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INCREASING SOCIETAL RESILIENCE THROUGH JOINT RESPONSE

Analysing the quality of interoperability and cooperation during multidisciplinary response to violent attacks in Finland

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ABSTRACT

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During the last two decades, marauding violent attacks towards the general public in Finland have been rare. Even until recently, these incidents were considered plausible, but not probable threats. However, in the last ten to fifteen years, Finland has experienced several of such tragic incidents. Official investigation reports on those incidents stated that the interoperability and cooperation of the responding organisations was not efficient enough. The main agencies involved in response actions were the police and the emergency services.

During the era of rising extremist threats, this thesis aims to identify possible models for multidisciplinary response and identify the current gaps in the joint approach in use. Data for this thesis was collected from known leadership and cooperation theories to form a base of understanding what elements are critical for successful cooperation. Experts from both the police and the emergency services were interviewed to create and map the current models for cooperation while responding to marauding violent attacks. This model was then referred to similar existing models from similar operational cultures in Europe. Based on those references, and the theoretical framework, topics of development were presented. It is the conclusion of this research that there is currently no comprehensive model for multidisciplinary response to marauding violent attacks in Finland. A framework for future development is proposed in the results and the conclusions of this thesis and it is stated that based on those findings, future development should be carried out.

Keywords: Cooperation, Collaboration, Interoperability, Response model, Societal Resilience

The originality of this thesis has been checked using the Turnitin Originality Check service.

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1 Introduction

Violent acts against the general public by different types of assailants is not a new phenomenon. In societies after the attacks in New York on the 11th of September 2001, several new approaches and methods for the prevention of violent attacks were developed (Schmid, 2020). One of the major identified aspects, if you will, was the understanding on the importance of a comprehensive societal approach on the prevention of violent attacks.

When observing the current approach in Finland, the primary angle is on preventive actions, from both the security forces, like the police, and the social support services, as well as healthcare and immigration sector (Ministry of the Interior, 2019). Reducing the likelihood of an attack through implementing these measures is one part of resilience towards violence.

The resilience towards violence, or any type of a threat that includes mitigating actions towards the risks, also includes preparedness and response models. In this case, if a violent attack has been carried out. Preparedness and response should be also seen as a multidisciplinary or a comprehensive approach. Especially after an attack, the effects are long lasting and reach further than just the physical victims of the incidents. For example, the psychological effects on the general public, or on the witnesses, should be taken into consideration.

Since there is no defining general theory on prevention (Schmid, 2020), instead, we will focus in this thesis on response models. We want to emphasise here the existence of the comprehensive societal approach, but in our thesis the main focus is on the police and emergency services. As an example, for the comprehensiveness, responding to these aforementioned psychological issues or traumas, societies need also the support and role of other non-security related actors, such as the social and welfare sector and possibly even the volunteer sector.

Security and emergency services encounter, on a regular basis, incidents involving violence. Usually these are on a smaller scale, such a domestic violence, brawls or other forms of violence on a person-to-person level but mass casualty incidents involving violence are rare.

There are numerous reports, theses, guidelines and other guiding documents for these organisations how to encounter violence, victims of violence and set standard operating procedures in responding

to an incident involving violence on a smaller scale. Such models are trained and practiced within the organisations themselves, alone.

Acts of mass violence are still rare in Finland. Since the new millennia, there have been few tragedies such as the bombing in Myyrmäki shopping centre, school attacks in Jokela, Kauhajoki and Kuopio and the violent attack in Turku. These were all incidents that had a multidisciplinary response by the police and the emergency services.

On the official reports investigating the incidents and the actions of the authorities during the response-operations, it is stated there are gaps in interoperability, cooperation and communication. Even though the authorities involved all have individual guidelines and standard operating procedures, there has yet to be a joint operational model.

In this thesis, we will look into the current cooperation structure in Finland between the police and the emergency services during a marauding, or active, violent attack. We will form a theoretic framework based on existing leadership and cooperation theories and analyse the possible gaps through reflecting the Finnish models to existing similar and hard proofed models such as the ones used in the United Kingdom and The Netherlands.

The topics of this master's thesis is evaluating the elements of cooperation between the police and the emergency services during a violent attack. The themes of this research are interoperability, shared situational awareness, communication and cooperation between the said organisations.
According to the Finnish Security and Intelligence Service SUPO, the threat of violent attacks currently exists in Finland. In their latest Yearbook (SUPO, 2020), they made the statement that the risk of a violent attack carried out in terroristic purposes still exists. Even though actors like the Islamic Caliphate are currently more passive than in recent years, the threat focus has shifted more towards right wing extremists. These are of course only two examples of possible motivations behind carrying out violent attacks.

The issue here is that no matter what the reason or motivation behind the attack, the objective of the immediate response by the authorities is always the same. To minimise the casualties, prevent the loss of lives and, of course, to apprehend the assailant as quickly as possible. To achieve these objectives, the joint actions have to be coordinated and there has to exists a common understanding on the capacities and resources of the other actors.

Both of the writers of this thesis are or have been working within either the police or the emergency services. We know from our professional life that there are those individual models, but a common structure is missing. Naturally, we do not base our thesis on this assumption. Nevertheless, this argument is also confirmed and validated in the incident reports presented in our thesis.

Identifying the gaps is one of the main aims of our thesis. We will also try to understand if there are some existing elements that are hindering the development of cooperation and joint models. We are asking, what are the current models in Finland and what are the gaps? Successfully identifying those elements, comparing them with existing theories and models, we can formulate a suggestion for a cooperation framework.

Our hope is that this thesis would work as a catalyst for the development of a national joint operational model in Finland. The successful execution of a joint response to a situation that is highly volatile, erratic in nature and has the potential to cause mass casualties, must be coordinated and the authorities involved must have a common understanding; to be on the same page.

2 Research question and Methodology

In this chapter, we will introduce the overall themes of our thesis, our research question and the hypothesis to support it. We present the literature review and our methodological approach for this work.

As the basis for our research question, we are referring to the incident that occurred in Turku on the 18th of August 2017 and the report of the Finnish Safety Investigation Authority (Onnettomuustutkintakeskus, OTKES). We will also reflect on similar incidents in Finland, e.g., Kauhajoki and Jokela school attacks, but on a smaller scale and with the aim of validating our hypothesis and arguments.

The focus of this thesis is especially on marauding violent attacks. Marauding violent attacks, such as the one in Turku, are what is called, an active situation. This means that the perpetrator or the attacker is currently still active, carrying out the attack and the conditions are still unknown.

The opposite for an active situation would be a bomb attack were an explosive device has caused damage to life and property, but the response activities can be carried out relatively safe without the fear of an external threat. The defining element is that the attacker or attackers have not yet been captured or the threat has not yet been removed but response activities from all the involved actors are already being carried out.

Based on the report, and what was presented in the media regarding the incident in Turku, the situation was a textbook example of a marauding violent attack. The whole incident itself lasted only a brief moment, but the already during that time there were issues on information sharing and setting up a common situational awareness. The report itself stated that the information about the attack was not shared adequately even within the organisations themselves.

During a situation where there is no way of knowing the number of attackers, or the possibility of additional threats, exists a level of uncertainty on what measures should be put in place. This element makes the situation to be a chaotic one. Since this seems to be the nature of these attacks, as it also was in the cases of Turku, Jokela and Kauhajoki, we wanted to focus on these types of incidents.

The attack in Turku was carried out by a single attacker. His aim was to cause as much physical damage as possible amongst the general public. Since the incident in Turku is the basis for our research questions, it is described more in detail in chapter 2.1. The incidents in Kauhajoki and Jokela were both violent attacks in schools and both similar in nature, also to the Turku attack. A single person attacked the students and staff of those schools during working hours killing and injuring several people. The attackers both took their own lives after the police attended the scene.

Our focus on the reports, and in these incidents in our thesis, is on the interoperability, cooperation and communication between the Police and the Emergency services and the statement that the reports deliver. In our thesis we will not discuss the motives, the assailant or details of the attacks more than it is necessary or relevant to our topic.

In the afternoon on the 18th of August, a person with the intent of executing a violent deed for terroristic purposes carried out an attack in the city of Turku. During the incident, he managed to stab several by-standers and mortally wounded two people (OTKES, 2018). After carrying out the first attack, or from the beginning of the incident, the assailant was apprehended by the police in less than ten minutes (OTKES, 2018).

The incident report from Turku (OTKES, 2018) demonstrates that the gap between the first call to the emergency centre and the first unit being dispatched was only one minute and five seconds. Within the first thirty seconds, three police units had already reported in as responding. The first paramedic units were dispatched within one minute and 20 seconds after the first call. The response by the police was deemed effective and coordinated.

The response activities after the initial capture of the attacker were chaotic by nature. Civilians and by standers were giving first aid to the wounded. Staff from a private medical clinic rushed to one of the scenes to administer first aid, some patients were moved indoors by civilians and by standers. In such a chaotic situation, especially with several improvised response activities, the importance of joint coordination and situational awareness becomes an important element.

2.1 Research question

Based on the OTKES report, one of the elements for the success of response by the police, were the models developed by the police, and for the police, in recent years (OTKES, 2018). The report also

states that due to the lack of direct communication or cooperation model between the paramedic units and the police, resources were not directed in the best possible way (OTKES, 2018). Based on the report, we could already argue, that this could be rectified by developing a joint model for incidents of similar nature. This issue was pointed out several times in the two other incident reports.

The fire units of the rescue service were not dispatched to the incident, since they currently do not have a role in Finland during response to violent attacks. Through their own initiative, they arrived at the scene and supported the investigation of the crime scene. The report states that there should be a model how to utilise the rescue services resources in the future during similar or even larger scale incidents (OTKES, 2018).

The OTKES report states that emergency services and the security services do not have a comprehensive understanding on how the other actor works, what are their operational models, skills or resources. This statement is based on the findings from the incident in question, and the other similar violent incidents in Finland we are referring to.

We are now asking: What are the existing models and procedures for cooperation between the emergency services and the police, while responding to marauding violent attacks? What are the possible gaps currently and how would the existing models possibly compare to similar existing models?

Based on the report and our professional experience, from both the Police and the Emergency services, our hypothesis is that there are functional response models within each individual organisation, but there is a lack of communication and cooperation.

We argue that this is due to the lack of an existing model for interoperability and cooperation. Our aim is not to develop such a model, but to present the basis for rectifying the issue through drafting a framework suggestion based on a gap analysis. We also work with the assumption that there is no actual reason for the models not to exist, except that such situations are still quite new and uncommon in Finland and no standards and best practices for cooperation have not yet been formed or the lessons learned have not been implemented.

2.2 Concepts

This thesis covers certain themes and concepts that are rather distinct or require further explanation in what relation the concept is being used throughout the research. To increase the readability, we will discuss how certain concepts were used in this thesis. First off, the central theoretical concepts in this thesis are:

Cooperation

One of the central themes in this thesis revolves around cooperation, a concept that has been defined by many disciplines as well as authors. Cooperation on a biological level might refer to working or acting together to gain an advantage. The same would hold true for the cooperation between organisations or agencies.

The assumption we have adopted on the concept of cooperation, based on Grays (1984) and Valtonen's (2010) works are that cooperation is a process. In this process, the actors follow the following steps: Define the problem, set the direction, define the structure of the cooperation and finally use the model they constructed. In general, we worked with the definition of cooperation as the coordination of measures to exchange information and adjust actions to support reaching a joint or shared objective.

Interoperability

Another central theme in this thesis is interoperability. The concept is being used both information technology as well as military and public safety. Interoperability within IT mostly refers to the ability of systems to allow flow of information between the systems i.e. information exchange. Wegner (1996) defined the concept as '… the ability of two or more software components to cooperate despite differences in language, interface and execution platform.'

While the utilization of the concept interoperability within the domain of military and public services differs, some of the analogy still stands. Here too, two or more organisation/agencies seek to cooperate despite different language (different jargon or abbreviations), interface (different uniforms, brand or overall style) and execution platform (different objective or mission).

To that extent, we,partly, follow the same interpretation of interoperability as Noran and Bernus (2011) that interoperability enables the exchange of information and its use but also as ability to perform a function on behalf of another entity. However, since in this thesis interoperability in joint operations is specifically addressed, JESIP's (2018) conceptualisation might be more holistic: *"Interoperability is defined as 'the extent to which organisations can work together coherently as a matter of routine' and is not about making services interchangeable but recognising where there is the need to work together and where it is necessary to be different."*

Marauding Violent Attack

CPNI (2018) uses similar definitions, both, Marauding Terror Attack (MTA) and Marauding Firearms Terror Attack (MFTA). The concepts are both used in UK government as well as the emergency services. While the concepts seem to differ slightly, based on the firearms element in the abbreviation, the abbreviations are used interchangeably.

