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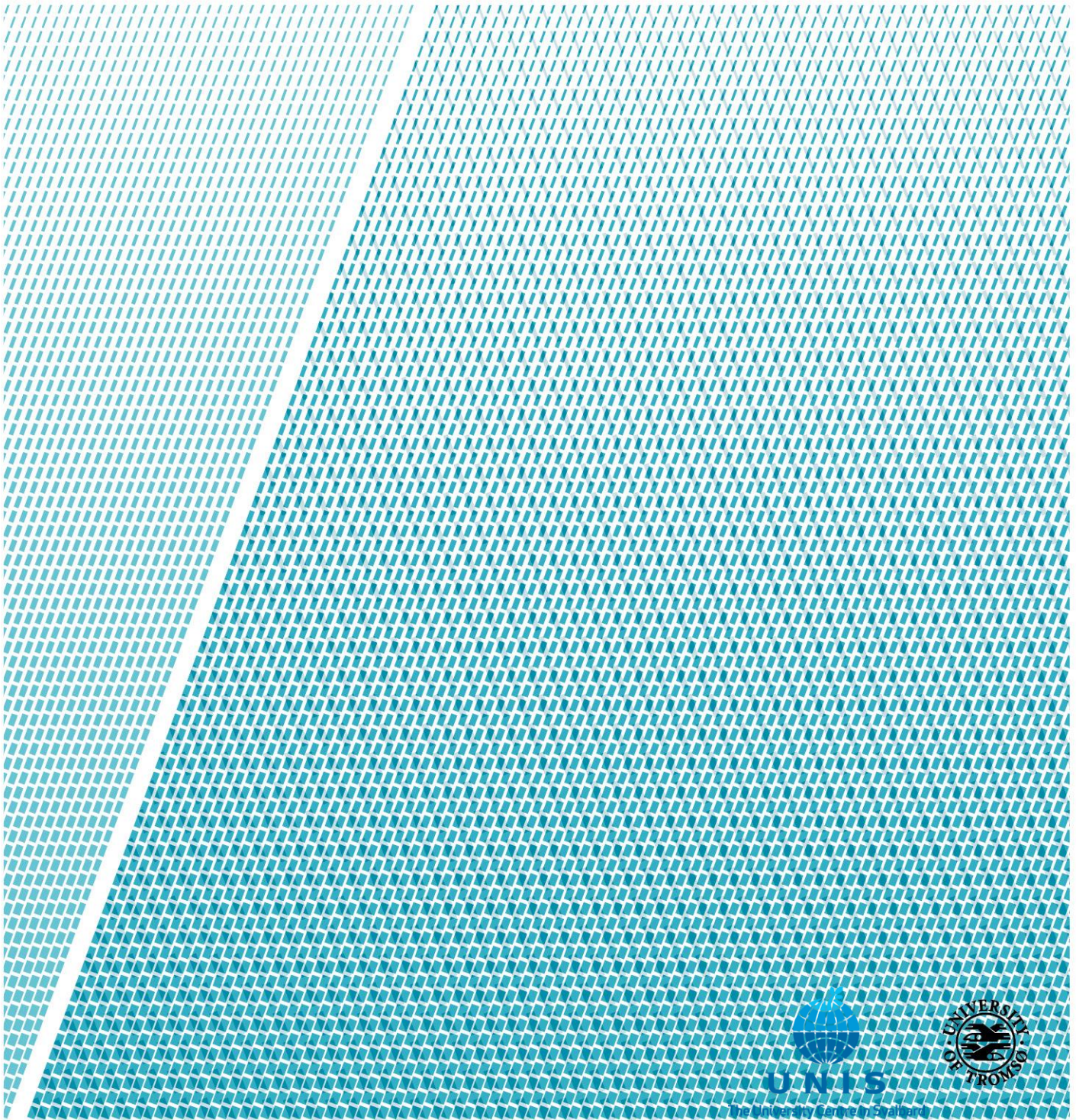
Department of Engineering and Safety

Cooperation and resilience in remote communities

- *A case study of cooperation and resilience for emergency preparedness organizations on Svalbard*

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Master's thesis in Societal safety and security ... June 2019



Foreword

This research project marks the conclusion of my two years as a master's student in societal safety and security at the University of Tromsø. It has been a rewarding time both academically and socially. I am privileged to be able to write my master thesis not only for the University of Tromsø, but also as a guest master thesis for the University Centre in Svalbard. The last six months have been a hectic time, commuting between Svalbard, Tromsø, Italy and Oslo trying to fit in girlfriend, family and friends while also steadily working on the thesis and various job interviews.

I would like to send a big thank you to all the informants on Svalbard from the Governor of Svalbard, Longyearbyen Local Government, Longyearbyen Red Cross Relief Corps, Lufttransport AS and Xpolar who took their time answering my questions and sharing their knowledge. A special thanks to those of you who seemingly have a very passionate relationship to Norwegian expressions and proverbs. You made my work translating our discussions a lot more interesting.

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Summary

This study seeks to look at how cooperation can facilitate resilience for emergency preparedness organization in remote communities, illustrated through the emergency preparedness actors in Longyearbyen, Svalbard. Advocates of resilience argue that in a high risk environment, resilience is necessary for organization to avoid potential disasters and to prevent smaller events from escalating (Weick & Sutcliffe, 2007). Other scholars have shown that to cooperate is both more expedient, as well as more effective than attempting to solve a situation alone (J. Berlin & Carlström, 2013; Jamal & Getz, 1995). The aim of this study is to develop new knowledge around cooperation and how it can facilitate for building resilience in an emergency preparedness context. In order to do so I present the research problem: *How can cooperation facilitate resilience for emergency preparedness organizations in remote communities?*

The research project has been carried out through field work divided into three field trips to Svalbard between December 2018 and June 2019. In order to answer the research problem, a qualitative approach has been used. Interviews have been conducted with informants from some of the most important emergency preparedness organizations on Svalbard. These include the Governor of Svalbard, Longyearbyen Local Government, Longyearbyen Red Cross Relief Corps, Lufttransport AS and Xpolar. Furthermore, data has been collected from participatory observation from exercise Dark Season, a search and rescue mission and document analyses. The data has been analysed and discussed up against established theory of resilience through characteristics of high reliability organizations and theory about cooperation.

The conclusion points towards the daily cooperation enabling them to cover their own limitations and contributing with their strengths. The emergency preparedness organizations are able to stay resilient thanks to the good cooperation between the actors. The key factors for the cooperation are their informal relationships and the inherent expertise that is present on the archipelago. This allows them to develop trust amongst each other and to communicate more effectively through direct, often informal lines. The expertise present is highly valued regardless of where it is coming from. As the emergency preparedness actors know and trust each other, they are more likely to work together. When they work together, they are able to use this expertise as effectively as possible and facilitate resilience.

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Keywords: *Social safety and security, civil protection, resilience, high reliability organizations, HRO, cooperation, collaboration, developing cooperation, samfunnssikkerhet, samvirke, resiliens*

Clarification of Central Concepts

In the following, I will clarify some of the central concepts used in this study. Below, I have also included a small glossary of some of the translations I have used.

Resilience:	The term resilience can be defined as “an organizations ability to recognize, adjust and absorb variations, changes, disruptions and surprises” (Aven, 2015, s. 45). In this study, I will look at resilience through the five defining characteristics of high reliability organizations (HROs) identified by Weick & Sutcliffe in their book <i>“Managing the unexpected (2007)”</i> .
Cooperation:	When I write cooperation, I refer to the Norwegian word samvirke. Samvirke refers to work (virke) together (sammen). Martin et al. (2016) refers to cooperation as to “co” “operate”, so the meaning of the word is carried over between the languages. Cooperation is sometimes mentioned as collaboration as that is what Andersson et al. (2014) refers to exercises with an emphasis on cooperation through collaboration exercises. Collaboration exercises would be samvirke øvelser in Norwegian.
Emergency management:	In this study, emergency management refers to the total emergency preparedness apparatus on Svalbard. An important characteristic of emergency management is that it is a team of teams; multiple teams which come from different organizations, with different organizational cultures, different organizational goals, who work together to minimize the negative effects of an emergency (Schaafstal, Johnston, & Oser, 2001).

As most of these organization primarily have Norwegian names, I have translated some of them to English on my own. To prevent any confusion for those reading this study familiar with the Norwegian names, I have included this small glossary of some of the names I have translated.

Norwegian	English
Beredskapsrådet	The emergency preparedness council
Øvingsutvalget	The exercise committee
Redningsledelsen	The rescue management
Sysselmannen på Svalbard	The Governor of Svalbard
Longyearbyen Lokalstyre	Longyearbyen Local Government
Longyearbyen Røde Kors Hjelpekorps	Longyearbyen Red Cross Relief Corps
Øvelse mørketid	Exercise Dark Season

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1 Introduction

In the research field of emergency preparedness and crisis-management both resilience and cooperation play an important role. As incidents are becoming increasingly complex, both aspects are needed to be prepared for, and to deal with future events.

