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8 APPENDIX: LOCAL INCIDENT COMMAND POST SYSTEM

The Norwegian incident command system for crisis management is defined by decentralised responsibility, and according to Rimstad, Njå, Rake & Braut (2014) is made up of four basic principles:

1. Principle of Responsibility: An actor with responsibility in an organisation's day-to-day functioning is responsible for implementing necessary action during a crisis.
2. Principle of Proximity: Crisis management must occur at the lowest appropriate organisational level.
3. Principle of Equity: The same procedures, resources, and organisational structures that are used in regular functioning should be used during a crisis.
4. Principle of Cooperation: It is mandatory for all public and private actors to contribute to a joint crisis contingency with whatever relevant resources they may be able to offer.

Additionally, during a multi-agency emergency response, a local incident command post is established. This consists of an incident commander provided by the police who reports to the chief of police at the operation centre, and a fire commander and medical commander who report to the incident commander (Rimstad et al., 2014). From this command hierarchy, joint tactical decisions are made regarding the crisis response. Also, an ambulance scene commander is present to coordinate the actions of ambulances, though this scene commander may also be at the ambulance gathering point rather than the incident command post (Rimstad et al., 2014).

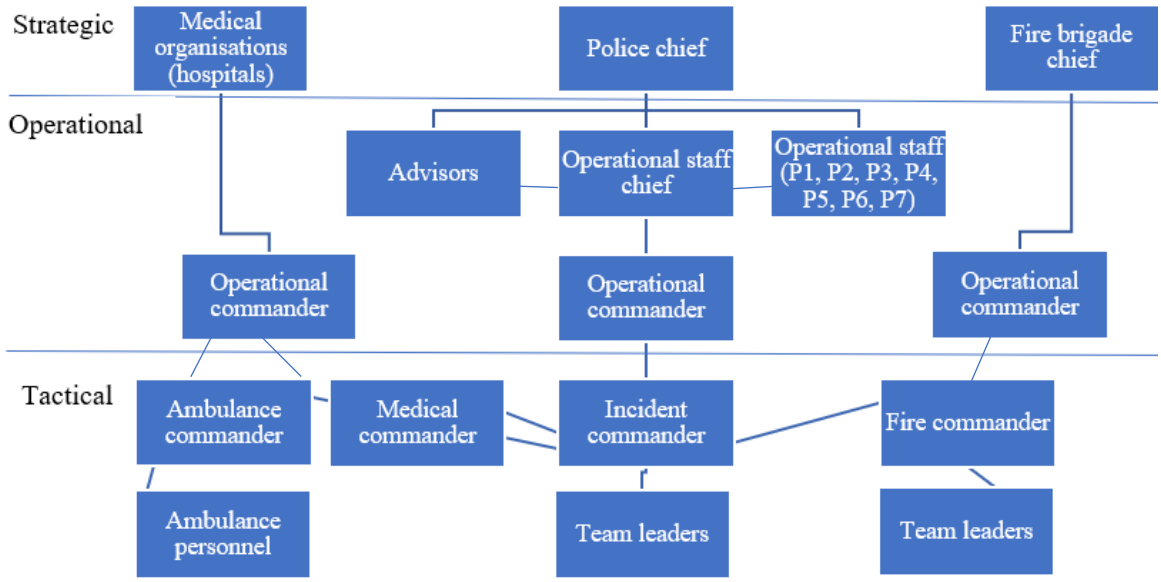

Table 2 - Organisational chart of Norway's incident command hierarchy, based on (NOU, 2012; Rimstad et al., 2014). Please note that the incident commander ranks higher than the other scene commanders, and is responsible for coordination at the tactical level

In conjunction with being under the tactical command of the police incident commander, the fire commander and medical commander also answer to their respective operational centres, and maintain constant contact. This duality of command at different levels is reminiscent of the network governance in incident command structures described by Moynihan (2009), as it combines a semi-central command with short communication lines between different organisations. This has the advantage of allowing for quick and effective communication between different organisations on the tactical level, and the easy sharing of information coming from the operational level. Furthermore, it allows for some discretionary decision making based on experiences 'on the ground' from actors with varying expertise, such as the police incident commander identifying safe zones for the fire and medical commanders, without the operational level having to command from their position of limited situational awareness. For instance, with regards to this discretionary decision making, Bye et al. (2019) have found that the police operational commanders not only delegated tactical decisions to the incident commander in Oslo, but even allowed him to make operational decisions. However, the network model also contributes to ambiguity in chains of command and responsibilities. For instance, when a fire brigade chief at the operational command post overheard that there was a bomb threat at the Utøya quay and gave the order to evacuate, the fire commander refused to evacuate the quay due to the large number of victims requiring aid present. However, once the incident commander received the same intelligence from the same operational command post and gave the evacuation order, the fire commander did comply. This is reminiscent of issues described by Moynihan (2009) resulting from multiple commands and network diversity; shared authority can lead to ambiguity over who is in command, disregard of the incident commander due to primary institutional loyalty amongst other emergency responders, and bypassing of the command hierarchy on the tactical level.