Marauding violent attack can be an incident happening in rapid pace including single or multiple assailants in one or several simultaneous areas with the objective of injuring or killing as many persons as possible. It can be carried out utilising various methods such as knife, use of a vehicle as a weapon or possibly firearms. The attack is usually active during the response phase.

However, the element of 'terror' is complicated and potentially divisive. Indeed, the very definition of terror is one that is highly debatable. As Margariti (2017) noted in her research, to this day there is no uniform definition drafted by the United Nations General Assembly that is supported by all of its members. This process has been going on for 20 years, yet still lacks decisive description.

Because this thesis does not focus on the terror aspect any more than is needed, we have opted for the description Marauding Violent Attack. Additionally, certain concepts in this topic stem from public safety and might not be familiar to all readers. Therefore, we sought to further clarify some concepts that are utilized in this thesis.

Major Incident

Incidents are the instances that first responders like fire fighters, ambulance and police respond to. Often times incidents are of limited scale and might require little to no cooperation between

agencies to be settled. By contrast, major incidents are situations that require a level of response beyond the regular scale, due to any given reason that escalates the situation. We can think of a large fire, which requires firefighters to take control of the fire and subsequent hazards, ambulance services to treat patients and police to hold back the public and cordon off a safe working space for the previously mentioned agencies.

The UK's Emergency responder interoperability lexicon (2013) defines major incident as *'Event or situation requiring a response under one or more of the emergency services' major incident plans'.* Usually, a multiagency response will also require different levels of strategic coordination i.e., coordination on operational, tactical and strategical level. First responders on the scene might take on the initial operational and/or tactical coordination. But when an incident increases in size, more recourses will need to be allocated by the agencies as well as possible mid- and/or long-term strategies will need to be formulated. This might require coordination on regional or even national level, depending on the hazard and impact on society.

Mass Casualty Incident

Directly related to the scope of an incident is the casualty rate. Often times the number of casualties severely affects an incident and, in return, the number of resources allocated to manage the incident. Overall, a mass casualty incident is an incident (or series of incidents) causing casualties on a scale that is beyond the normal resources of the emergency services as defined by The UK's Emergency responder interoperability lexicon (2013).

No definitive quantification for the word 'mass' exists. However, the lexicon offers an indication. It notes that such a major incident could potentially involve hundreds of casualties, or more.

Interagency liaising

One approach to cooperation and interoperability between agencies that involves advising and supporting, for example, incident commanders is inter-agency liaising. In this approach, two or more public agencies share information and tasks, often with the objective to reduce risk and increase shared awareness in the form of an inter-agency liaison officer (ILO).

The Emergency responder interoperability lexicon (2013) mentions that such liaison officer is trained to support other disciplines on, for example, the organisation's operational capacity and capability to reduce risk. What's important to note is that these officers operate on their respective strategic level.

2.3 Literature review

In this chapter, we present the key literature for this thesis. To have a more structured approach, the literature is divided into sub-categories based on the themes they belong to. The literature we have used has enabled us gain understanding on what are the most relevant theories related to cooperation and leadership. What type of existing multidisciplinary models there currently are and what issues have been identified relating to cooperation in Finland based on actual events. We utilised this knowledge to form our theoretical and analytical framework and to create the basis for the interviews with the experts.

2.3.1 Leadership theories

Over time, the views on the topic of 'Leadership' have changed. From the lone man who, with his innate leadership skills, was destined to lead, to a more democratic approach or even a form of coaching. In juxtapose, some theories suggest that the leader is dependent on the circumstances they are faced with. While leadership has been studied from many different dimensions, radical changes in theories are more or less absent. Rather, researchers seem to have developed based on each other's theories in relation to the change of the times.

Thomas Carlyle has laid the foundation of one of the earliest leadership theories back in the mid 1800's; The Great Man theory. He noted that great leaders are born, and their superior skills make them destined to lead. (Sorensen & Kinser, 2013) The notion that leadership will only be successful with a great person at the helm makes for a bleak outlook in modern times where cooperation and democratic processes are much more prevalent.

Partly discarding the notion of innate leadership qualities is the Trait Theory. It initially made the distinction between leadership skills that are inherent in a person and the skill that one has learned through experience. However, in the late 1940's criticism arose regarding failure to consistently

distinguish between leaders and non-leaders. Moreover, the not taking into account the (social) situation the leader is in proved to be a major issue of dispute. (Stogdill, 1948)

Noteworthy, however, is that the theory is seeing somewhat of a revival. The theory has been further evolved into more discerned traits and the model takes into account the leader's operating environment. Despite the Zaccaro (2007) notes that: *"Despite the long history of the trait-based approach and its recent resurgence, a consensus about the role of leader traits, the magnitude and mechanisms of their influence, and the determining role of leadership situations has remained elusive."*

Behaviour Leadership Theory focuses, indeed, on the way a leader behaves. While the leader has a set of traits fit best for a certain leadership style, leaders can learn new traits and styles. (Yukl, 2013) Notable are the, initial, different approaches of task-oriented versus the relation-oriented leaders and, more contemporary, approaches to change, ethics and cross-cultural leadership.

However, when taking multidisciplinary incident response as backdrop in where leadership should come to fruition, theories like 'The Great Man' and Trait theory become less relevant. The need to look into the traits or behaviours that make a leader are interesting, but emergency situations are a very specific set of circumstances that must be taken into account.

To this extent, we have further looked into the Situational Leadership theory. The theory takes the circumstances of the leader's situation into account when determining the effectiveness of the leader. The theory does not present a single solution as the answer to the leadership question. Rather, it acknowledges that different situations call for different leadership styles. Different approaches to situational leadership will be discussed in chapter 3.

2.3.2 Cooperation and collaboration theories

Firstly, we have to acknowledge that related to our topic, there is no single existing theory of cooperation that we could have selected. It can be said that no single theory is suitable for the type of cooperation and collaboration we are studying due to the multileveled nature of it. For this reason, we have selected two very universal and adaptable theoretical models. Models are from Gray (1985) and Mattessich and Monsey (2001).

Gray suggests in her analysis of collected theories that in a multifaceted collaboration situation, cooperation can be seen as a process. The author states that collaboration as a basis for cooperation should be seen more as a model of problem solving and the links or ties between the parties involved should rely on existing interdependencies or common goals in a shared operational environment. Gray proposes that for successful collaboration the balance of power between the collaborators, their engagements during any given operation and resourcing their contributions should be planned to meet existing pre-conditions proposed in her model.

Such model approach can be valid in the case of multifaceted or nodal approach for cooperation. In a situation where all of the parties involved are governmental or public sector, one has to remember that they most likely do not share common objectives outside this pre-defined environment of cooperation. E.g., one of the objectives of the Police is to uphold public safety and security and prevent crimes, whereas, for the emergency services, the objectives are the prevention of and responding to accidents and emergencies involving damage to properties or to the well-being of a person.

To tie the different objectives and values together to achieve collaboration, the process approach can be utilised to identify shared points of interest. Gray's three-phase process model helps to visualise and concretise shared issues like values, operational responsibilities and existing interdependencies between the actors.

To have successful cooperation and collaboration Mattessich and Monsey (2001) in their revised study state that there are several critical factors for the success of cooperation. The reasoning is same as it was with Gray's model. For the multifaceted cooperation of organisations, without shared operational objectives, cooperation needs to be planned and those critical elements for the success need to be identified. Mattessich and Monsey developed a list of 20 of these critical elements. This can be seen as a kind of a 'checklist' for filling the requirements of a successful cooperation. Since the type of cooperation, we are observing in this thesis, is constricted by the legally binding duties of the organisations involved, the list as a whole is not applicable. E.g., in their list favourable political environments are mentioned. In a case where the operational objectives are to up-keep security and the safety and wellbeing of material and human lives, it should not matter how favourable the political environment is.

The presented list in itself is a useful tool and, most definitely, it creates an ideal framework on which to build the basis for cooperation. The main goal of both of these models, Gray's model and Mattessich's and Monsey's model, is to guarantee that all the parties involved are familiar with their counterparts. To understand how they operate, communicate and what are the existing links between the actors. This can be already be seen as part of situational awareness of the operational environment.

2.3.3 Joint response models

Emergency services responding to any incident will do so, generally, according to a specific procedure or model. This ensures a standard approach to incidents, ensuring safety, quality and efficiency. However, changing procedure still allows the personnel flexibility in the approach should an incident change, in either scale or additional hazards that might appear as the incident progresses.

As mentioned in the previous sub-chapter, the way an agency responds to an incident largely has to do with their objective in relation to the incident. By following a joint response model, agencies follow a guideline to ensure they cooperate efficiently and effectively together, despite distinct objectives. However, as Noran and Bernus (2011) note: 'the organisations responsible for delivering emergency response services often under-perform (or even fail), typically due to a lack of proper interoperation and collaboration.'

Ever-increasing complexity and frequencies of disasters warrants improved multidisciplinary incident response and interoperability between agencies. The Kerslake report (2018), the OTKES report regarding the Turku Attack (2018) as well as the paper of Noran & Bernus (2011) all underline this need. These sources echo the need for improvement around the same themes despite different geographical areas, reviewed incidents and agencies.

In the United Kingdom, JESIP's interoperability framework or Joint Doctrine (2017) aims to address these themes in a clear guiding document and corresponding framework aimed 'to support and enhance interoperability between emergency response organisations when responding to multi-agency incidents.' Rather than dictating rules and protocols merely to be implemented by the reader, the comprehensive doctrine explains, informs, and offers guidance. In the end, it is up to the reader to implement the lessons to their own training programmes and procedures throughout their organisation.

Similarly, in The Netherlands, Instituut Fysieke Veiligheid (IFV, 2015, 2017) developed a nationwide multidisciplinary incident response concept known as GRIP. Short for Coordinated Regional Incident-Management Procedure, GRIP aims to improve multidisciplinary response to incidents. Unlike the JESIP doctrine, GRIP is a more defined nationwide implemented response procedure. Parallels in response can be drawn however, much in the way both concepts aim to address information management, shared awareness as well as incident management on different strategical levels.

Moreover, both concepts lend themselves to be, and have been, used in the case of marauding violent attacks, ultimately the scope of this thesis. An extensive analysis of respective concepts can be found in chapter 4.

2.3.4 The incident investigation reports

To support our hypothesis, we have studied different major incident investigation reports of marauding violent attacks in Finland. Mainly from the three high profile major incidents from Turku, Kauhajoki and Jokela. These investigations and reports are public and were carried out by either the Finnish Safety Investigation Authority, Onnettomuustutkintakeskus in Finnish, or by a special commission set by the Ministry of Justice, oikeusministeriö in Finnish.

First of the reports we used, is the report from the ministry of justice on Jokela school attack that was carried out in 2007. It was the second major violent incident in Finland during the 00's and the first that could be described as a marauding violent attack. The report focuses on the incident and what were the reasons that might have led to carrying out the attack. The report has a focus on the cooperation and interagency liaising of the police and emergency services.

The first attack during the 00's was a bomb attack carried out in 2002 in Myyrmäki shopping centre in Vantaa. Since the investigation material has been transferred to the Library of the Parliament, we do not currently have access to it. We can only refer to the information released on a press bulletin by the ministry of the interior. For this reason, we are not relying on the report from this incident. The key issues relating to the communication and cooperation between the police and the emergency services is stated on that bulleting by the ministry.

The second report we are referring to is from the ministry of justice on Kauhajoki school attack, that was carried out in 2008. The time in between these reports and the attack in Turku is nearly ten years. Still, the latest report concludes that there are several areas of development in the cooperation and interoperability of the different authorities.

All of these reports conclude and state, almost in unison, that there are gaps in communication between the police and the emergency services. In the Kauhajoki report, the committee states that the police on-site incident commander had a hard time reaching the situation commander and had to physically visit them. (Ministry of Justice, 2010) The report also states that the situational overview was not up to date between different actors and due to this, actions taken were somewhat random and ad hoc by nature. (Ministry of Justice, 2010).

These gaps in communication and coordination of cooperation are similar and re-occurring themes in each of these reports we have studied. All of these reports suggest further development of the issues. Even after ten years of the first report, the Turku report also makes a note of these points. However, none of these reports offer any concrete suggestions or proposals on how to develop this.