If we imagine emergency preparedness being complicated and challenging at best under relatively normal circumstances, we could imagine the increase in complication and challenges, when performed under Arctic conditions. The Arctic region has been characterized as the last frontier of the modern ages (Dodds & Nuttall, 2016). Bar a few noble exceptions such as seal-hunting or expeditions in the name of science or fame, the Arctic has not been a centre for notable activity in the modern age (ibid). With the change in climatic conditions and the introduction of new technology, the region is now thriving with human activity (ibid). Research, tourism, exploitation of natural resources and new possibilities for naval shipping are some of the activities which exists in the arctic region today (Thuesen & Barr, 2018). With the current development and future prognosis, it is fair to say that the region is flourishing, and it is reasonable to expect the level of activity to increase in the years to come.

With the current activity of today, and the expected increase in the future, the need for emergency preparedness in the Arctic is essential. What could be considered normal, routine operations in other parts of the world, could involve significantly higher risk, and potential for disaster when performed under Arctic conditions with scarce infrastructure and limited resources.

Advocates of resilience argue that in a high risk environment, resilience is necessary for organizations to avoid potential disasters and to prevent smaller events from escalating (Weick & Sutcliffe, 2007). Other scholars have shown that to cooperate is both more expedient, as well as more effective than attempting to solve a situation alone (J. Berlin & Carlström, 2013; Jamal & Getz, 1995).

However, none of these works address how the two topics can be connected. There is a gap of knowledge in the current research on resilience and cooperation regarding the connection between them. Research on resilience have mainly focused on the effect of resilience within an organization, while there is meagre research on the effect of cooperation exercises. I believe there is a need to take a deeper look at how cooperation between emergency preparedness

organizations can strengthen the overall emergency management and facilitate for resilience amongst them.

The aim of this study is to develop new knowledge around cooperation and how it can facilitate for building resilience in an emergency preparedness context. In order to do so I ask the question.

How can cooperation facilitate resilience for emergency preparedness organizations in remote communities?

To answer this, I have further developed two research questions which support my research problem:

- 1) *How is resilience developed in emergency preparedness organizations on Svalbard?*
- 2) *How is cooperation developed between the emergency preparedness organizations on Svalbard?*

With this study, I wish to contribute to debates about the connection between cooperation among emergency preparedness organization and resilience. I hope to put a spotlight on the challenges communities such as Longyearbyen face, and how the organizations work together to overcome them.

1.1 Previous research

The literature on resilience is vast and is being utilized in a broad spectre of disciplines such as risk governance, psychology, organizational theory and critical infrastructure (McManus, Seville, Vargo & Brunsdon, 2007; Walker & Cooper, 2011). The field of study has become one of the most important subject areas within research on catastrophes and crisis management (Cutter et al., 2008). However, despite an increasing interest about the concept of resilience, there are clear differences in the literature about the topic (ibid). There is no common definition of, or agreed upon method to measure resilience (Sherrieb, Norris, & Galea, 2010).

Cooperation in and between sectors was establishing itself as a popular working methodology towards the end of the 1980s in Norway after a period characterized by a majorly focus on competition (Kristiansen, Magnussen, & Carlström, 2017). Research has shown that

to cooperate is both more expedient, as well as more effective than attempting to solve a situation alone (J. Berlin & Carlström, 2013; Jamal & Getz, 1995).

There is little research done on learning outcomes and the effect of exercises which involve several actors (Kristiansen et al., 2017). Some of the existing research show however that to cooperate during exercises is something which is more often regarded as rhetoric rather than practically applicable (J. M. Berlin & Carlström, 2015), and that collaboration exercises have limited effect on cooperation in real emergency situations (Borell & Eriksson, 2013).

However, none of these works address how the two topics can be connected. There is a gap of knowledge in the current research on resilience and cooperation regarding the connection between them. Research on resilience have mainly focused on the effect of resilience within an organization, while there is meagre research on the effect cooperation exercises. I believe there is a need to take a deeper look at how cooperation between emergency preparedness organizations can strengthen the overall emergency management and facilitate for resilience amongst them. The aim of this study is to develop new knowledge around cooperation and how it can facilitate for building resilience in an emergency preparedness context.

1.2 Limitations

The emergency preparedness apparatus on Svalbard consists of multiple actors and includes both private, public and volunteer organizations. Due to time and economic constraints, I was not able to talk with all of them and had to limit myself to a few, namely the Governor of Svalbard, the Local Government, Lufttransport AS, Red Cross relief corps and Xpolar. While there are several other actors involved in the emergency preparedness work, I got to interview some of the key actors when it comes to emergency preparedness and cooperation. With this selection I got to speak with public, private and volunteer organizations, as well as organization that have emergency preparedness as their fulltime job, and as a part-time.

When I observed the exercise Dark Season in December 2018, I was also able to witness other organizations at work even if I did not have the opportunity to talk with them directly.

1.3 Structure

In the thesis's introduction, I have presented my topic for the thesis and placed it within the broader topic of emergency preparedness and crisis-management. I have presented my research problem and research questions, as well as presented some previous research. The research problem will be the subject of the thesis and the research questions will help answer this. In chapter 2 I have given some context to my thesis through presenting the geography surrounding Svalbard, and the emergency preparedness organizations inhabiting the archipelago. Chapter 3 is the theoretical framework for the thesis, consisting of resilience and cooperation. In chapter 4 I explain the methodological choices made and the reasons for these. Chapter 5 consists of my empirical findings from my stay on Svalbard and where I answer my research questions. In chapter 6 I discuss my empirical findings up against my theoretical framework before I conclude my thesis with chapter 7 where I present the conclusion to my research problem.

2 Context

While the phenomenon this study will investigate is cooperation and resilience in remote communities, the practical context of my study will be carried out in Longyearbyen, Svalbard. In this subchapter I will first shed some light on why I consider Svalbard an expedient location to study this phenomenon in a remote community. Next, I will introduce the emergency preparedness organizations which have been interviewed.

2.1 Svalbard and Longyearbyen

Svalbard is a Norwegian archipelago in the Arctic Ocean, situated north of mainland Europe about midway between continental Norway and the North Pole. Administratively, Svalbard is not part of any Norwegian county, but forms an unincorporated area administered by a governor appointed by the Norwegian government (Thuesen & Barr, 2018). In 2016, Svalbard's population was 2,667, most situated in Longyearbyen, the largest settlement on the archipelago, the seat of the governor and the only town to be incorporated (ibid). The Norwegian sovereignty over Svalbard was recognized in the signing of the Svalbard Treaty in Paris on 9th February 1920. The Svalbard Treaty came into force five years later and the archipelago became part of the Kingdom of Norway (Justis-og Beredskapsdepartementet, 2016). The Svalbard Act stipulates that Norwegian private law, criminal law and the law concerning the administration of justice are applicable to the archipelago, unless otherwise provided (Svalbardloven, 1925 § 2) All the countries that have signed the Svalbard Treaty have the right to engage in economic activities on Svalbard (Thuesen & Barr, 2018)

The archipelago features an Arctic climate with long, cold winters and short, cool summers, although with significantly higher temperatures than other areas around the same latitude because of the North Atlantic Current system (Thuesen & Barr, 2018). Still, the average summer temperature is between 4 to 6 degrees, and January averaging between -16 to -12 degrees Celsius (ibid). Svalbard is where cold polar air from the north, and mild, wet sea air from the south meet, creating low pressure, changeable weather and strong winds (ibid). Glacial ice covers 60% of the archipelago, 30% is barren rock and approximately 10% is vegetated (ibid).



Figure 1: Location of Svalbard (dark-green). (Wikipedia, Svalbard, 2018)

To understand why Svalbard can be regarded as a remote place with extreme conditions, one simply needs to take a look at a map. As the archipelago is so remote and harsh, errors and mistakes here may prove far more severe than on the mainland. In the risk and vulnerability analysis of Svalbard

(2016) these conditions are exemplified in the event of a larger incident involving the hospital.

“In case of major accidents, one will quickly come to a situation where the resources must be used to treat the patients with the greatest chance of survival, while the most injured / ill patients can only get basic help. Several of these will die due to lacking resources. This way of prioritizing is the ethical best solution when there is a major gap between resources and resource demand. Such priorities have been accepted in war but will hardly be relevant in mainland-Norway in peace time. With Svalbard’s special conditions with cold climate, limited resources and long distance to the mainland however, such priorities would have to be accepted also in peacetime” (Askholt, 2016, s. 58).

This is also obvious in the preface for the overall contingency plan by Longyearbyen Local Government. “Preparedness is important in all contexts and in all parts of society. Perhaps even more important here in Longyearbyen, as in many contexts we become very alone and have to manage ourselves over a long period of time” (Lokalstyre, 2017).

2.2 The emergency preparedness actors

While the actors listed here are the emergency preparedness actors which have been involved in this thesis, it is important to accentuate that there are several more actors involved in the emergency preparedness work on Svalbard, each of them fulfilling their role.

In addition to the organizations listed below, the following agencies and organisations also took part in the Dark Season exercise, and as such, has been observed on to a varying degree. Longyearbyen Fire and Rescue Services, Avinor, Svalbard Airport, Longyearbyen Hospital, University Hospital of North Norway (UNN), Svalbard Church, Telenor Svalbard, Norwegian Search and Rescue Dogs.