2.4 Methodology

We will discuss the themes of leadership, interoperability, cooperation and communication in the context of joint response actions by the police and the emergency services. To reach the set objectives, we will utilise two approaches, theoretical research and interviews. Findings from both of these sections will be combined into a gap analysis and later discussed.

This thesis will follow the methodology of qualitative research. Due to our professional background, we have identified possible bias in our role. Since both of us have worked within either the police or emergency services, this will already set us in a role of having a more than just an observatory role. Due to this, we have structured our research and approach in that manner, that we will base our findings purely on the external material and not our personal experience.

Also, this background gives us the knowledge on the working culture these organisations have. This is one of the reasons, with the nature of our research, why our approach will follow relativism (Given, 2008) to reflect on the possibility of unwillingness of cooperation. In general, our research paradigm

will be constructionism / interpretivism (Given, 2008). Since our aim is to analyse, compare and propose a change, we feel this hermeneutical approach (Given, 2008) is a valid one.

2.4.1 Research methods

Our research part of the thesis will consist of three main segments. The segments are defined by the use of and the role of our research data. Our aim is to collect data on how cooperation is currently carried out, how does the theory suggest cooperation should be structured and led and what are the identifiably gaps in relation to existing cooperation models in similar incidents. These three segments will work as the basis for our data collection and analysis.

In the first segment, we aimed to identify the existing cooperation and operational models from both the emergency services and the police. This identification was done through interviews. The focus of the data collection was on current incident command communication structures, response models for violent attacks, current cooperation models and what are the incident command structures and interoperability principles, if there are any.

We created our theoretical framework to understand cooperation and leadership models and identify the differences, or similarities, between them. Data was collected by using selected existing leadership and cooperation theories. We also referenced existing cooperation models from the United Kingdom and the Netherlands and incident reports on violent attacks from Finland. Based on these we created our analytical framework for the gap analysis. We will introduce and describe this more in detail in the appropriate chapters under Theoretical framework and Analytical framework.

The second segment focuses, by utilising the collected data, on creating an overview of the current situation or mapping. During the interviews our aim was also to identify possible obstacles for development of cooperation. These obstacles were processed during the gap analysis.

In the third and final research segment we carry out a gap analysis based on the findings from the interview, utilising the theoretical and the analytical framework. As a result of the analysis, and as a suggested solution, we drafted a basis for cooperative framework that will be presented in the end of this thesis.

In this segment we will draw our conclusions and reflect them in regard to the hypothesis and our original question.

To structure our thesis, we have created a modified matrix, or a 'wireframe model', that we utilised in creating and forming the structure or this work. Since we are doing the research as a joint task, we have utilised this self-made drafting tool to identify and distribute our findings and addressing open questions. This writing and compiling method has allowed us to create and observe the flow of our thesis and also control the shared work. The wireframe model consists of four main topics and sub-headings. (depicted below).

Thesis Segment		Segment Substance			Open questions				Other notes
Chapter	Length in pages	Main Themes	Writing points	Quotations and references	Open Questions	Are they solved?	Yes	No	Other notes

Table 1: Modified Wireframe-model

The wireframe model was constructed based on our research plan and the feedback we received during the initial planning phase. Since we have divided our work into these aforementioned segments, we felt that a more comprehensive matrix was needed to create a clear understanding on the objectives and results of our research. This in model is based on our previous research experiences during prior studies. For that reason, we are confident on the applicability of the model as a compilation tool for shared work.

2.4.2 Interview methodology

The interviews were carried out using a semi-structured approach (Bryman, 2012) and planned accordingly. Since both of the interviewers have previous knowledge and understanding on the subject, due to our professional background, we believed that giving the interviewees more opportunities to explain and describe the situation freely was more beneficial for the results. In addition, this background worked to our favour in identifying possible important follow-ups during the interviews. For this type of method, the method of semi-structured interview is most suitable (Galletta, 2013).

Our aim was to identify issues under three main themes: How is cooperation carried out at the moment, what are the identified elements that are lacking in the cooperation and how would they see

any future development? The interview questions were based on the findings in the incident reports and from the literature related to leadership and cooperation theories – how the operations were executed and why were they executed in such manner? What is the model behind it or is there any?

We structured the interviews so that there were three main sections by the aforementioned themes and various number of questions under each theme. These questions were deemed as critical, and we hoped to collect relevant substance on those issues. Based on the answers given, the interviewees could complement the sections with other talking points, that we then would either follow up or dismiss depending on the relevance. The relevance was determined by how it fits under the presented themes in the interview guide.

In the following table we present our interview guide (the question by themes and the desired goal for the questions).

Theme:	Question:	Desired goals
How is cooperation carried out at the moment?	Are there existing guidelines or models for cooperation in responding to violent attacks?	To understand are there any existing models and how have they come to be. To identify is there a clear and common understanding between the actors on the existing structures. If there are no set models, why?
	If yes, how has it been proven or tested?	
	What is the leadership and communication structure in the current model(s)?	
What are the identified elements that are lacking in the cooperation	Identify and describe possible points of development.	The aim is to understand what the organisations see themselves as issues that hinder cooperation and do they identify similar issues. – possibly gaps identified already.
What should the future development be like?	How would you prefer to ensure communication during such situations?	To collect data on points they perceive as important elements. To understand what their preferable and most efficient structure for leadership and cooperation would be.
	How would you prefer to organise the leadership structure?	

		To identify are their similarities or differences between the two perspectives – possibly gaps identified already.

Table 2: Interview Guide

The analysis of the answer was carried out following the steps (Galletta, 2013) presented here. The interviews were recorded utilising the in-built function of the software. Using these recordings, working transcripts were formed. These transcripts were then read through, revised and coded by marking key words to identify relevant issues, surprising answers, something that the interviewees stated that was important or was in-line with the presented theories. The interview answers were collected into a summary and comparison table based on the organisation and questions asked.

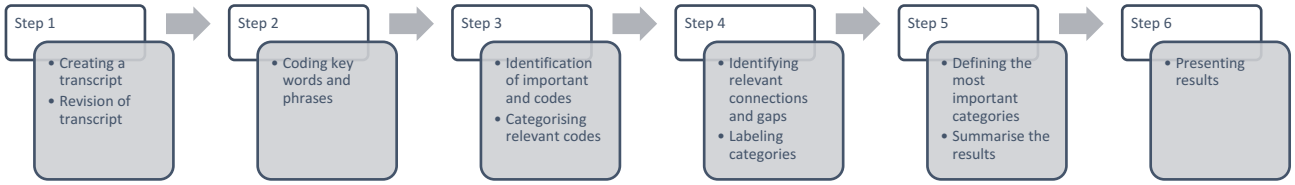

Figure 1: Analysis process of the interview data

The codes were then again read through to analyse which were important and to create topical categories to help to conceptualise the data. With this step, the aim was to identify possible connections, or gaps, on the perceptions of the issues and to help to describe them. The analysis process is depicted in the figure above.

3 Theoretical framework

Communication and coordination of cooperation are comparable and re-occurring themes in each of the incident reports we have studied. Moreover, all of these reports suggest further development of these issues. Even after ten years of the first report, the Turku report also makes a note of these exact issues. However, none of these reports offers any concrete suggestions or proposals on how to develop the issues presented.

3.1 Situational leadership

Responding to any incident requires the responding organisation to take control of the situation. When only a single agency responds to an incident, there can be minimal, if any, interaction with other organisations. On the other hand, when an incident escalates, for example, to a major incident, other organisations are brought into the situation to support or even to take charge.

Usually, the scaling of the incident happens from a central point, in cooperation with the personnel on site. In this increasing of scale and resources, however, it might not always be clear who is leading the incident response. Though a command unit, comprised out of the different disciplines, might be on-site, the general direction and positioning of units might still happen through a cooperation with an emergency response centre operative. In a multidisciplinary response to an incident, it is therefore commendable to have both a professional and pragmatic attitude towards leadership.

This point of view is supported by Hersey and Blanchard (2012) in their 'Model of Situational Leadership'. The model is utilised and applied in several military and policing studies, partly because the theory applies well to the context and processes of these organisations. Indeed, the theory supposes that there is not one single preferred method of leadership but, rather, that one looks at the situation and decide the best course of action appropriate under the circumstances.

Different situations will require different responses from a leader. Hersey and Blanchard (1977, 2012) in their situational theory of leadership use a mechanism that directs the user when to tell, sell, participate or delegate. The authors furthermore note that, to be able to make this situational calculation for the appropriate leadership styles, personnel ought to have developed the following competencies:

- The first competency is the ability to analyse the current situation to determine the appropriate direction for action.
- The second competency is the capacity to adapt one's professional behaviour to gain control of a situation.
- The final competency is the ability to communicate to others in such a way that they can accept a proposal for action.

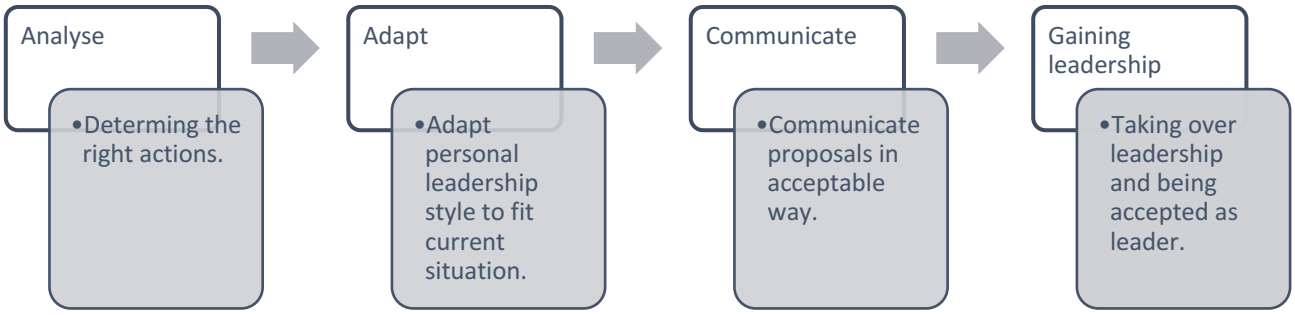

Figure 2: Process chart based on the Hersey and Blanchard model

Situational leadership, or Primal Leadership as the authors dubbed their theory, requires, according to Goleman et al. (2013), personnel that has been given a set of competencies to respond in an emotionally healthy manner to situations. The authors' work links elements of neurology, motivation, and leadership to present a set of building blocks to become a 'resonant leader'. The authors present the idea that being attuned to people's feelings, resonate with them and move them in a positive emotional direction, is the optimal way to lead on both individual and organisational level.

Parallel to Hersey and Blanchard, Goleman et al. introduce the idea that there is no single best way to lead but that each situation requires a different style. The authors, however, define six emotional leadership styles: Authoritative, Coaching, Affiliative, Democratic, Pacesetting, and Coercive. The authors note that respective styles are more appropriate for certain situation than others and will resonate on a different level. Final similarity between respective theories is that when one tries to increase performance on both a personal and organisational level a varied approach is recommended.

Another shared perspective, that situational leadership requires a varied leadership approach, can be found in Fiedler's works. Fiedler (1971) links three elements: leader member relations, task structure,

and leader's position of(?) power to a situation. In 1976, based on Fiedler's earlier works, Fiedler et al. presented a step-by-step programme including a section of leadership vs. situation match.

Key points from Fielders works, in relation to this thesis, are that Fiedler attributes effective leadership not solely on personality. Fiedler sees personality as a relative constant and suggests, rather than changing the personality, adapting the situation to fit the leader in order to increase overall effectiveness.

Finally, in Vrooms works considering situational leadership theories both with Yetton (1973) and later with Jago (2003) one can find some of the earlier elements. The authors share the perspective of adaptable leadership style to the situation at hand. The authors introduce a sliding scale of five types ranging from autocratic to group-based leading. Moreover, in order for the leader to determine the appropriate level of follower's involvement, Vroom, Yetton and Jago developed seven questions:

- Is there a quality requirement? Is the nature of the solution critical? Are there technical or rational grounds for selecting among possible solutions?
- Do I have sufficient information to make a high-quality decision?
- Is the problem structured? Are the alternative courses of action and methods for their evaluation known?
- Is acceptance of the decision by subordinates critical to its implementation?
- If I were to make the decision by myself, is it reasonably certain that it would be accepted by my subordinates?
- Do subordinates share the organizational goals to be obtained in solving this problem?
- Is conflict among subordinates likely in obtaining the preferred solution?