2.2.1 The Governor of Svalbard

The Governor is the highest representative of the Government on Svalbard, and has overall responsibility for societal safety and security and preparedness on Svalbard as both police officer and county governor (Askholt, 2016). By virtue of the role as police officer on Svalbard, it is the Governor which leads the local rescue centre. The local rescue centre is subject to the Main Rescue Centre in Northern Norway, HRS-NN (Justis-og Beredskapsdepartementet, 2016). It is the same laws and guidelines that lay the guidelines for police work on Svalbard as on the mainland. The police department is led by a police officer who have twelve, fixed term policemen under him. The police department have an around the clock preparedness with two policemen on duty at all times (DSB, 2016). The Governor disposes two rescue helicopters operated by Lufttransport AS. The Service vessel M/S Polarsyssel is another important resource that is on standby nine months of the year. The Governor annually carries out several training sessions and collaboration exercises with emergency agencies, helicopter crew, Red Cross and tour operators within rescue (Askholt, 2016).

2.2.2 Longyearbyen Local Government (LL)

The task of the Local Government is in a multitude of ways similar to that of a municipality on the mainland. The Local Government is a key player of social security and in the emergency preparedness field (DSB, 2016). The application of the Civil Protection Act to Svalbard and the Local Government's contingency duty is expressed in the regulations of the Civil Protection Act on Svalbard. The purpose of the regulation is to ensure that the Local Government safeguards the population's safety and security(Svalbard, 2012). The contingency duty can be said to be based on three pillars. Firstly, a risk and vulnerability analysis of unwanted incidents

which may occur (ROS) in Longyearbyen's area must be prepared. Secondly, the Local Government must prepare for unwanted incidents by creating a contingency plan based on the results of the risk and vulnerability analysis. Finally, the Local Government must practice the contingency plan every two years (ibid)

2.2.3 Longyearbyen Red Cross Relief Corps

Longyearbyen Red Cross Relief Corps consists of an avalanche, glacier, car and marker group with around 60 active volunteers and roughly 250 members. Longyearbyen Red Cross Relief Corps have a considerable amount of resources available, including a mobile field hospital. The Governor of Svalbard has established close cooperation with the various groups in Longyearbyen Red Cross Relief Corps for collaboration exercises. The Relief Corps competence and capacity constitute a very important resource for the Governor of Svalbard and the local rescue centre during rescue missions (Justis-og Beredskapsdepartementet, 2016; Sysselmannen, 2016).

2.2.4 Lufttransport AS

Lufttransport AS provides rescue services and operates two Super Puma rescue helicopters for the Governor of Svalbard, in line with the agreement from 1. April 2014 (Justis-og Beredskapsdepartementet, 2016; LufttransportAS, 2016). The rescue helicopters have the capacity to pick up 18 distressed people within a radius of 120 nautical miles. Furthermore, the rescue helicopters are in a 24-hour emergency preparedness and constitute a significant resource for the Governor of Svalbard in rescue operations (Sysselmannen, 2016).

2.2.5 Xpolar and CIM

Xpolar is not an emergency preparedness actor on Svalbard, but as their facilities and crisis management system, CIM was used during exercise Dark Season, I felt it was expedient to include them in the context chapter.

Xpolar is a joint venture and project that One World and One Voice collaborate on. The company is established on the basis of an increased demand for more authentic courses in the use of CIM. They allow participants to partake in the preparation and implementation of a tour operation in the Arctic, where they go through the risk and preparedness for the company and look at the transfer value to their own business. They get to experience how to implement level-

divided crisis management under realistic circumstances, with facilities and tools to solve the task (Xpolar, 2018).

CIM is a web-based crisis management system which systematise and organizes routine tasks to give you better control and more time for management and decision making (Fylkesmannen, 2014). The tool provides control of the information flow internally and externally during an event, ensuring a basis for making decisions and coordinating the resources (ibid).

3 Theoretical framework

In this chapter I want to present the theoretical framework for this study. I will therefore give a review of theory about resilience, resilient organizations, as well as cooperation and developing cooperation between these organizations. I have chosen to present resilience first and then cooperation to demonstrate why resilience is imperative for the emergency preparedness organizations, and then how cooperation between these organizations could facilitate their resilience.

3.1 Resilience and resilient organizations

The term resilience can be traced back to the 1970's, where it was used to describe ecosystems robustness, its ability to withstand external pressure. The term has developed further and is being used in a broad spectre of disciplines, such as risk governance, psychology, organizational theory, and critical infrastructure (McManus, Seville, Vargo, & Brunson, 2007; Walker & Cooper, 2011)

The term resilience can be defined as “an organizations ability to recognize, adjust and absorb variations, changes, disruptions and surprises” (Aven, 2015, s. 45). The field of resilience has become one of the most important fields within research on catastrophes and crisis management. Despite an increasing interest about the concept of resilience, there are clear differences in the literature about the topic (Cutter et al., 2008). There is no common definition of, or agreed upon method to measure resilience (Sherrieb et al., 2010).

3.1.1 Factors of resilience

There are many approaches which seeks to explain the concept of organizational resilience. One of these belongs to McManus, Seville, Brunson & Vargo (2007). They view organizational resilience as “the organizations ability to maintain situational awareness, mapping and controlling vulnerability, and adaptability (McManus et al., 2007).

In this thesis however, I will mainly focus on resilience through the five defining characteristics of high reliability organizations (HROs) identified by Weick & Sutcliffe in their book “*Managing the unexpected (2007)*”. The term HRO was first used by a group of researchers at the University of California, Berkeley where they examined aircraft carriers, nuclear power plants and air traffic control (K. H. Roberts & Rousseau, 1989). The hallmark of these organizations is that they avoid disasters in an environment where accidents are expected

because of high risk and complexity. These organizations organize for high performance in settings where the potential for error and disaster is overwhelming; they have no choice but to function reliably (Weick & Sutcliffe, 2007).

With their background in social psychology and research on collective mindfulness, Karl Weick and Kathleen Sutcliffe has found common characteristics or principles of HROs. These principles describe what organizations collectively are mindful of for managing, and preferably avoid unexpected events.

Principle 1: Preoccupation with failure

HROs are idiosyncratic because they are *preoccupied with failure*. They treat any lapse as a symptom that something might be wrong with the system, something which could potentially have severe consequences if several small errors happened to coincide (Weick & Sutcliffe, 2007). HROs encourage reporting of errors. They elaborate experiences of a near miss for what can be learned, and they are cautious of the potential liabilities of success, including complacency, the temptation to reduce margins of safety, and the drift into automatic processing (ibid). They also make a continuous effort to articulate mistakes they don't want to make and assess the likelihood that strategies increase the risk of triggering these mistakes (ibid). In Svalbard small errors can prove fatal. Actors therefore strive to make as few as possible, but when they do, they share their experiences so others can learn from it as well.

Principle 2: Reluctance to simplify

While success in any coordinated activity requires people to simplify in order to stay focused on key issues, simplification also cause you to see less (Weick & Sutcliffe, 2007). HROs take deliberate steps to create more complete and nuanced pictures of what they face (ibid). When they “recognize” an event as something they have previously experienced and understood, that recognition is a source of concern rather than comfort (ibid). The concern is that superficial similarities between the present and the past hide deeper differences which could prove fatal (Hollnagel, Woods, & Leveson, 2006).

When you organize, you simplify (Weick & Sutcliffe, 2007). Everyone makes assumptions about how complex a project will be, what resources are needed to complete it, and how to avoid entrapment. Those assumptions can be rough or nuanced. Resilience lies in the direction of nuance (ibid). While routine missions naturally occur regularly, on Svalbard

the conditions can change in an instant. The emergency preparedness actors are therefore on a constant alert and do not get complacent during any event, no matter how mundane.

Principle 3: Sensitivity to operations

HROs are attentive to the front line, where the real work is done. The “big picture” in HROs is generally less strategic and more situational than that of most other organizations (Weick & Sutcliffe, 2007). When people have well developed situational awareness, they can make the continuous adjustments which prevents errors from accumulating and expanding (ibid). This is possible because HROs are aware of the close ties between *sensitivity to operations* and sensitivity to relationships. People who refuse to speak up out of fear undermine the system, which in turn knows less than it needs to know to work effectively. People in HROs are aware that you cannot develop a big picture of operations if the symptoms of those operations are withheld (ibid). The emergency preparedness actors on Svalbard knows better than most the importance of sensitivity to relationships. As external help is so far away, they trust and depend on each other to speak up and assist each other.

Principle 4: Commitment to resilience

No system is perfect, which is a hard-won lesson learned of all HROs. This is why HROs complement their anticipatory activities of learning from failure, complicating their perceptions, and remaining sensitive to operations with a *commitment to resilience* (Weick & Sutcliffe, 2007). They develop capabilities to detect, contain and bounce back from those inevitable errors which are part of an ever-evolving complex world (ibid). The hallmark of an HRO is not that it is error-free, but rather that errors does not disable it (ibid). Minor mistakes and errors occur naturally from time to time, but as they cannot afford to let them evolve into something bigger, the actors on Svalbard make sure to avoid or minimize mistakes as good as they can.

Principle 5: Deference to expertise

The final feature of HROs is their *deference to expertise*. HROs cultivate diversity, not only because it helps them notice more complex environments, but also because it assists them to do more with the complexities they do spot (Weick & Sutcliffe, 2007). They push decision making down and around. Decisions are made on the front line, and authority migrates to those with the most expertise, regardless of their rank. Experience by itself is no guarantee of expertise, as far too often the people have the same experience over and over and do little to elaborate those repetitions. The decisions migrate these organizations in search of a person who has specific

knowledge of the event (K. Roberts, Stout, & Halpern, 1994). In Svalbard there are many operative actors with a lot of expertise. When events occur these people often take charge regardless of their position or rank in the hierarchy.

The high reliability theory is primarily focused on established organizations, and not between two or more organizations who temporarily cooperate. When an event or crisis unfolds on Svalbard it requires the attention of multiple organizations working together to minimize the effects. This joint operation is not only complex on its own, but it is also carried out in the extremely harsh and hostile environment of the Arctic. As such, small errors or mistakes could lead to substantial consequences on human lives and health. The organizations involved in the emergency management must make few mistakes and be reliable while the decision making is often done under time restrictions and limited or ambiguous information. These organizations responsible for Emergency management on Svalbard are dependent on the qualities and hallmarks of HROs to be able to do their job in a safe and reliable way, and I feel therefore that high reliability theory is fitting for this assignment.

3.1.2 Emergency management

While most literature regarding resilience focus on one organization at the time, a team can be viewed as a small organization (Wesnsner, 2015). An important characteristic of emergency management is that it is a team of teams; multiple teams who come from different organizations, with different organizational cultures, different organizational goals, who work together to minimize the negative effects of an emergency (Schaafstal et al., 2001). Consequently, emergency management requires good coordination and communication not just within, but also among the various teams involved (ibid).

3.2 Cooperation

Cooperation in, and between sectors was establishing itself as a popular working methodology towards the end of the 1980s in Norway after a period characterized by a majorly focus on competition (Kristiansen et al., 2017). Research have shown that to cooperate is both more expedient, as well as more effective than attempting to solve a situation alone (J. Berlin & Carlström, 2013; Jamal & Getz, 1995). While cooperation has been a well-known approach for some time, cooperation was introduced as an official principle for Norwegian preparedness and emergency management after the events of 22. July 2011. The objective of the government by presenting cooperation as an official principle, was to explicate the governments overall

responsibility for societal safety and security, as well as preparedness across sectorial boundaries (Justis- og Beredskapsdepartementet, 2011-2012). The intention was to utilize the resources across public, private and voluntary sector as good as possible.

Cooperation can be described as a process where the involved actors, without consideration of prestige, work together to solve a common problem (J. M. Berlin & Carlström, 2008; Martin, Nolte, & Vitolo, 2016). Cooperation in a literal way means to “co” “operate”, which is, to operate alongside another (Martin et al., 2016). Organizations with similar ends and means pursue similar goals following similar strategies to achieve them (ibid). Doing so in an emergency setting is to do so within a relatively small and tight-knit community (ibid). In a place like Longyearbyen with roughly 3000 total inhabitants, this is truer than most places. The emergency preparedness actors often know one another and nearly always know the other organizations operating in their area.

There are different perspectives on cooperation. Two of the most normal ones are *vertical* and *horizontal*, which again can be split into *formal* and *informal* (Kristiansen et al., 2017). *The vertical perspective* is in short about the hierarchical levels, and cooperation between senior and subordinate. While good hierarchical models can be useful for management in the daily routine, long vertical structures might prove a challenge in situations where there is often a need for quick and clear decisions (Kristiansen et al., 2017).

Horizontal cooperation describes the ideal relationship between equal partners. To achieve this ideal relationship, the involved parties must agree on a complete equal sharing of authority and available resources (Kristiansen et al., 2017). The good thing about horizontal cooperation is that every available resource is used in the best possible way to solve the mission, without any regard to who brought the resource (ibid). A horizontal model is likely difficult to achieve in an emergency, as it will often require swift and clear decisions. Vertical and horizontal cooperation can be further divided into formal and informal cooperation.

Formal cooperation refers to the existing rules, regulations and formal agreements between the actors at the scene (Kristiansen et al., 2017). On one hand, these guidelines can create clarity and predictability, while on the other hand too detailed procedures may produce organizational hindrances in critical situations (ibid).

Informal cooperation could be established directions and routines which has been developed by informal relations and non-verbal understandings, like for example knowledge to each other's capacities through previous cooperation, relationship building, or a sense of community because of similar background or sector affiliation (Kristiansen et al., 2017)

Despite cooperation in general is expedient, it is not always the preferred working methodology in a crisis management perspective. Most tasks should if possible be carried out within the respective disciplines (Kristiansen et al., 2017). If your house is burning, you would prefer that trained firemen attempts to put out the fire as soon as possible instead of discussing different approaches with the police and healthcare. Cooperation comes into play when there is a situation which no longer can be solved by a single actor alone, and there is a need to cooperate on an operative and strategic level (Andersson, D. Carlstrom, Ahgren, & M. Berlin, 2014).

Cooperation does not occur naturally by different actors responding to the same event. Cooperation requires volunteerism. The actors need to see the usefulness and be willing to work across disciplines to achieve a common goal (Andersson et al., 2014). This includes as well that organizational- and leadership challenges must be solved in advance. When different organizations meet, they tend to bring diverse methods, principles, languages and cultures. They may have various priorities, wishes, approaches and methods. These are issues which should be solved before an incident occurs (Kristiansen et al., 2017). One of the ways to achieve this and develop cooperation is through exercises. There are many different types of strategic and operative exercises. The one which is found the most expedient for practicing different agencies working together, is called *collaboration exercises* (Andersson et al., 2014).

3.2.1 Developing cooperation

Collaboration exercises is viewed as a useful tool to enhance the ability to cooperate. The purpose of this type of exercise is to increase focus across the different sectors, create a shared leadership platform, and create intersectoral curiosity (Andersson et al., 2014).

There is little available research done on learning outcomes and the effect of exercises which involve several actors (Kristiansen et al., 2017). Existing research show however that to cooperate is something which is more often regarded as rhetoric rather than practically applicable (J. M. Berlin & Carlström, 2015), and that collaboration exercises have limited effect on cooperation in real emergency situations (Borell & Eriksson, 2013). Berlin & Carlström

(2011) discovered that participants in collaboration exercises could to a limited extent refer to real situations where themselves had initiated or observed other involved cooperation with other actors.

Research suggest that to strengthen the level of cooperation in real situations, collaboration exercises should have a stronger focus on learning and different learning elements (Kim, 2013). Examples of learning elements related to cooperation are *focus*, *realism*, and *improvisation* (ibid). If one shall arrange a collaboration exercise, it is important that the focus for the exercise is precisely collaboration, instead of the organizations participating only focus on their own defined objectives for the exercise (ibid). The exercise also needs to have a large sense of realism (Andersson, 2016). For the participants to feel like the exercise contributes to learning, the exercise needs to contain issues which the participants actually face in their daily work (ibid). Without this link between theory and practice, some of the usefulness of the exercise disappear (ibid).

The third element which leads to increased cooperation learning, is improvisation (Carlström & Berlin, 2009). When a crisis or situation occur which is so comprehensive that it cannot be solved within the normal emergency aid, there will arise a need to think outside the box and find alternative solutions (ibid). Weick (1993) calls someone that is able to create order out of whatever materials is at hand for a bricoleur. Bricoleurs are skilled individuals who are able to remain calm under pressure and together with similarly skilled people, able to improvise and make do with whatever they have (Weick, 1993).

The actors in a collaboration exercise should therefore be given the opportunity to test their ability for mutual improvisation. Important factors for success are that the exercise scenario have the necessary focus on cooperation, there is sufficient room for trial and error, and that the participants under and after the exercise have the opportunity to reflect and evaluate together (Andersson, 2016).

Preparedness and crisis work is very comprehensive. There are especially a series of challenges related to cooperation between public, private and volunteer actors. As no emergency actor alone will be able to respond and solve all types of events, it is very important that this cooperation is continually developed, tested and evaluated (Kristiansen et al., 2017).

To enter a situation with different background, knowledge and experience is exactly what is needed to solve today's and future challenges in a good way (ibid).

3.3 Analytical implications

In the previous sub-chapters I have presented literature and theories related to resilience, high reliability organizations, cooperation and developing cooperation. In this sub-chapter I will seek to bind all these perspectives together, ending up with the analytical approach for my thesis.

Weick and Sutcliffe's (2007) factors of resilience provides the starting point of the analysis. Their five factors consist of (1) preoccupation with failure, (2) reluctance to simplify, (3) sensitivity to operations, (4) commitment to resilience and (5) deference to expertise. These factors provide the basis of the study which I want to see if cooperation can facilitate for.