Similar to previous works, Vroom et al. (1973, 2003) make clear that there is no best way to lead but that each situation requires a different approach. However, unlike previous mentioned works, Vroom et al. (1973, 2003) make it quite clear that the leader should consider the appropriate level of involvement of followers based the parameters: quality, commitment, problem information and decision acceptance.

From comparing the different theories, their respective situational criteria and proposed matching styles, an overview can be compiled:

Author(s)	Sit. Criteria	Application	Defined sit. leadership styles
Hersey and Blanchard	Depending on the ultimate developer (Blanchard or Hersey) the authors relate Performance Readiness/Development levels to a leadership style. Unable and Unwilling (Low Competence and Low Commitment) Unable and Willing (Low Competence and High Commitment) Able and Unwilling (High Competence and Low Commitment) Able and Willing (High Competence and High Commitment)	The maturity, or development, of the person or group being led dictates the appropriate corresponding leadership style.	Tell/Directing Sell/Coaching Participate/Supporting Delegate
Goleman et al.	Pre-defined situations as well as defined emotional effects on group/organisation.	The situation dictates the corresponding leadership style. Different styles are used as tools and used interchangeably.	Authoritative, Coaching, Affiliative, Democratic, Pacesetting, Coercive
Fiedler et al.	Leader member relations, task structure, and leader's position power	Improving effectiveness requires changing the situation to fit the leader	Fiedler et al. Use a set of pre-defined situations, based on

		i.e., increasing or decreasing task structure and position power or improving leader-member relations.	mentioned parameters, and define that certain situations would be better for a task-oriented leader and other for a relationship-oriented one.
Vroom et al.	Quality, Commitment, Problem information and Decision acceptance are the initial parameters.	To guide the leader, the authors have set up a framework based on questions to help define the best leadership style for the situation.	Autocratic Type 1 (AI) Autocratic Type 2 (AII) Consultative Type 1 (CI) Consultative Type 2 (CII) Group-based Type 2 (GII)

Table 3: Situational Leadership comparative matrix

As table 3 suggests, each author has their own situational criteria, application and defined leadership styles to match these situations. Further differences can be seen in approach of pre-defined situations like Goleman et al. have opted for versus certain situational criteria. At first glance, the latter allows for more flexibility in approach in contrast to the rigid situations. On the other hand, pre-defined situation in the style of Goleman et al do provide a solid example for the user.

Overall, we can conclude that different authors within the situational leadership school seem to agree on the main message, different situations will require different approaches, or styles adopted by the leader to most successfully manage the situation. Difference in opinion lies in which situations, and what criteria these situations should present with.

3.2 Cooperation and Collaboration

In his doctoral dissertation Valtonen (2010) discusses to great lengths about cooperation and collaboration. He presents that cooperation is a process. This approach originates from Gray's model (1984), where cooperation is presented as a three-phased process. The model depicts how

organisations aspiring to carry out cooperation first have to identify common drivers. The actors need to identify what is the shared problem or issue they aim to overcome – Setting the Problem. This includes identifying who are the required actors to collaborate with and what are the interdependencies between them. They have to identify the existing power structures between them and the difference in their own mandates, e.g., who is allowed to carry out what. Additionally, the first phase includes sharing the desired goal or outcome of the cooperation.

The next phase is to identify what is the operational environment that the actors share; what are the points where the operational tasks meet each other (Gray, 1984) and what are possible shared values – Setting the Direction. Again, as an example, the police and the emergency services work together during the response phase while the attack is still active, or in the immediate phase after that. This is their shared operational environment, and they share the values of minimising the effects of the attack. There is no shared operational environment during the investigation phase or during the actions capturing the possible attacker. The shared values and environment should cover the phase where cooperation itself is planned, but the assumption of Gray's model is that utilising the model is already the fourth phase – planning.

The third and last phase off the model is identifying possible required external mandates and what are the strong interdependencies between the actors involved (Gray, 1984) – Structuring the cooperation. In our opinion, this relates to understanding why the actors would need each other, what is the basis for cooperation relating to existing resources. E.g., the police have a certain role in society and are needed to control the external threats and the assailant during the incident. The emergency services, through their capacities and resources, carry out the mitigating actions and do not have a role towards the attacker or attackers, but to the casualties.

Since the nature of the cooperation should be continuous and multifaceted and not based on Ad Hoc-type of actions, the process itself should incorporate a sub-process for identifying the critical elements. Mattessich and Monsey (1992 / 2001) have identified twenty critical success factors for cooperation. They have created a type of a 'check list', if you will, for formulating the basis for cooperation. This list carries similar themes as the Gray's model (1984). In his dissertation Valtonen (2010) states that Mattessich's and Monsey's model ties the theory into practice. He presents the critical elements in a clarifying table. We feel this clarifies the structure of the elements.

The elements in their models are divided into six main categories with individual topics to address. The main categories with the subtopics are depicted following Valtonen's approach in the table below.

Operational environment	**Prerequisites for participation**	**Process and Structure**	**Communication**	**Goals and objectives**	**Resources**
History of collaboration	Mutual respect, understanding and trust	Sharing risks during and after the process	Open and constant communication	Concrete and achievable goals and objectives	Sufficient funding, staff, materials and time
Leadership of collaboration	Collaboration supports own interests	Representation in all levels	Establishing un-official relationships and communication links	Shared vision	Able coordinator
Favourable climate for cooperation	Ability to compromise	Flexibility		Shared end state	
	Vital actor in the environment	Clear operational and governance roles			
		Ability to adapt to changes			
		Sufficient phase of development			

Table 4: Critical success factors for cooperation

We would argue that Gray defines the process of cooperation and Mattessich and Monsey provide the steppingstones to work on along the way. If one were to combine the two approaches i.e., adopt the process and make the twenty critical success factors individual goals along the process, the chances of developing a solid cooperation are bound to increase.

Reflecting this back to even a larger scale, like the comprehensive societal approach we presented in the beginning, these elements could be considered as the building blocks for a successful

comprehensive multifaceted model. Especially keeping the resilience approach in mind, we can conclude that since cooperation is seen as a process, one of the required skills for the development, in addition to understanding the context, is on process management.

This cannot be identified directly amongst the critical points, and we feel it is important to point out at this issue. We would suggest adding subject matter and process expertise as the twenty-first point under resources.

3.3 Conclusion

Assessing the different theories in situational leadership, the most prominent conclusion is that these authors share the premise that different situations call for different leadership styles. What this leadership style should be based on, however, is a matter of discussion between the authors.

Level of competence and commitment are opted by Hersey and Blanchard in contrast to Goleman et al. who have defined certain situations, in correspondence with an emotional influence, to be best approached by certain leadership styles. Fiedler et al, in the same way, opt for predefined situations where Vroom et al., in turn, have managed to compress the process to answering a set of questions.

Certain aspects of the aforementioned leadership styles might match, or support ones need more and be therefore more suitable. However, the leadership styles will require the user at least to consider the level of maturity of the members they try to lead. Moreover, the user will be required to, at least, consider the appropriate style they adopt when dealing with these members, whether that is a direct 'commanding' approach or one of a more democratic character.

As it was stated that cooperation, and collaboration towards developing cooperation, is generally seen as a process. In the context of our thesis and the joint operational approach, one has to consider what was also stated here about leadership: There is no single one model that is suitable in these situations that are volatile of nature. Both models presented here do set out from the assumption that developing cooperation has to be a process and that to the critical elements that contribute to the success have to be identified by all the parties involved.

4 Analytical framework

In this thesis, we present the research we conducted on interoperability between the Finnish emergency services and police force. Specifically, during marauding violent attack incidents. In this chapter, we have looked at existing interoperability principles from, respectively, The United Kingdom and The Netherlands. These countries were considered for a multitude of reasons: 1. Both countries have extensive experience with violent marauding attacks and counter-terrorism incidents 2. Both countries have developed an extensive set of principles regarding scalability of emergency response and related communication and cooperation aspects 3. Both countries have a long policing history and have relative comparable policies and strategy to the Finnish police force. These include, but are not limited to, community policing or a form of nodal policing (Virta, 2002. Van Steden et al., 2013, EUCPN, 2018) and relative comparable preventive policing policies (Ministry of Interior, 2019).

At the same time, we must address the differences in scale. While the operative scale of The Netherlands compared to the Finnish situation could be seen as a step, or two, up the rungs, the scale of the United Kingdom far surpasses that of the Finnish position. Moreover, composition of societies, history, size of population and geographical position of, respectively, the United Kingdom's and The Netherlands, make that these police forces have a different capacity and matching resources to face their contemporary problems. Despite this, lessons can be learned from both the United Kingdom's Joint Doctrine interoperability principles and the Dutch GRIP incident approaches and, accordingly, applied on Finnish multi-disciplinary incidents.

4.1 Multidisciplinary incident communication and information management

After analysing The Joint Doctrine: The interoperability framework (JESIP, 2016) as well as the multidisciplinary GRIP concept (Instituut Fysieke Veiligheid, 2015, 2017) one can conclude that clear communication, and consequently information management, is one of the fundamental aspects of the both the concepts on an operational, tactical and strategical level.

JESIP highlights the need for clear intra-agency communication but also mark the importance of clear inter-agency communication and reliable information management. Clear and reliable information, as the authors mention, can heavily influence a positive outcome of an incident. This means that, for example, in the acronym heavy world of emergency response, agencies should avoid using these

during incident communication as to lower chances of confusion. Moreover, JESIP encourages agencies to cross-reference their terminology and agree on a unified set of terms. Agreeing upon such a set of terms, together with unified symbols, understood by all agencies is seen as a building block for interoperability by the authors. Correspondingly, Valtonen (2010) also underwrites the latter as one of the factors for development of cooperation of security actors.

Instituut Fysieke Veiligheid (2020) has developed a network-centric approach to support their multidisciplinary incidence response structure known as GRIP. The network-centric information management approach secures the roles and responsibilities of information managers as well as the processes of these managers on different levels. As in the Joint Doctrine, emphasize is placed on clear communication, with the objective of ensuring that the information afterwards stays accurate and available.

Both concepts follow a, relatively comparable, set of principles and activities in order to make sure the right information is available to the right persons in the right form in a timely manner:

Information assessment	Both concepts provide their respective frameworks to ascertain that the information that goes up the line of command is accurate and credible. Parameters for the information assess include: Relevance, Priority, Accuracy, Actuality, Sources, Credibility. (IFV, 2015a. JESIP 2017)
Emphasise on shared situational awareness and joint understanding of risks	Since information might sometimes be available to only one party, but radically changes the approach of the other should they come into possession, it is paramount that information is shared as soon as possible between agencies. In doing so, a shared situational awareness is created. Additionally, by collectively identifying possible risks and hazards for all parties involved joint understanding of risks is created and strategies might adapt accordingly.
Common processes	Both concepts stress the importance for common processes regarding information gathering *and* processing. Ideally, they are co-created to ensure identical approaches. Overall, consistently followed processes in the gathering, processing and sharing of information, will enhance interoperability. (Valtonen, 2010. IFV, 2015a. JESIP, 2017)

Common platform	The means to share, and manage information, in real time, together with cooperating agencies can greatly contribute to interoperability. Agencies involved benefit from being able to combine, analyse and display shared data in an effective way. Efficiency enhanced with a dedicated information manager. (Valtonen, 2010. IFV, 2015a. JESIP, 2017)
Dedicated information manager	An information manager who enables commanders of their disciplines to focus on the incident at hand while taking care of (IFV, 2015a): • Efficiently gathering information • Analysing, validating and assessing information • Assess the needs of information of the commanders • Combine and structure information, removes excess and irrelevant information to maintain focus • Shares and encourages sharing of information among disciplines • Information quality monitoring and information gap detection
Fall-back procedure	Agencies have an alternative or contingency in place should the primary information processes be (temporarily) disrupted. (Valtonen, 2010. IFV, 2015a.)

Table 5: Information management principles comparison

As it becomes clear in table 5, information management here is conceptualised around certain topics. Starting from reliable and accurate information at the scene of the incident serving as the foundation. When information is not assessed i.e., the sources not verified or the priorities of certain pieces of information not acknowledged other agencies may base their actions on information that is incomplete or not actual.

Secondly, creating a shared understanding of risk, hazards and awareness through information sharing at the scene, based on the assumption that all parties deliver assessed information, will lift up the overall understanding. Exchanging information about agency capacity, objectives and risk appetite might change the course of action at an incident.