Martin, Nolte & Vitolo (2016) description of cooperation as a process has been used to identify how the emergency preparedness organizations continuously work on cooperation. Learning elements from Andersson et al. (2014) and Kim (2013) regarding developing cooperation has been used to narrow down the broad and complex concept of cooperation. The study seeks to find out how cooperation can facilitate resilience. More specifically, this study examines how emergency preparedness organizations on Svalbard work together and cooperate to facilitate resilience for the total emergency preparedness apparatus on the archipelago.

The effectiveness of cooperation facilitating resilience has not been assessed in this thesis. Effectiveness is a challenging concept, because its interpretations vary depending on the case under examination (Siegel, Saukko, & Houck, 2013). Instead, this study will try to answer **how** cooperation can facilitate for resilience.

4 Method

The social science method is about how one should go to collect information about a social phenomenon and how to analyse this information so that it will provide insight into social conditions and processes (Johannessen, Christoffersen, & Tufte, 2011). In the following chapter I will explain the process I have been through and the choices I have made in this study.

All interviews were conducted in Norwegian, so it is therefore important to mention that all quotes used in this thesis is translated from Norwegian to English and is thus my translation and understanding of the quotes. I have however done my best to convey their message in Norwegian into English. Most of the documents used regarding Svalbard are also Norwegian in its original form. In translation theory, there are two main schools of thought, the word-for-word approach of *instrumental* translation on the one hand, and the sense-for-sense approach of *hermeneutic* translation on the other (Venuti, 1991). Venuti (1991) argues that the hermeneutic model is to be preferred over its instrumental counterpart as it offers a more sophisticated account of translation which is not only comprehensive but also ethical (ibid). As such, I have opted for the hermeneutic approach of sense-for-sense in my thesis because I believe it is the best way of translating my source material from Norwegian to English.

4.1 Qualitative case design

The design for this thesis is a case study. Case studies is a research approach which is used within multiple disciplines and contains a study of one or several cases over time, through detailed and extensive data collection (Andersen, 1997; Yin, 2014). In this case, I have used the emergency management on Svalbard, to illustrate how resilience can facilitate for cooperation between emergency preparedness actors, with a special emphasis on those in remote communities. The design was chosen based out of the research problem and the purpose of this study, and because case studies as a research design gives room to thoroughly study one case. Through conducting a case study, I was allowed to have a narrower focus on the specific case and come up with concluding accounts, and thus the opportunity to illustrate specific topics in an analytical setting (Andersen, 1997; Johannessen et al., 2011; Yin, 2014).

I decided further to make a qualitative approach of this study, as it was desirable to go into the depths of the phenomenon, rather than to portray the spread of it. I wished to base my studies in different people's experiences in order to portray the phenomenon in its natural

setting, something qualitative studies are well suited for (Andersen, 1997; Johannessen et al., 2011). The choice of conducting a qualitative study therefore appeared natural as the approach is well suited for saying a lot out of little (ibid).

In social science it is a goal to integrate theory and empirical findings. This is done in this study by the case study being theoretically interpretive, where general insight and theory are used to explain the case which is being studied (Andersen, 1997, s. 70). The theory has not been based on a single theory or model, but rather been “*constructed using elements from theoreticians’ theory*” (Blaikie, 2010, s. 155). Since the aim of the study is to contribute to research, the theoretical framework has been shaped on the basis of established academic literature on resilience, factors for high reliability and cooperation.

4.2 Data collection

The data for this study is mainly based on observation of exercise Dark Season, and interviews conducted with both operational crew and administrative employees of various emergency preparedness actors. To strengthen the empirical foundation, I have chosen to triangulate. Triangulation means to control your data and conclusions through combining different sources to the data (Jacobsen, 2015). I have additionally collected both primary and secondary data from various documents regarding emergency management and cooperation. In this sub-chapter I will elaborate on the processes around collection of data, as well as the design of the interview guide. First, I want to give a review of the decisions regarding selection of informants.

4.2.1 Choice of informants

In order to obtain informants, I have used what Thagaard (2013) refers to as availability selection. This means that one selects informants who possess properties or qualifications which are relevant to the problem and theoretical perspectives and can thus be described as strategic. The selection process is based on the informants availability for the researcher (Thagaard, 2013). To select available informants, I have partly used the snowball method. My first trip to Svalbard was for exercise Dark Season where I got to meet several emergency preparedness actors in the exercise management. After talking with them during the exercise, they showed an interest for my study and volunteered to be informants I would later interview.

During my time on Svalbard, I had the opportunity to interview informants from the Governor of Svalbard, Longyearbyen Local Government, Longyearbyen Red Cross Relief Corps, Lufttransport AS and Xpolar. I have differentiated my informants with an A or an O, followed by a number. A indicates that the informant has primarily an *administrative* role, while O indicates an *operational* role. I chose to differentiate them because I wanted to see if there would be a different understanding about topics between the administrative and the operative. I did however not find anything which would indicate that their understanding differed noticeably. As it was important to distinguish what organization the different informants worked for, I have included the organization when I refer to the informants. Table 1 illustrates the different informants I interviewed, their role in the organization and which organization they work for.

Organization	Code
The Governor of Svalbard	A1
Red Cross Relief Corps	A2
Xpolar	A3
Longyearbyen Local Government	A4
Lufttransport AS	O1
The Governor of Svalbard	O2

Table 1: Overview of informants

Due to my limited time on the archipelago and other potential informants busy schedule, I was not able to talk with someone from other organizations. In an ideal world I would naturally prefer to talk to every emergency preparedness organization on Svalbard, but I still got a good understanding of the cooperation on the archipelago as I talked with the organizations most involved in facilitating cooperation, as well as I was able to observe during exercise Dark Season.

4.2.2 Participatory observation

This study aims to understand how emergency preparedness actors cooperate, and how it may facilitate resilience, illustrated by the emergency management on Svalbard. It was very helpful for me to be able to observe how these actors work together. I was fortunate enough to be able to participate in a real search and rescue mission with Lufttransport AS and a police officer, witness a training session from the helicopter and was invited as an observer during the collaboration exercise Dark Season. During these activities, I was able to not only observe, but also to talk and question the informants. This helped me to better understand the context these actors were working under, and thus better understand and interpret the information from the informants. Observation can furthermore provide valuable information in the form of

information which may be difficult for informants to express during an interview, and give answers to silent truths or conditions one takes for granted (Johannessen et al., 2011). One example of this I observed was how different some actors would communicate with other actors who they knew well.

As I got to observe both a real mission, as well as training I was also able to observe the differences in among other things communication, focus and improvisation. While most of the informants attempts to “train as you fight” there are always some nuanced differences between training and the real deal.

In addition to these observations I would argue that I exercised some form of participatory observation in the time around the interviews. I stayed for a period of time around the informants while waiting for them to be ready for the interview which led me to observe them doing daily routine tasks around me. There was also room for a lot of casual small talk besides the interviews which gave me the opportunity to ask questions. It is debateable if the informants were unaffected by my presence as an outsider in an otherwise tight knit community, and thus affecting the credibility of my data collection. The various actors I observed were very aware that I was there to research and what phenomenon I studied. Since the purpose of the observation of the actors were to give me a better understanding of how they cooperate, this could be viewed as a weakness, but I would also argue that it gave me the opportunity to ask questions to reproduce a more accurate and correct picture of the cooperation conducted and thus contributed to increase the reliability of the project.

4.2.3 Document analysis

In order to elucidate the research problem and especially some of the research questions, it was of interest for me to gain access to some of the documents concerning the preparedness on the archipelago, as well as various documents related to exercise Dark Season. The selected documents was the Risk and vulnerability analysis of The Governor (Askholt, 2016), the overall contingency plan of the local government (Lokalstyre, 2017), and the folder of documents from exercise Dark Season containing the overall exercise goals, evaluations and the script for the exercise. These documents contributed, on an equal footing as the observations, to make me better understand how the preparedness actors work and cooperate, as well as the formal part of the work and cooperation. It thus gave me a chance to reproduce a more accurate and correct picture of the case.

4.2.4 Semi-structured interviews

Interview is a favourable approach to gain insight into a complex phenomenon, and a common starting point for data collection for research where case study is the research design (Yin, 2014). It is in the interest of this study to have informants who sit with first-hand knowledge of the phenomenon I wish to study. According to Johannessen et al. (2011), in order to arrive at the experiences and perceptions of the preparedness actors, one must talk, interact, listen and ask questions. By doing qualitative interviews, I got the opportunity to go in depth and get thorough look of a day of the informants, to be able to interpret the views and perceptions which were depicted (ibid).

Semi-structured interviews differ from unstructured interviews as they have an overall guide that forms the basis for the interview (Johannessen et al., 2011). I chose to conduct semi-structured interviews as it is easier to conduct somewhat similar interviews, while at the same time easing the analysis work afterwards. Nevertheless, the semi-structured interviews still contain flexibility as the order of questions and topics can vary, which in turn allows one to create a more informal and less rigid setting around the interview. This makes the situation more natural and it is easier for the informant to speak freely (Johannessen et al., 2011). Since semi-structured interviews can vary from informant to informant, this can still pose challenges in the analysis phase where one must look for a pattern in the data material to create an understanding of what is examined (ibid). A key question related to conducting interviews is whether to record the interview or not (Yin, 2014). In this study a tape recorder was used for the interviews. Tape recordings were useful as this gave a more accurate reproduction of the data, and it gave me the opportunity to concentrate on listening to the informant and asking good follow-up questions.

4.2.5 Interview guide design

An interview guide is a list of topics and general questions which are to be asked during an interview, where the theme should be relevant in relation to the research questions and the theme the study aims to answer (Johannessen et al., 2011). How an interview guide is designed, can contribute to avoiding an interview effect during the interview, that is, the informant is affected by it being an interview, which in turn affects the information he is sharing (ibid). By being attentive to the order of the questions one can facilitate an open and trusting relationship between informant and interviewer, which in turn leads receiving honest and sincere answers

(ibid). I therefore opened the interviews with simple question such as asking the informants to tell about their education, background and work experience. Then, the questions went over to be more related to reliability, cooperation and exercise Dark Season. In line with the guidelines of Johannessen et al. (2009) the interview guide was divided into key topics which are in line with the theoretical framework for the study. The thematizations was chosen to give an overview to both the informant and the interviewer. This also proved to be more helpful later in the analysis work, as it helped to facilitate structuring the data. I had also beforehand prepared some follow-up questions which could be relevant to ask during the interview or use to explain a question if the informant misunderstood anything.

While the informants were notified ahead of time about the topics of the interview I did not send them the interview guide in advance. As the emergency preparedness actors on Svalbard are a very tightly knit community and as they often speak to each other daily, I thought of the possibility of them discussing the interview questions together and forming similar answers. I did however show them the interview guide together with a letter where both the study and I as the researcher were presented and let them go through it for as long as they wanted before the interview started. The interviewees were informed about the research ethical rights like anonymity and confidentiality, as well as the opportunity at any time to withdraw from the project. This way the informants also had the opportunity to go through the questions and decide whether there were any questions they did not wish to answer.

4.2.6 Analysis and presentation of data

A qualitative approach to a research study amounts to large amounts of information (Johannessen et al., 2011). This, combined with the choice of conducting semi-structured interviews, can pose challenges in the analysis process in relation to sorting and getting an overview of essential and relevant information (ibid). Therefore, it can be said that the purpose of the data analysis in this study is both to organize the data material, as well as interpreting it (ibid). Yin (2014) points out that in case studies this phase of the research process is a critical aspect of the research process, while being one of the least-developed aspects. In line with one of the proposed strategies for Yin (2014), I chose to let the theoretical research questions to be the analytical strategy which points out the overall direction for analysing and summarizing the data basis in this study. These research questions formed the basis for the design of the theory chapter, as well as the interview guide, and it was therefore logical to follow this division also in the analysis.

The analysis process for this research study has followed what Yin (2014) explains as a circle involving “(...) *your original research questions, the data, your defensive actions and interpretations of the data and your ability to state some findings and draws as conclusions*” (Yin, 2014, s. 136). I have worked myself back and forth in this circle to finally arrive at the conclusions I now have. The analysis would start already the same night after a day of data collection on Svalbard where I daily would write a field diary with key notes, my thoughts and new questions. Between data gathering trips to Svalbard I would transcribe and anonymize the interviews and attempt to see the data I collection as a whole picture, not just day for day. I would then note down interesting topics I felt I had not delved far enough into and investigate them on the next trip. In the data collection I found both common features and contradictions between the explanations from the various informants, as well as in the relationship between empirical data and theory. When the interviews were transcribed, I made schematic reviews where I categorized what the various informants said about different topics. This is called *data reduction* and *data display* (Mehmetoglu, 2004). “*Data reduction is to reduce the amount of data without losing important information. It happens by encoding and segmenting the data*” (Mehmetoglu, 2004, s. 100). Data display, on the other hand, is about showing how the researcher have organized and summarized the data (ibid). In this way, I made it easier for myself to find who said what in the analysis process.

The analysis process was based on data from interviews of both operational actors and administrative staff, as well as from observations and from documents. I chose to summarize the presentation of these data in thematic sections related to the research questions. This means that there is a similar structure to both the theory and the empirical chapter, and thus facilitates the structuring of the discussion, and makes it easier for the reader to keep track of my thought process. In the presentation of the empirical findings section, the sections were named after the topics and illustrative quotes from the informants.

4.3 Research ethical issues and methodological assessments

A qualitative research project can be evaluated based on the degree of validity and reliability (Johannessen et al., 2011). In addition, a research project should take into account research ethical issues (ibid). In the following sub-chapter, I will elaborate how I have gone forth to fulfil these aspects.

4.3.1 Research ethical issues

In scientific research, ethical considerations may indicate that one avoids to research topics where it is difficult, if not impossible, to carry out an ethically justifiably program (Johannessen et al., 2011). To carry out an ethically justifiable study, I, as a researcher, have to make some reservations. In the role as a researcher it is among others my task to be aware of the situation I put my informants in. I, as a researcher, ask the informants to provide information he or she has of their working day, which could be difficult for the informant. While they should be truthful to me, at the same time they need to be loyal to the employer. Therefore, it is very important that it becomes clear that those who sign up as informants are referred to as anonymous sources. In order to comply with the principle of anonymity, I have not obtained any information which is of a sensitive nature, i.e. data that provides information about the informant as a person. In addition, interviewing is transcribed where all references to them as a person is removed. In a small community like Svalbard this is especially important and provides some extra challenges. As there are so few people involved on Svalbard referring to the informants by their work title or organization, it is still likely that other people from said community would be able to identify them. I have therefore attempted to codename my informants in a way where they can stay anonymous, while it also will be possible to follow who said what in my thesis.

I, as a researcher, should further be aware that during interviews I can put the informants in a difficult position. Some questions may indicate that the informant does not know what to answer because the truth may not put the informant in a particularly good light, and that the informant rather wishes to give an answer which is more socially accepted. It could also be that the answer would put the employer or a colleague in a bad light. It is therefore my duty as a researcher to reflect on this in advance of the interview and do my best to avoid this situation. Among other things, this can be done through the design of the interview guide, and not least through my own behaviour during the interview. In addition, as a researcher, I must be objective in relation to the data that I get access to. This can be done through being factual and impartial. I must not let my own perceptions or feelings dominate and characterize the interpretation of the data. If I as a researcher can be objective both in the form of my behaviour towards the informants, as well as objective in relation to the data basis, I will be able to create credibility in relation to the findings I make in my study.

4.3.2 Validity

Validity as an evaluation criterion involves several operationalizations. Internal validity, which is also called credibility by qualitative studies, poses questions about whether one actually investigates what one is aiming to investigate, and in which degree the findings reflects the purpose of the investigation (Johannessen et al., 2011). In order to strengthen the credibility of this study, I have been consistent in the selection of data for the study. As the informants I interviewed and the preparedness actors I observed work with each other on a daily basis, and exercise Dark Season by and large was a collaboration exercise, the data these informants provide, largely reflects the intention of the study. To ensure that the use of central terms is correct, the informants were also asked about what they include in various aspects and terms, and after the interviews asked the informants of whether they want to add anything or if anything was unclear. As mentioned, I have triangulated the data basis by retrieving data from observation and document analysis, as well as semi-structured interviews. Triangulation provides an effective control of whether the conclusions of one researcher, can be the same as the conclusions of another (Jacobsen, 2015). By looking at a phenomenon from different perspectives, one will to a greater extent avoid partial and subjective findings (Johannessen et al., 2011; Yin, 2014).

External validity, or transferability, says something about the degree to which the study's results can be transferred to similar phenomenon's, settings, situations and contexts (Mehmetoglu, 2004). A disadvantage with a qualitative case design is that it is precisely for the purpose to contribute with a detailed insight into one case, and that it can therefore be challenging to make generalizations. Yin (2014) emphasizes that it is still possible to generalize with case studies, but that it is an *analytical generalization*. Analytical generalization suggests that the purpose of the study is to expand and generalize theories, rather than possibly a phenomenon which can be transferred to populations (ibid). While this study attempts to give some generalizations for cooperation, the main focus is to give a detailed insight into a social context, which in turns allow me to discuss how cooperation could facilitate resilience among preparedness actors. To improve the transferability of qualitative studies, it is important to establish good descriptions, interventions, interpretations and explanations which can be used in other contexts (Mehmetoglu, 2004). To ensure transferability, I have contributed with rich descriptions of the empirical basis. In this way, the reader can make up his or her own opinions

and interpretations, and therefore, to a greater extent, the findings become a result of the research and not of the subjective presentations to me as a researcher.

4.3.3 Reliability

Reliability, or consistency, is linked to the selection of the data, the collection and the reorganization of the data (Johannessen et al., 2011). As qualitative study collection is often less structured, this assessment is not as important in qualitative studies as it is in more quantitative studies (ibid). To ensure reliability for this study, I have used a tape recorder during my interviews. This helps to ensure accurate and correct reproduction of information from the informants. Additionally, I have been working structurally in order to systematize the information that has emerged, which has also been included in the method chapter as descriptions of the context in which the project has been carried out in, and how I have gone forth to reach the end of the project. This helps to strengthen the reliability of the study since the reader themselves is in a better position to see how the researcher has arrived at the conclusions he makes (ibid).