Key in these actions mentioned before, are common processes. When all involved agencies follow the same method of assessing information as well as dissemination, interoperability increases significantly. Moreover, time can be won as all involved parties work on the same way and can rely on other parties to provide to the best of their capabilities. Further growth can be achieved through a shared platform. This allows the agencies to share information in real time as well as display and modify. The latter might be especially useful for the tactical and strategic levels if they are in a situation room away from the incident.

IFV's GRIP also makes use of dedicated information managers on the different teams assembled on different tactical levels. At first the control room might take on the responsibility until the situation escalates and a appointed information manager joins the on-site command team. This role scales on the tactical and strategic levels as well to guard the informational management process as the incident grows.

Finally, fall-back procedures are to be established as contingencies. One can think of back up channels, or even systems to fall back on should the primary method of communication fail.

4.2 Activities of the control room

The GRIP concept places the control room at the centre of early-stage multidisciplinary incident response. The control room acts in the early stages very much as information manager as well as incident coordinator (IFV, 2020). The control room is tasked with both taking in initial calls, gathering of information as well as coordination of units and the overall incident. (IFV, 2020)

To enhance interoperability between agencies, the GRIP concept aims to co-locate both initial call and actual incident coordination. Furthermore, bigger regions may also integrate control rooms of different agencies together resulting in a multidisciplinary control room. The latter makes both rapid face-to-face communication and coordination possible as well as the multidisciplinary supporting on-site.

Once an incident is scaled to GRIP level 1 or higher, a command post will be established on-site. At higher levels, usually (inter-)regional incidents, a regional operational team and/or regional strategic team is established. This means that on-site commanders of different disciplines are physically at the incident, including an on-site information manager. Once the on-site command post and the

information manager are operational, the on-site information manager takes over the information management coordination tasks. The control room keeps responsibility for the communication between the on-site command post and the control room but becomes a supportive mechanism in the coordinating with other agencies (IFV 2017 & 2020).

Similarly, JESIP's Joint Doctrine (2017) emphasizes the joint character of control rooms to enhance interoperability during incidents. Additionally, the authors present a subset of supporting principles for control rooms to aid in consistency to procedures when working with multiagency responding. Unlike the GRIP concept, the Joint Doctrine notes specifically that control rooms cannot always feasibly co-locate and work with the premise that any communication between control rooms must be established at first rather than assume co-location of multidisciplinary control rooms.

Other supporting principles include:

- Control room supervisors of different disciplines should establish a dialogue as soon as possible. Key points here are sharing of information and mapping the initial response and objectives of the different agencies. In the initial stages of incidents, single points of contact in each control room should be established. This will then be developed into multi-agency voice communication that will include the on-site commanders as the incident progresses.
- Communication with commanders should happen as they are en route to an incident as well as throughout the incident to increase overall situational awareness.
- Establishing of the lead agency and assessment of what information and intelligence does each agency have at early stages of the incident.
- Control rooms should keep communicating frequently and continuously assess the need for resources in relation to the incident. This includes issues like identified risks and hazards, deployed assets and communication and information needs.
- Initial rendez-vous point established by the lead responder and control room may move as the incident progresses or, for tactical reasons, be revised once commanders arrive on the scene. However, having a clearly communicated designated meeting point for commanders to meet up and find each other, helps streamlines the incident response and cooperation in the early stages significantly.

4.3 Incident command structures

With first responders arriving on the scene of an incident there is a chance that without formalized structure of command, assets and specialized units will start to 'freelance' at the scene. As incidents are not always immediately responded to by commanders, it means that there needs to be a structure in place for first responders to up take the initial commanding role until formal on-site command is established. Taking into account a larger incident where the need of multiple disciplines is necessary, a need for a commanding structure is even more prominent.

JESIP's interoperability framework (2017) aims to address the chain of command for incident response following the traditional operational, tactical and strategical levels. Here, these command levels do not always equal one's seniority or even rank, rather the level of command of an individual on the scene of an incident.

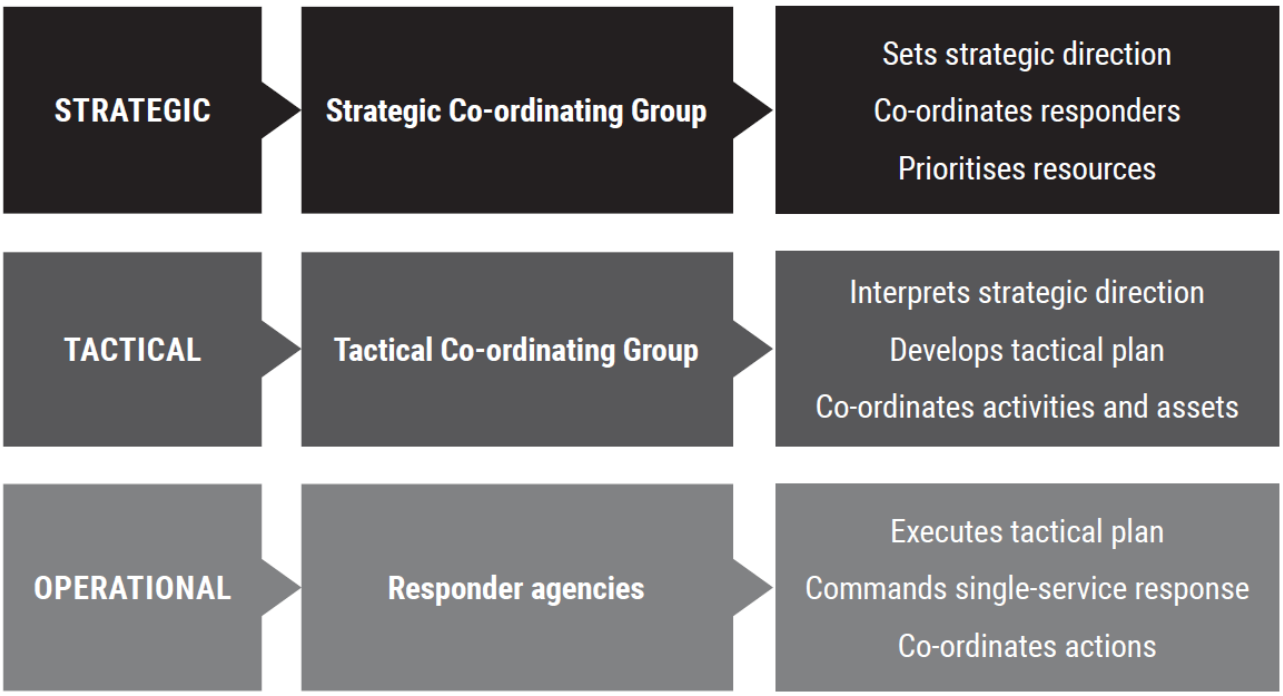

Figure 3: Joint Doctrine's levels of operability (JESIP, 2018)

Figure 3 shows the basic levels of command at an incident as well as their corresponding responsibilities while attending to an incident. The framework expects first responders on site to act as operational commander on-site until such time that officers are appointed to take on the tactical level of command. This, in turn, demands that operational forces are trained in the basics of incident management and know when to call in 'major accident' that allows agencies to upscale in resources.

Operational commanders focus on initial tactics and the deployment of their respective agencies' resources. Despite this, the framework asks to commanders to be in contact with other agencies as soon as possible to share information, risks and hazards, create a shared situational awareness and fill in potential information gaps. This means also to mark a rendez-vous point as mentioned in previous principle.

Once an incident's nature and scale have been determined, based on initial information from operational command agencies, a tactical commander may be appointed by an agency to act as tactical commander officer on-site. The framework marks the communication between agencies in these initial stages as critical and uses the Tactical Coordinating Group (TCG) as a mechanic to ensure forming of cooperation. Emphasise is placed on creating and maintaining effective joint command by the tactical commanders of different agencies. Additionally, the use of liaison officers ensure coordinated response is introduced on this level.

Additionally, the TCG may be asked act out matters that are delegated to them from strategic level. A dialogue between strategic and tactical levels should be formed as soon as possible, sharing information, needs and initial tactics as well as updates back and forward.

The strategical command may be applicable to certain incidents due to, for example, their risks and hazards or simply scale. Unlike the other levels, this commanding level will most likely not be on-site and instead plan for strategic response and resource allocation. To this extent, commanders joining this level and the Strategic Coordination Group (SCG) are officers with experience and have overall authority of behalf of their agencies.

Other duties of this command level may include a media strategy and/or public communication plans. This command level is also likely to plan beyond the immediate response phase of the incident. Recovery from a large-scale incident may take some time and the SGC can be expected to stay formed even after the initial incident has passed.

Emergency response in The Netherlands is based on different regions. This approach becomes more apparent in the later stages of the command structure. Initial command structures show parallels with the Joint Doctrine from the United Kingdom. Likewise, initial responders are expected to assume a commanding position in coordination with the control room. Once scale or other factors require larger number of resources, an on-site command post is set up.

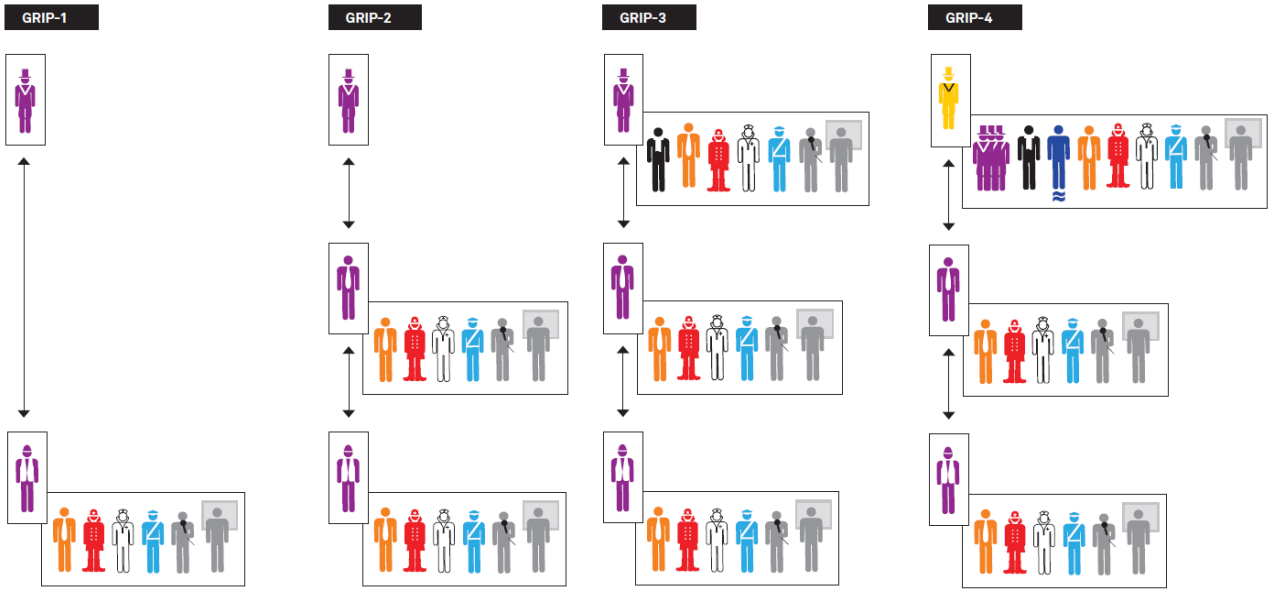

Figure 4: GRIP incident scalability (IFV, 2017)

As can be seen in Figure 4, the GRIP concept assumes that representatives of each agency are represented at each command level in addition to a crisis communication officer as well as an information manager. At GRIP level 1, this means a local representative's officer of the different agencies involved. When an incident requires structural resources outside of the initial incident region, GRIP 2 may be called and another command layer is introduced.

The Regional Operational Team (RTG) assumes command, consisting of senior officers of the different agencies involved. Much like the tactical level in JESIP, the RTG coordinates the operational activities in addition to analysing short- and mid-term affects, ensuring efficient command and cooperation between different agencies as well as advising the next level in the command structure, a Municipal Policy Team (MPT).

GRIP 3 is characterised by a need of strategic decision making and resource allocation. The MPT is chaired by the mayor and the representatives of the different agencies are there to support and advise the mayor in his role. A variety on this situation is the GRIP 4 situation where different municipalities are involved in the incident. Here the mayors are part of the Regional MPT which is then chaired by a regional chair. Additionally, a Chief Public Prosecutor and representatives of involved water authorities are a fixed part of this level.