4.4 Strengths and weaknesses

I find that it has been beneficial to be present in the field through a period of time. In total, I stayed on Svalbard for 21 days divided into three visits. While I ideally wanted to remain on Svalbard through the entire research process, because of administrative challenges, this became impossible. Meeting the informants in different settings through my stays, they were able to supplement their initial interview with new information that they thought of between my stays. My stay in the field gave me knowledge of relevant actors regarding the issue, and gave me access to relevant informants. It also gave me the opportunity to apply the data collection methods participatory observation and interviews. It has given me a broader and more nuanced insight and understanding into the phenomena I have studied than an analysis of documents would have given me alone. The use of different data collection methods also gave me the opportunity to compare data and confirm and disprove my interpretations along the way in the field work. The data material, based on three different data collection methods, provided a good basis for being able to draw some reasonable conclusions regarding the issue.

One could argue that the selection of organizations and informants is relatively small. There have been 6 interviews from 5 different organizations which have resulted in rich descriptions related to cooperation and resilience. While I naturally would have preferred to

include more interviews from other organizations, due to time constraints from either my side or the informants, it was not possible. Talking to other organizations could potentially offer a different insight from another point of view but the 6 interviews supplemented with the other methods of data collection and small talk with other informants was sufficient for this study.

5 Empirical findings

In this chapter I will give a presentation of the information that is collected through interviews of various preparedness actors in both operative and administrative positions. I have also included elements from the document analysis of the overall contingency plan (Lokalstyre, 2017), the risk and vulnerability analysis (Askholt, 2016), as well as various documents from exercise Dark Season. In addition, I have also drawn in observations I made when I was an observer during exercise Dark Season, as well as participating in the search mission with Lufttransport and their training session. Here I will present my empirical findings related to research question 1, RQ1) *How is resilience developed in emergency preparedness organizations on Svalbard?* and RQ2) *How is cooperation developed between the emergency preparedness organizations on Svalbard?*

5.1 Developing resilience – “*The conditions don’t allow us to linger*”

If we look back to chapter 3.1 Aven (2015) defines resilience as:

An organizations ability to recognize, adjust and absorb variations, changes, disruptions and surprises.

Through my stays on Svalbard, I have found signs of these abilities among the different organizations I have interviewed and observed. Multiple informants have told about how the conditions here requires them to be open to improvisation as the conditions can change in an instant (A1, A2, A3, A4, O1, O2).

In order to portray how resilience is developed in emergency preparedness organizations on Svalbard, my starting point has been information from informants, document analysis, as well as my observations during exercise Dark Season, the rescue mission and the training sessions with Lufttransport AS. While there are evidently differences between the organizations in how they train and develop resilience, there were still a lot of similarities.

First, I wish to answer my first research question, RQ1) *How is resilience developed in emergency preparedness organizations on Svalbard?* To answer this, I am going to go through the factors of resilience identified by Weick & Sutcliffe (2007) and present my findings related to it. Towards the end of the subchapter I will summarize and answer RQ1.

5.1.1 Factors of resilience – “*We depend on it here*”

As mentioned in chapter 2.1.1, I will focus on resilience through the five defining characteristics of high reliability organizations (HROs) identified by Weick & Sutcliffe in their book “*Managing the unexpected (2007)*”. I will therefore go through the different characteristics and portray how the emergency preparedness organizations develop resilience through them.

With Svalbard’s special conditions with cold climate, limited resources, and long distance to the mainland, the necessity to focus on resilience is accentuated as the consequences of minor mistakes can be severe (Askholt, 2016). This is also obvious in the preface for the overall contingency plan by Longyearbyen Local Government. “Preparedness is important in all contexts and in all parts of society. Perhaps even more important here in Longyearbyen, as in many conditions we can become very alone and have to manage ourselves over a long period of time” (Lokalstyre, 2017).

To put it simply, “*We depend on it (resilience) here*”. (A1, O1, O2). The circumstances surrounding Svalbard makes it so that it is more normal than rest of the country to think about safety and preparedness for everybody, “*It has become a part of the culture up here*” (A1).

Principle 1: Preoccupation with failure

No organization is perfect, and that includes the organizations on Svalbard as well. While mistakes can happen, it is important to learn from them, and hopefully not repeat them again an informant from Lufttransport AS informed (O1). O1 explained further how they note down not only incidents, but small accidents and near misses in a log that everyone in Lufttransport has access to. In this way, not only the individuals involved can learn from the deviation, but also the organization. Similarly, they would also log actions which went particularly well, or new improved ways of handling certain situations. This way, they would promote a safety culture where it is not only encouraged to report errors, but also to share positive experiences and trade secrets attained through years of work. An informant from Lufttransport said that he felt he could obtain several years of experience after working one year with experienced people.

Similarly, an informant from the Governor of Svalbard shared that being allowed to make mistakes is crucial for their work. “*My experience is that we are allowed to make mistakes in my department. You assume that everyone does as well as they can, and sometimes the best you can is simply not good enough, which you need to take into account*” (O2). A4 from the

Local Government agrees, *“Yeah, it is allowed to try and fail, it is how you build confidence. There are people here who have to do things that they were not a part of their job description”*.

O1 from Lufttransport AS went on to explain how they are working with a predictive safety, looking and trends and attempting to anticipate what might happen. *“We can see whether trends are emerging, for example if pilots are starting to take unnecessarily sharp turns constantly, we can detect it in the system and stop it before it develops to anything bigger”* (O1). This way we can intervene and stop any progression which might lead to something worse in the future O1 continued.

Principle 2: Reluctance to simplify

As mentioned before, most of the preparedness actors have good local knowledge. While this in many cases led to the communication and cooperation be more effective, it also has some downsides. As people often were referred to simply by their first name, some locations were also called by names who locals inherently knew but could not be found on any map. Naturally, this could potentially lead to confusion, especially amongst new arrivals at Svalbard. A member of the exercise management told me while this was a rather common occurrence, he was working to try and lessen it. While it might be convenient now, it could potentially lead to grave misunderstandings during an incident the informant from the Local Government explained. *“Imagine if the rescuers rushed to the wrong location because they misunderstood the local name, or a critical person left the incident scene because someone with the same name was called on the radio and needed elsewhere”* (A4).

An informant from the Governor of Svalbard said that they exercise not only to confirm what they know, but also to reveal weaknesses in their system. *“If everything goes smoothly on an exercise, then the ambition level has been too low. And even if you are really proficient, there is always something you can do better in my opinion”* (O2).

Even on the nicest summer day with still waters and clear sky we train for the worst thinkable scenario, the informant from Lufttransport elucidated. *“People usually don’t need our help on sunny days”* (O1). While it can be tempting to sink into routine and enjoy the simplicity offered by a sunshine day, we do our best to prepare for the perfect storm where everything goes wrong, he continued. And they exist. Just a few months ago, there was a mission during midwinter where the crew had to use everything they had learned to handle it.

Principle 3: Sensitivity to operations

Svalbard, or rather Longyearbyen is a small place. With less than 3000 inhabitants people generally know each other both professionally and in private. This is especially true in the emergency preparedness community on Svalbard. O2 from The Governor of Svalbard explained he had been in an emergency preparedness council before on the mainland, without really knowing anyone there *“I only saw nameplates, it was big and cluttered. Here, after some time, you greet pretty much everyone working with emergency preparedness on a daily basis. Whether it is in the emergency preparedness council, the rescue management, on an exercise, or in the grocery store”* (O2). The emergency preparedness actors are much more closely involved here, and there is a stronger feeling that we are in the same boat, that we are together in this, he finished.

During the short brief before the rescue mission with Lufttransport AS and the police, it became clear that all the actors knew each other and even knew the person who owned the missing dogsled. The actors, while being from different organizations also seemed to know each other, their roles, as well as the geography around the search area. All this advance knowledge led the brief to go straight to the point and give more time in the brief to topics such as safety during the operation, search areas, alternative ideas or approaches from those present and so on. This was also pointed out by the informant from Red Cross *“Since we meet and talk, we get to know each other so when something happens you do not need to spend valuable time introducing yourself and so on”* (A2).

As they know each other, the different actors recognize each other’s voices and knows therefore what role the person talking on comms have O1 explained. *“If I hear for example her speak, then I know ok, her role is that and that, and what she sounds like if she sounds stressed and so on”* (O2). This was further accentuated by A2 from Red Cross, noting that as you get to know each other, during an incident, valuable time does not go to waste presenting one another to since the different actors and organizations already know each other. *“As we know what we can and cannot do, it helps us a lot utilizing each other as good as possible”* (A2).

Because of their relationships, trust is developed, both within their own organization, but also between organizations. O2 from the Governor of Svalbard told how if he one day would be the operating manager, managing an incident from the control room, he would trust the decisions made at the incident scene without questioning the incident leader. The exception

being if he as operating manager knew something the people at the incident did not. *“When you are offered a job here, you already have quite a few years of experience so i seldom question what the others are doing”* (O2). He said that if you have a system where decisions made outside are questioned by those sitting inside, then you have some challenges to overcome. *“I am not experiencing it like that here”* (O2).