Regardless of the precise mechanics used in each country, overall parallels can be drawn between the two concepts. Focus on interoperability on each command level, as soon as they are established, coupled with a framework that allows flexibility but provides overall structure for the agencies involved.

4.4 Multidisciplinary approach to violent attacks

Within the JESIP interoperability framework (2017), attention is also paid to major incidents with enhanced hazards or risks, such as chemical, biological, radiological and nuclear defence (CBRN) as well as Marauding Terror Attacks (MTA) or Marauding Terror Firearm Attacks (MTFA). However, due to the sensitivity of the Joint Operation Procedure and response to MTFA, little to no open-source material is available.

Despite this, some publicly available reports and guidance offer some insight. First off, the initial response to MTFA incidents is like other incidents, with a multidisciplinary approach. This means that in essence, all available, specially trained, emergency service personnel can be appointed to the incident in an early stage. In the event of a MTFA, the police force would call what is known as 'Operation Plato' i.e., a response to a no-notice Marauding Terrorist Firearms Attack. (CPNI, 2018. Kerslake, 2018.)

Secondly, the multidisciplinary incident response work with *Hot, Warm* and *Cold* zones (Kerslake, 2018). The dynamic boundaries within the incident that change as soon as new information becomes available. Moreover, they determine the threat of firearms/live terrorist for each zone, however, Improvised Explosive Device (IED) threats may not correlate to these zones' threat levels.

Hot zone	• An area where active terrorist/firearm activity is taking place. • This area is to be accessed only by trained police officer that are adequately equipped to stop terrorist actions in this zone.
Warm Zone	• An area where terrorist/firearm activity has currently stopped but is not guaranteed to be safe • IED threats could remain in the zone

	• Classified warm zones allows emergency service personnel that is trained and wears appropriate protective equipment to carry out live saving activities, extinguish fire and evacuate casualties to a cold zone.
Cold Zone	• An area where no terrorist/firearm threat persists. • The classified cold zone allows non-specialist personnel to carry our casualty management and other supportive duties.

Table 6: MFTA's incident zones:

The Dutch counterpart, GRIP, identifies a terror attack as an incident that, depending on its scale, could potentially develop into a GRIP Rijk situation (IFV, 2020). This means that the coordination of the situation could take place on a regional level but potentially could be also coordinated on a ministry level should the scale require it. In parallel with the United Kingdom, the Dutch emergency agencies have adopted the same threat zone approach when dealing with MTFA's. The approach has been coined ring-model but works identical to the United Kingdom's threat zone approach. (Inspectie Justitie en Veiligheid, 2019)

5 Interviews

In this chapter, we will present the interviews, the aims, how the interviewees were selected as well as the results. As presented in chapter 2, our thesis is working with the assumption that there are existing individual models for both agencies and organisations on how to respond to a marauding violent attack, but the cooperation and interoperability still requires development. Issues related to those themes were pointed out consistently in the incident reports mentioned in the literature review chapter.

Our approach was also to understand why cooperation has not yet been developed, even though this has been suggested numerous times after incidents of violent attacks. With the base collected from the theory, JESIP and GRIP guidelines, considering the general approach of our thesis and what is the nature of the information we want to collect, we reached the decision to focus on the following themes:

- How is cooperation carried out currently?
- What are the identified elements lacking?
- What should the future development be like?

These themes are also presented in the interview guide in chapter 2.

To have a better understanding on what the current models in Finland are and how cooperation is carried out, we interviewed representatives from the police and the emergency services. Our findings will be presented in this chapter, additionally we will also summarise them in a chart at the end of the chapter.

Since the incident reports do not describe any cooperation models themselves, only the development issues, the aim of the interviews was to create an understanding on what are the current models for cooperation and communication in such incidents. Our questions are based on the development themes presented in the reports and through reflecting the presented cooperation and leadership theories. To reach our research goal, it was crucial to have a clear understanding on the current models and the only plausible way was to collect that knowledge through the organisations themselves.

To identify the best interviewees, we opened up a dialogue with the emergency services and the police during our planning phase. At first, establishing the dialogue turned out to me more difficult than anticipated and took more effort than expected. Based on those dialogues, however, it was self-evident that the organisations themselves were the best to identify the persons with the most relevant knowledge, duties and responsibilities within their organisations. Moreover, this way we had no role in selecting the interviewees and were not able to affect the outcome of the interviews.

Substantial part of our thesis relies on the answers given by the representatives of these organisations. For this reason, we took it into account that a natural bias does exists with the interviewees. Since the aim of the interviews were to familiarise ourselves with the models and methods used by the organisations, this possible bias did not affect the end-result. If we would have relied on the interviewees to give proposals on how to create the model, then their role and possible effect on the end-result would have to be reconsidered from our perspective.

Some of the questions do cover the topic of desired development, but this is more for the identification of shared understanding on development issues – do both parties see the same problems.

Due to the nature of the answers, we have decided to grant the interviewees anonymity and we are not referring to names, to any specific rank or regions of the police or emergency services organisation. We are adamant that the anonymity also minimises the effect of any existing biases and how they would answer during the interviews.

During time of writing our thesis, we are still challenged by the global COVID-19 pandemic. This, of course, created extra challenges working on our thesis, but especially for carrying out the interviews. This unforeseeable element is purely the reason why the technical method for the interviews was selected. The interviews were carried out by utilising electronic video call platforms. This allowed us to record the interview situations and have both of the interviewers and the interviewee present at the same time, and that the interviews could be carried out safely and according to form. The interviews were carried out in Finnish, which is the native language of the interviewees. This way they had the best possibility to give their answers and any issues related to language skill do not have effect on the answers. During the interviews, both of the interviewers were present and the other acted as a controller for the situation. He managed the recording, time and made notes on any possible aberration during the interviews. None of such were marked by the controller.

5.1 Findings from the interviews

In this chapter we will present the findings from the interviews that were carried out with the representatives from the police and the emergency services. For the sake of readability, in this chapter, we will refer to them as experts. As mentioned, we decided to grant anonymity to the interviewees, since we felt that this would mitigate the possible effects of trying to create a more optimistic picture of the situation or presenting their organisation in a more favourable light.

The data we were able to collect was applicable and allowed us to reach our set interview goals. Even though they were carried out via video meeting software, the dynamics during the interviews between the expert and the interviewers was good.

The results will be presented based on the three themes on the interview guide (see chapter 2.4.2.). Under those themes, each topic is presented and discussed based on the issues identified through the coding process. The key words are presented in a table in the end of this part.

Since the aim of the interviews was to identify current models that are being used, or the lack of them, what is possibly lacking in the cooperation and how should the cooperation be like in the future, the results from both organisations are presented together.

5.1.1 How is cooperation carried out at the moment?

During the discussions relating to what are the existing guidelines or models for cooperation in responding to violent attacks, the answer given gave one clear picture. There is no current joint model that is fully finalised or working as a standard operating procedure. In the answers from both sides, it was clear that separate topics were discussed, planned and even practised. Such topics were: leadership on a strategic and possibly tactical level and communication on strategic and tactical level.

The expert from the police's side made a remark that more planning is done especially with the ambulance service than with the fire service. The emergency services mentioned that the cooperation has so far focused on joint communication strategies and establishing secluded communication networks for the sole purpose of special incidents. This clearly already shows that there is no shared vision, or at least a discussed vision between the two parties on how to proceed. If we reflect this to Gray's (1984) and Mattessich's and Monsey's (1991/2001) models, the shared vision is missing.

Those models that do exist and are used currently are based on generic cooperation between these two actors. They rely on the models that are being used e.g., during large public events, state visits and other special incidents that require cooperation. None of which are in principle similar situations as an active violent attack. These models however are trained and used regularly. As mentioned in our introduction, there are models for smaller scale incidents e.g., responding to a street brawl or encountering a violent patient or even how to operate in an active shooting environment. These are not applicable directly to a larger scale model but could work as elements in them, especially considering multidisciplined approach.

Regarding the issues related to leadership, this seemed to be clear in theory but in practise both experts noted that identifying leadership should be done promptly and all of the parties involved should be aware on the basic operational model for leadership based on the type of the incident. The emergency services have the lead on incidents that include protection of property, search and rescue and incidents involving accidents. The police have the lead when the incidents are related to protection, safety and security of public and public areas. During incidents that are directly related to health and life saving actions of victims, the ambulance service, or the public health sector in charge has the lead. During a multidiscipline response, based on the answers, this structure is sometimes unclear. As an example, given by the experts, if the incident involves an active attack scenario, the police is in charge. If the incident involves the damage caused by a bomb, the emergency services are in charge.

The main results from how cooperation is carried out at the moment is that both feel there is a lack of an operational model. Communication has been one of the points, that has been developed, but there is yet no assurance or factual proof that it would meet the standards required for proficient communication during violent attack incidents. This is the issue that was also mentioned in several incident reports after the violent attack incidents. At the moment cooperation is seen as something that should be based on communication, but still no structures to gain joint situational awareness on-site have been put into place. The incoherence in information sharing seems to be an issue. In conclusion, there are individual elements of cooperation used in day-to-day life, as well as in larger scale incidents like a major incident or other mass casualty incident. Finally, at the moment of writing, there is no existing joint model for a multidisciplinary response used by the police and emergency service during an active violent attack.

5.1.2 Identified lacking elements in the cooperation

During our background research we felt that only understanding how cooperation is carried out at the moment would not be sufficient enough to map the present situation. For this reason, we also wanted to understand how the experts and the organisations see possible gaps. The idea behind this was to analyse if they have identified similar issues and share a possible development vision. This approach is supported by both cooperation models we observe in our thesis.

As identified already in the answers presented in the previous chapter, both agencies and their experts have identified several issues under this theme. The main points identified are related to command structures and responsibilities, joint situational awareness, leadership culture, communication structures, information sharing and the organisational environment.

During both interviews, the need for joint situational awareness and information sharing was mentioned and emphasised. This, in itself, has been seen as a critical element in both the JESIP and GRIP models as well. The experts both describe situations where an on-site command post, or on-site incident command was set up previously, this helped to create better shared situational awareness and support in communication and liaising. Both organisations have their own situation command centres where situational awareness is being kept, but only in relations to their own operations. Information sharing between these two entities is not as efficient as it should be. To have a current and up-to-date situational awareness status on-site was marked as vital to the success of joint response. Now, when the information is being sent from two separate locations on the headquarters level to two separate locations on-site, there is an elevated risk of failure in information sharing between the relevant actors during the incident.

Issues related to command and leadership came up constantly. If the structure is clear on the strategic level, it is not that on the two others. In theory there is a common understanding of the command responsibilities, as described in the previous chapter. This was also acknowledged by the experts. The issues identified relate to the organisational structures and leadership or command culture. First of the issues identified was the decision-making in relation to communication: who makes the decision, what channel is being used, who are eligible to use that channel and who has the overall communication responsibility.

The second issue in leadership was the different levels of command on-site. For the police, the principle is that the first unit on-site will take over the command responsibility. This is always on a sub-officer level, or even lower. Depending on the region where they are working, the nearest officer might be located over 100 kilometres away. The expert mentioned that it could also be the case of unexperienced leadership. The person who has to take over the responsibility of command could in general be an able policeman but lacks the experience of commanding such situations. This is also resource issue, the capacity to have sufficient training.

With the emergency services, in these types of incidents the command is always on an officer level. This makes the decision-making process for the emergency services much faster, because critical decisions can be made on-site. The difference between the two organisations lies in their respective leadership cultures; the levels of command do not match in the field. According to the expert, the police operations are mostly run from their command centre and the officer does not attend the incident on-site, whereas the emergency services, even the senior officers, attend the incidents on-site.

As a conclusion, the issues identified are similar and there does exist a common understanding on the development points. This result again can be linked to Gray's (1984) and Mattessich's and Monsey's (1991/2001) models. Identifying common development points is one of the key elements mentioned in those models. When discussed about the possible reasons, or hindering elements, why cooperation has not yet been developed under this topic, one definite answer was the operational environment or organisational structures. Since the police is a governmental agency, the actions and guidelines of the police are the responsibility of National Police Board of Finland. Whereas the Emergency services are organisations tied to municipalities and do not have a national central command. This possibly will be rectified after the national reform of social and welfare sector. The difference in the organisational environments might be one of the reasons. Based on the interviews, even though there is substantial cooperation between these actors, there are still gaps in knowledge of the other actor's resources and capabilities. Neither of the experts worked on that level, that they could have answered why these issues have not been tried to rectify. The only assumption that was made is that these situations are still considered rare and the trust in current methods, even though identified insufficient, is satisfactory.

5.1.3 What should the future development be like

During the interviews, a few key points kept coming up. These where definitely points of development but also aspirations on what the collaboration and what the elements of cooperation should be. Both parties hoped to see a development where physical presence of either the decision makers are guaranteed or at least a face-to-face liaison element exists. This physical presence was deemed highly important because, based on experience, the communication and information sharing could be ensured. Very similar approach is suggested in the JESIP model and GRIP models.

The need for joint exercises of the models was mentioned to be a vital factor. Especially the emergency service's expert was adamant on the issue that a constructed model is useless if it is not trained or used constantly. The familiarity of the operating model is important. Discussing the same topic with the Police, they also see that the models, or at least elements from them, should be something that are used on a weekly basis. Familiarity creates competence.

Clear structure of leadership and responsibility of command should be declared as early into the incident as possible. This creates the basis for clear operational structure and situational awareness. Based on the answers, it seems evident that there is a lack of structure, planned approach for this type of incidents and too much is relied on Ad Hoc type activities during the response. The main issues manifest themselves on the operational level. The actual response has not been modelled. There is no official role for the fire service sector of the emergency services. To include them as part of the response resources should be one of the major developments both of the experts hope to see. As mentioned, the cooperation is focusing more on with the ambulance service and the competences of the fire service as being unused.

5.1.4 Summary of interview results

In this chapter, the key points from the interviews are being depicted in a table. The points are those that were deemed important and valid based on the analysis. The table is built based on the interview guide and using similar structure as the previous chapters. These keywords are based on the coding process of the interview answers.

The coding was carried out by analysing the interviews through the recordings. Those topics that were mentioned regularly, or was but special emphasis on, where deemed important and thus added to the following table.

How is cooperation carried out at the moment?	• No comprehensive model currently in use • Focus on communication on strategical and tactical level • Relying on cooperation models from other type of incidents – not applicable • Ad Hoc type of actions
What are the identified elements that are lacking in the cooperation?	• Command structure • Leadership and command responsibilities • Joint situational awareness • Communication structure • Information sharing • Organisational environment
What should the future development look like?	• Physical presence for liaising • Joint exercise and training activities • Familiar operational model • Clear leadership and command structures • Join situational awareness model • Utilising all available competencies

Table 7: Summary of interview results

What we can already observe from the table of keywords, those themes that we presented in the literature review are present here. We will present the conclusions of the interview process in the following chapter and draw more precise conclusions of the results in chapter 6.

The coding in itself, as a process, was easy to carry out due to the clear objectives we had set for the interviews. Since our aim was to create an understanding of the current situation, we can state it

here that the selected interviewees where from the right level of the organisations and carried sufficient knowledge of substance to give accurate answers.

5.2 Conclusion

Our primary objective of the interviews was to understand what are the current models in use while responding to violent attacks, or are there any. Based on the answers, it is clear that no comprehensive and incident related model exist. The response actions are based on a selective use of other cooperation models, which are not directly applicable.

During the interviews several identified development points came up. It seems clear that both organisations, the police and the emergency services, have a clear opinion on what and how the cooperation should be like or developed. Based on the answers, several of those points are in line with the different models for cooperation, leadership and joint response presented in our thesis. Taking this into consideration, the result of the interviews can be considered a success.

Our secondary objective for the interviews was identify what possible obstacles there are for developing a joint model. One of the main observations was the difference in organisational environment. As a governmental organisation, the police is tied more to national guidelines, whereas the emergency services as regional actors are free to develop their own models. This would eventually lead in a situation where there are as many models as there are emergency services departments in opposite to one national model from the police. This itself creates an impossible situation where the police have to adapt their model to fit over twenty different regional models.

6 Results

In this chapter, we will present the results of our research. The results will be presented using gap analysis and will be depicted accordingly based on the themes we have discussed in the thesis. We will approach the presenting of results so, that the research questions (RQ1 and RQ2) are presented here separately. The presented answers, especially for RQ2 could work as a framework for future development for cooperation.

We would urge any reader of this thesis and these results to take into consideration how they could be reflected on a more comprehensive level, such as a societal security collaboration or the resilience approach that we discussed in our thesis. Even though our thesis focused purely on the police and the emergency services, we want to recognise the importance how these issues cannot be seen only as issues with the emergency services and the police but as part of a more complex and comprehensive setting.

RQ1: What are the existing models and procedures for cooperation between the emergency services and the police, while responding to marauding violent attacks in Finland?

After finalising our research, we can conclude that at the moment there are no comprehensive models in use by the police and emergency services that facilitates a multidisciplinary approach to marauding violent attacks. Moreover, there is currently no *co-developed* comprehensive approach to multidisciplinary incident management; instead, cooperation is based on operational procedures of the individual agencies. Current cooperation during violent attacks is based on cooperation principles used during large public events, state visits and other special incidents. Elements from smaller scale response actions, such as responding to violent behaviour like brawls, incidents involving firearms or encountering an aggressive patient are used.

These principles are not comparable to an active shooting situation, that is volatile and possibly erratic by nature, but they are principles that are trained and known. Naturally the Police have more experience, since they have the lead, in dealing with situations involving multiple assailants and possibly weapons. This however has not translated to the cooperation with the emergency services. There are, as mentioned, individual standard operating procedures for smaller scale incidents, but no comprehensive approach seems to exist.

What we marked as an important point during our research, and what also validates this argument, is that during the interviews, when asked, none of the experts where able to name an existing guideline in their organisation they are working with during those incidents, but the different operational approaches listed here were referred. Based on what is presented in our thesis, we can conclude as a result that no cooperation model that would take into consideration the multidisciplinary approach for responding to violent attacks exists currently. Our results are validated by our interview findings and the collected data based on the incident reports presented in our thesis from major incidents from the past ten years.

RQ2: What are the possible gaps currently and how would the existing models possibly compare to similar existing models?

As a result of mapping of current situation of existing and used models in Finland, we were able to arrive to a result that the issues stated in the incident reports have been valid; there are still gaps in cooperation, collaboration and the development of national models and it does not meet the level of the models we are referring here. As stated in the results related to RQ1, no comprehensive model exists and for that reason no clear comparison between the other joint models presented in the thesis can be made. That in itself supports the conclusion that there are existing gaps between these models.

The main gaps identified are in leadership and command, cooperation and collaboration, communication and coordination and information sharing. Other gaps identified relate to shared understanding of the operational environment, sharing information and being familiar with each other's capacities and resources. The gap analysis is presented topically in the following charts. We feel this visualisation of the issues will support presenting the results.

The data presented here is categorised based on our theoretical framework. The data for the optimal situation is collected from the existing models for multidisciplinary approach for violent attacks, and as stated in our thesis, the works act as a benchmark for the comparative table. The data for current situation is collected from the major incident investigation reports and from the expert interviews analysed in our thesis. The key issues in comparison are presented in the following tables and explained afterwards.

Leadership and command

Issue	Optimal situation	Current Situation
On-site leadership	Overall incident command and leadership structures are pre-defined and followed. Roles are predefined and agreed on common basis.	Overall incident command and leadership structure are not always clear and heavily experience dependent. Each organisation has their own command structures and the levels do not match on-site in comparison to the other agency
Leadership on different strategic levels	Operational, tactical and strategic incident leadership roles and responsibilities are pre-defined and followed.	Leadership for cooperation is focussed more on strategic levels. Has not trickled down to formal structures on operational and tactical level. Defined leadership role exists within each organisation individually, but clear structures are missing.
Leading agency	Leading agency is pre-defined based on the needs and priorities of the incident but leaves flexibility for on-site decision.	A division is made between incidents and which agency leads depending on the type and nature of the incident

Table 8: Identified leadership gaps

As a conclusion, there are existing leadership structures in each organisation. As mentioned previously in our thesis, the problem is that there is a lack of interoperability in the structures. The main gap here is that there are existing joint structures for different types of major incidents, but the organisations still rely on them being applicable during violent attacks. What we can observe from the comparative models, the need for pre-defined and pre-planned structures is considered key element. During the interviews, it was mentioned that what both agencies are hoping is the quick decision of who will take the overall incident command on-site.

As organisations, the collaboration is carried out in strategic level regionally, the reason being the police is a governmental actor and emergency services independent regional actors. Plans are made and discussed, but quite often not put into action during practice. Although, the strategic level seemed to be the only one currently in dialogue regarding cooperation. What can be considered alarming even, is that especially the answers received from the emergency services pointed out that such models have not been considered priority yet. If we look at the GRIP and JESIP models, it is clearly defined what type of cooperation and tasks should be carried out on different levels. These models could be utilised at least during the forming phase of future development for cooperation. We are not suggesting that completely new command structures for such incidents should be created, but the current ones should be adapted to facilitate more rapid and efficient form of response.

Shared situational awareness and communication

Issue	Optimal situation	Current Situation
Information exchange	Exchanging reliable and accurate information, such as critical information about hazards, risks and threats. Additionally, information is shared between all agencies in order to create a holistic overview for all parties involved.	No structure or model for information exchange exists. Information is shared based on request. Ad Hoc methods are being used. In major incidents, information is shared on strategic and tactical level. Information flow in operational level relies on established relations and communicating directly to different organisations.
Shared understanding of risk	Agencies actively share identified risks when communicating and cooperating	Possible threats are shared. Common risk analysis is carried out in strategic level. Risks are analysed on tactical level on a case-by-case basis.
Shared situational awareness	Information is shared with the understanding that other agencies	No common model for creating incident related situational awareness.

	might need to adapt their strategy upon learning	
Control rooms	Control rooms actively liaison between agencies, either by providing joint awareness or by providing inter-agency communication channels.	No clear structure for liaising has been set up. Liaising is done by the on-site commanders or through the control, or situation room. Responsibilities are carried out depending on the level of and scale of response. No defined role of liaison officer. Actions on Ad Hoc basis. No interagency liaison role exists.
Information assessment	Information is actively assessed for relevance, priority, accuracy, actuality, sources, credibility.	There is no dedicated system to assess received information by the emergency services. Each organisation will analyse information related to their actions, but no shared information management platform is used.

Table 9: Identified shared situational awareness and communication gaps

The major gaps identified relate to information sharing, communication and situational awareness. It is mentioned on several occasions during the interviews and in the reports that during the response actions, there are critical gaps on those issues. We feel that this could possibly be marked as the result of organisational cultures and environment. The emergency services feel that vital information relating to the incidents are not always been shared. Of course, we do not state this is done intentionally, but if structures and model for information sharing are lacking, this would most likely be the case. These issues were mentioned especially in the report relating to the incident in Turku.

Both parties felt that there is definitely a need to better the exchange of information during the incidents but also in general. We have clearly identified that there is a gap in liaising between the organisations. Especially in JESIP to tackle these issues, a national interagency liaison officer, or NILO, role was created. The aim and objective of this role is to have representation from all

responding agencies, to create a multidisciplinary 'liaison hub'. Their sole duty is to communicate relevant information, share the situational awareness and support the other organisations during planning and response to these incidents. This role is set in all the levels to support decision making, command, communication and taking part in assessing information relating to the incident.

To tackle the gaps identified here, we do suggest that a similar position is developed to national use in Finland. In the JESIP concept this consist of members from all security authorities and is utilised every time there is a multidisciplinary response. This approach would also answer to the need of having a model that is familiar and is being used regularly and not only during violent attacks.

Co-location

Issue	Optimal situation	Current Situation
On-site command establishment (first responders/tactical)	First responders get together as soon as possible to exchange information and risks as well as individual objectives.	Individual procedures/experience may sometimes lead to first responders being having to split their attention between fighting the danger and coordinating the response.
On-site command establishment (Tactical)	Officers co-locate at a mutually agreed location where they can maintain effective joint command of the operation.	Emergency services officer most often at the scene while a police officer may be located at a (regional) HQ

Table 10: Identified co-location gaps

The method of co-location is used during incident response in Finland. However, the method differs from what is presented in the two other models. In those models, the aim is to share and discuss operational objectives. The incident command is run as a joint task with clear structure of command and leadership. The Finnish approach included the aim to meet on operational level at a joint location and share information. Based on our findings, this usually consist of different agencies leading their own operations and the other parties are easily overlooked. This issue was also identified by the experts from both organisations.

Co-location is not carried out on a tactical level. On a strategic level, the co-location is carried out during national or regional disasters or crisis, such as global pandemic. We feel it needs to be pointed out, that the frequency of meeting the other party in different levels varies. In operational level the face-to-face communication should be constant, in tactical level it can be every few hours and on strategical level on a daily or weekly basis.

Co-locating is seen as a vital part also in the NILO approach and also mentioned by the experts. This idea or element of sharing the same area for operational coordination is definitely vital for successful information exchange, situational awareness and the overall cooperation during any major incident.

Joint training and learning

Issue	Optimal situation	Current Situation
Multidisciplinary incident management training	Trainings in multidisciplinary scenarios are held regularly Scenario training involves training in each aspect, including joint communication, information management etc.	Trainings for different scenarios are held regularly. Trainings involve elements from actual response. Some elements, like communication may be trained separately.
Joint development	Multidisciplinary incident management is developed with all agencies involved	No structured development for multidisciplinary incident management is carried out.
Joint vocabulary	Vocabulary is jointly created to minimise confusion and maximize joint understanding	No standardised joint vocabulary exists.

Table 11: Identified joint training and learning gaps

As marked one of the key elements for successful cooperation in the models from Gray (1984) and especially Mattessich and Monsey (1991/2001) are the familiarity and shared objectives of the other partners involved. To successfully adapt a joint model, it has to be familiar and used regularly. One of the main tools presented by GRIP and JESIP is to train the models an develop them together. To have a common operational approach to such extreme situations can be deemed as one of the major markers.

On a strategic level, the understanding can be reached through discussion and joint planning. On a tactical level, this can also be reached through planning but already training is needed as an element. This statement can be validated based on the JESIP and GRIP models and the interviews. On the operational level, amongst the responding staff, training is seen as the key method to familiarise the models. As mentioned, several times, and we cannot understate the importance, was that the models have to be familiar so there is any willingness to use them.

The other main element critical element presented here is the shared vocabulary and lingo. Even though cooperation is carried out on a daily basis, there is a risk for information to be lost if there is no shared language. Especially JESIP puts emphasis to this. To reach a common understanding, the actors have to be familiar on how their counter partners operate, but also what language are they using. Not only training to operate together through carrying out actions, but their trainings also have to be carried out using the joint agreed vocabulary.

7 Discussion

In our thesis, we have used data that can be easily retrieved for reproduction. Analytical data was retrieved mostly from open sources, coupled with existing models which are, for the most part, publicly available. The interviews we conducted were held with experts from the Finnish Police Force and the Emergency Services. Potential biases were addressed by conducting the interviews on an anonymous basis.

We were aware from the start and during the planning phase of our thesis, that gathering the required data from the organisations could prove to be difficult. As one of the major issues during our research was the accessibility to the data related to operational models in Finland. Through vigorous planning and constant communication with the organisations, with the help of our steering professor and contacts from our professional life, we were able to overcome those obstacles in such a manner that it had no effect on the quality and reliability of our research.

In theory, it should not matter if interviews are held between different regions, cities or even provinces. Multidisciplinary incident response is a topic that should, ideally, be co-developed on a strategical level and disseminated across different regions on a nation-wide scale. However, in lack of such a nation-wide comprehensive approach, our findings were in line with earlier established gaps across different points in time.

At the same time, our results satisfy the objectives we originally set out. We aimed to gain insight into contemporary multidisciplinary incident models in relation to marauding violent attacks in Finland. Not only did we determined these to be currently non-existent, but we also discovered a lack of interoperability on a larger scale. Additionally, we were able to identify gaps in the interoperability between agencies and were able to specify them to certain themes. The gaps in term were consistent between previous reports and the interviews.

Unlike the previous reports, which did not specify possible improvements on the identified gaps, our researched reached out to well-developed models in other countries. The countries in term were used because of their comparable policing culture and history, extended experience with marauding violent attacks and relative scalability in regard to the Finnish situation. Based on these models we provided some specific possible improvement on current Finnish situation for the involved agencies.

Furthermore, the tables in chapter 6 present key elements to form a foundation for developing a Finnish cooperation model. Based on our observations, the previous reports as well as the interviews, we would suggest all involved to allocate resources and personnel to the co-development of these key elements into a full framework for multidisciplinary and comprehensive incident approach. Also, the organisations should assess what are their attitudes towards cooperation and information sharing, since these are one of the main elements causing obstacles. Once this framework is constructed, specific procedures as marauding violent attacks can be addressed and rehearsed. During the development process, and in the initial planning phase, we suggest that emphasis is put on understanding the critical elements for leadership and cooperation that are presented in our thesis.

In the chapters relating to theories on leadership and cooperation, we presented different models on different types of leadership and critical elements for the success of cooperation. Combining the approach these theories suggest, it should be effortless to open the development for a multidisciplinary approach. It is understandable that in there has not been such element as part of the operational and organisational environment, the change will take time. We can argue based on the interviews that the need and want does exist, but one of the most critical elements is missing – leadership and coordination to start the development.

The Police and the Emergency services are both under the steering of the ministry of the interior, but under different departments naturally. The Police as a governmental actor is also dependent on the governance related to operational activities carried out by the National Police Board, which is an office under the ministry of the interior. In the case of the Emergency services, no such office exists. The ministry is the responsible organisation setting national strategies and steering guideline development. We feel based on our findings that the lack of cooperation should not be an issue of operational environment, since both organisations are under the steering of one single ministry.

The tables, and the theory, we present in our thesis will give an applicable basis for the planning of the development. As it is concluded in the results after the interviews and after referring the model with the Dutch and UK models, several of the critical elements have been identified already by the organisations. A comprehensive approach towards the development of collaboration is now needed.

To create a fully formulated model for a multidisciplinary and comprehensive approach in violent attacks in Finland, further study is needed. Especially on the issues related to the culture of leadership

and organisational environment. We feel this thesis gives a valid basis and has identified the issues that are critical and need immediate development. As mentioned, several times, these findings are validated based on the reports presented in this thesis. We feel also feel a broader societal perspective should be used in future observations of this topic.

Response should be seen as part of resilience towards violent attacks. As we presented in our introduction, one of the primary approaches currently in Finland is prevention. We find it interesting that even though both emergency services and the police are under the same ministry, the concept of comprehensiveness seems not be a steering philosophy while planning response.

The ideas and proposals presented here should be seen more as part of a larger societal pool of different actors and agencies. Since societies are multifaceted organisms, it is natural that one level, or one actor, cannot reach through the whole weave of a complex structure of different representatives of society. For that reason, resilience also has to be multidimensional and multidisciplinary by its very nature.

We gave the example in the very beginning of this thesis about responding to the psychological effects of an attack. This is just one of the many other levels and dimensions of resilience. All the reports presented in this thesis, observed also the actions of non-security related actors before, during and after the incidents. In our opinion, this was mainly done by presenting them as individual actors and not tying them together, for example, as a phase on a larger response model. This just shows, why having a common and shared model amongst the societal actors, resilience can be seen more as a multidisciplinary approach than just a general concept.

We observed that most of the planning done, by the two actors observed in our thesis, was carried out on the strategic level. We know based on the literature and the ministry guidelines (Sisäministeriö, 2020), that cooperation has been planned to be carried out on the tactical and operational levels also. This, however, does not carry much weight if there are no existing shared models for cooperation. What we have learned during our research is that the implementation of a strategic plan so, that it will be effective in practice, needs a shared understanding amongst the agencies who carry out the actual preventive, preparedness and response actions on the operational level – a joint model.

We feel that to achieve this goal, the collaboration networks should reach through all the levels within the agencies – strategic, tactical and operation – to have the best possibility to form into actual

working cooperation and models. The aim of the models are to make sure the counterparts from any organisation part of the resilience, is able to function and have an understanding on the shared operational environment. Even though our main focus in this thesis was on the joint models between the police and the emergency services, we understand that they are only a part of a larger societal structure that should exists in a state of constant cooperation, liaising and shared situational awareness.

8 Conclusion

This thesis sought to answer the main research question: *What are the existing models and procedures for cooperation between the emergency services and the police, while responding to marauding violent attacks in Finland?* Currently, there are no comprehensive models in use by the police and emergency services in Finland that facilitates a multidisciplinary approach specifically to marauding violent attacks. Widening the scope, we have established that there is currently no overall co-developed comprehensive approach to multidisciplinary incident management. In lieu of such comprehensive approach, cooperation is based on operational procedures of the individual agencies, which are then used parallel during the response.

These procedures, however, are in turn based on cooperation principles used by these agencies during large public events, state visits and other special incidents. Specific elements from smaller scale response actions, such as responding to violent behaviour like brawls, incidents involving firearms or encountering an aggressive patient are also used. While these principles are not comparable to an active shooting situation, which is volatile and possibly erratic by nature, these principles are trained and known by the agencies and have become the procedure to fill the vacuum.

This research has identified clear gaps in interoperability that hinders the agencies to act in a multidisciplinary fashion in general as well as specifically in case of violent marauding attacks. The main gaps identified are in leadership and command, cooperation and collaboration, communication and coordination and information sharing. Other gaps identified relate to shared understanding of the operational environment, sharing information and being familiar with each other's capacities and resources.

These gaps were, partly identified through the use of open-source reports investigating previous large-scale incidents where a multidisciplinary approach to incident management was needed. Additionally, anonymous interviews were conducted with experts from the police force and the emergency services. The latter provided contemporary insights into models, resources and interoperability. Possible biases were believed to be negated on the basis of said anonymity.

When it comes to the identified gaps, a trend can be seen over the last 10+ years. The findings in this thesis are very much in line with previous reports that identified the same gaps, leading to the

conclusion that these gaps have not received attention over this time span. Alternatively, one could conclude that the gaps have been addressed, not to sufficient level, but that this has been only done at a strategic level. Therefore, the tactical and operational levels of the organisation have yet to be involved.

Either conclusion leads us to the principle of co-development. When increasing interoperability, one needs to establish a foundation for this joint work. This foundation should always be built together between the involved agencies, on all strategic levels of operation. However, models of cooperation will always fall short if these models are not regularly trained, again, on all strategic levels.

Based on the overall results, the previous reports as well as the interviews, we would suggest all involved agencies to allocate resources and personnel to the co-development of the identified key elements. Through co-development these points can be developed into a full framework for multidisciplinary incident approach. Once this framework is constructed, specific procedures as marauding violent attacks can, in turn, be addressed and rehearsed.

It is the conclusion of this thesis that appropriate actions should be taken to develop such model. It is vital for the successful collaboration and enhancing the interoperability of these two agencies. In the end, the actual goal and objective of such model is the efficiency of response actions and the aim to minimise the effect of an attack and save lives.

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Appendix

Appendix 1: Concepts and definitions used in the research

Marauding Violent Attack (Finnish: Väkivaltainen isku)

Marauding violent attack can be an incident happening in rapid pace including single or multiple assailants in one or several simultaneous areas with the objective of injuring or killing as many persons as possible. It can be carried out utilising various methods such as knife, use of vehicle as a weapon or possibly firearms. The attack is usually active during the response phase.

Used interchangeably with: Marauding Terror Attack (MTA) and Marauding Firearms Terror Attack (MFTA)

Major Incident

Major incidents are situations that require a level of response beyond the regular scale, due to any given reason that escalates the situation. Usually, a multiagency response with different levels of coordination.

Mass Casualty Incident

Incidents caused by whatever reason that involve multiple injuries and / or fatalities as a consequence.

Emergency services (Finnish: Aluepelastuslaitos)

Regional emergency management agency responsible for emergency planning, preparedness, rescue and paramedic services and risk management.

Rescue services (Finnish: Pelastustoimi)

Operational brand of the emergency services. Usually includes both fire and paramedic response capabilities within those emergency services that produce both fire and ambulance services.

Interagency liaising (Finnish: Viranomaisyhteistyö)

Cooperation and response approach including two or more public agencies in cooperation and sharing information and tasks.

Interoperability (Finnish: Yhteistoimintakyky)

The capacity of systems or models to operate or be operated mutually.

Cooperation (Finnish: Yhteistoiminta)

Coordination of measures to exchange information and adjust actions to support reaching a joint or shared objective.

JESIP - Joint Emergency Services Interoperability Principles

Developed in the UK, a scalable interagency standard approach along with training and awareness products for responding agencies to train their staff.

GRIP - Coordinated Regional Incident-Management Procedure (Dutch: Gecoördineerde Regionale Incidentbestrijdings Procedure)

Developed in The Netherlands, a scalable standard multidisciplinary approach for responding agencies.