While every police officer’s main task is patrolling and preparedness, everyone has a special task in addition, one of them being a contingency planner. *“As a contingency planner, there are very many relations, you need to know the community around you and the other preparedness actors (O2). You need to know the people you interact with, or at least it is an advantage to know them, and Longyearbyen is a small place he continued. “There is a lot of coordination as there is the emergency preparedness council, the exercise committee and the rescue management that I work with. I am also fortunate enough that we are three people here that works on contingency planning complementing each other with expertise. So, we work a lot to plan together”* (O2).

A4 explained that they have involved approximately one third of their employees of the Local Government in the emergency preparedness work. The Local Government uses action cards for crisis management, these action cards are all integrated in CIM. A4 further continued that they have events all the time which constantly gives the organization practice with real incidents. *“We use CIM all the time, but we also have many other systems we need to learn. The user average is pretty good, but I do practice CIM with the organization every third week, which is systematised, formalized and documented”* (A4). *“CIM is great, they have an app that, it’s funny, people think new systems are so **difficult**, but what they can do on a phone is... there are no limits to what people can do with a phone. CIM came early with an app and it is brilliant. It is a very good system. We haven’t used CIM on cooperation, and I don’t know if we are going to do it either. I wish we would, but it is very much what they can put in and not put in. If our administration manager is not on the island, she will still be able to keep up to date with CIM, so it is incredibly important to stay informed”* (A3).

Principle 4: Commitment to resilience

As mentioned in 5.1.1 *Principle 1: Preoccupation with failure*, the organizations have occasionally slip ups, but strive to minimize the effect of these and attempt to detect undesired trends before it can develop to anything bigger.

While the preparedness actors on Svalbard in general hold a very high standard, there is naturally some variation both in the professional and the voluntary side. *“There still is some way to go when it comes to communication, especially discipline while using intercoms. It is very varied with experience and training with it amongst the different actors”* (A2). This also became clear during the exercise as many actors were using the same channel on the intercom, communication challenges arose. While some actors were using a form of confirmatory communication¹ to ensure they had understood the message correctly, others were less clear.

On a question about what they do to be prepared for the next incident, O2 is clear. *“practice, practice, practice”*. *“We are fortunate both in terms of resources and attitude wise that we have a leadership who is committed to practice and that we can afford to practice. If one does not have the will and the money, which is often closely related, then it is difficult to prepare for the next event”* (O2). The informant from the Local Government responded similarly to the question, *practice and risk analyses*” (A4). The informant noted that in general there is a very high focus on potential risks, but that one risk takes more attention than the others, perhaps too much. *“We have to begin to think that we need to turn around sometimes and think about what else can happen when the avalanche does happen. When you have an extreme focus on one thing, you suppress other information”* (A4).

An informant said that during exercises they try to have “train as you fight” (A2). *“It is as we have done under real events, that the operative leader heads up to the staff and acts like a liaison there. On this exercise we put people who have not been in that function before, so they would get some practice, and they found it very educational”* (A2). During the exercise, several actors sent liaisons to the Governor to act as a link between them and the Governor’s staff. This way the various actors ensures cooperation through a physical presence. All of the informants I questioned about this explained that having a physical liaison was essential to ensure effective cooperation (A1, A2, A3, A4, O1, O2).

Principle 5: Deference to Expertise

“There are some very capable individuals with special competence here” (A1). This sentiment seemed to be shared by everyone I talked with. Svalbard is a special place with

¹ The receiver would repeat the original message to confirm that the original message was understood correctly

conditions requiring both general expertise and local knowledge. This was exemplified during a conversation with the crew from Lufttransport AS. During a rescue mission it is the Governor of Svalbard who is leading the operation, directing various resources such as the rescue helicopter from Lufttransport AS. Still, as the actors from Governor of Svalbard are employed on a 6-year fixed term, the crew from Lufttransport AS is often more experienced. *“Naturally, they (The Governor) knows what they are doing, but in some occasions, we have to tell them, you are the boss, but because of these local factors, we should do it like this”* an informant from Lufttransport AS said (O1). There was also seemingly very little to no turf war between the agencies when an incident occurs. When something happens, everyone does their best to cooperate and the agency with the most expertise usually take the lead, the avalanche group from Red Cross during an avalanche and so on, an informant from The Governor informed (A1).

So, on Svalbard they do not only push the decision making down, but also when necessary, around to other organizations. *“As there are so few police officers on the archipelago, they naturally have to find expertise or knowledge elsewhere. It takes time for police officers that comes from areas without glaciers and avalanches issues to learn about it. If said officer get an event which is related to avalanche or glaciers, they depend on the expertise of Red Cross”* (A2). Cooperating and using each other’s expertise is what makes us able to handle so many different incidents (A1, A2, A3, O1).

An informant from Lufttransport AS also illustrated an example to differentiate between expertise and experience. He explained that Svalbard is not the place you get the most amount of flight hours but that the hours you do get, are varied and of high quality (O1). *“A helicopter pilot flying the same trip back and forth to an oilrig for 1000 hours of flight experience, I would argue has one hour of flight experience, a thousand times. Whereas here the flights are so varied, so you get lots of varied experience every time you fly”* (O1).

5.1.2 Staying resilient and maintaining the expertise

A common challenge faced on Svalbard related to expertise is the high turnover there is in general on the archipelago. Svalbard is a special place, and while some people choose to remain, most people experience Svalbard for a few years, then move back to the mainland (A1, A2, A3). This occurs sometimes enforced, such as with the police officers from the Governor of Svalbard fixed terms, and sometimes naturally such as with the Local Government, where both

organizations have a turnover of roughly 20% (O2, A4). Overcoming this challenge and keeping the expertise on the archipelago even if the experienced person moves away, is essential for being able to deal with incidents in the future.

On a question about what they would do if the “right” people suddenly moved out, an informant from Red Cross answered concernedly that a lot of invaluable knowledge would simply be drained out of the Relief Corps which would have been incredibly difficult to replace (A2). *“It is very much expertise which one accrues through self-interest, that you like what you are doing. We are very dependent on the right people. Then again, we are lucky here that there are very many outdoor enthusiasts who choose to live here”* (A2). The informant said it is a vulnerability that we must learn to live with as a voluntary organization, that expertise is moving down (A2). Several of the informants agreed that expertise moving down (to the mainland) is just something one has to learn to live with on Svalbard (A1, A2, O1, O2).

“So as what to do if they would disappear? Well, heh, it is a mixture of hoping they will not leave altogether, but also that systems such as CIM will help to save this competence in a system which allows one to go back and see how previous events were handled” (A1). Another actor pointed out that this expertise sometimes even has to come from other organizations.

The Governor of Svalbard also experiences a high turnover as they operate with fixed terms for the police officers. *“There are hardly any cultural carriers here because everyone is exchanged within six years. No one has worked here for a long time, and that is a vulnerability in my opinion”* (O2). He said that after two years you are considered experienced, which is not the case in his opinion. It is a challenge, to have lessons learned brought from one generation to another (O2). He also claimed it could be a mental thing when you know you are going home in a year no matter what, how productive are you the last few months? (O2). *“It is unfortunate, but we know how it is”* (O2). In the emergency preparedness planning group, they plan not only for themselves, but also for their successors. *“The plan needs to be usable for a long time and to be comprehensible. It is such a special place to live so there will always be a high turnover here I think”* (O2).

A2 from the Red Cross Relief Corps said that while they also have some turnover, they also have some who have been there for a long time. *“We have a lot of expertise that the*

Governor does not have, but which they will be completely dependent on in some events” (A2). “Much of this expertise is transferred through having exercises and sharing the expertise with others”. A2 explained that they would often have more experienced members guide the other members in their field of expertise. This was also heavily emphasized by another informant from Lufttransport AS (O1) “There are so many experienced people here, it is crucial to have this indispensable knowledge carried over to the next generation” (O2).

Other agencies also told that they had different ways of transferring knowledge, the police operate with a buddy system, and most of the agencies have a systematized experience bank either on CIM or a similar program (A1, A2, A3, A4). While it is important to maintain the expertise within the different organizations, it is also important to the expertise between the agencies as well, something A4 from the Local Government highlighted. *“Just because we managed to align our resources with the Governor of Svalbard a few years ago, does not guarantee it today. Today there is probably less than half of the guys that were there last time we trained at it” (A4).*

The challenge became apparent during the exercise Dark Season between the experienced ones and the new. It seemed that in some cases the experienced ones expected that if something had been discovered in a previous exercise and trained on, it should not occur again. While this could be a fair expectation, it is not necessarily so that new entrants participated at the previous exercise and therefore did not have that experience. In other words, it is possible that there is a certain gap between expectations and reality. It was also commented during the evaluation that there was not always compliance between those in a leader role, and those who should have it. In some occasions people with no leader position took command when they deemed it necessary.

To summarize, resilience, viewed through the five factors of resilience identified by Weick & Sutcliffe (2007) is developed with a special emphasis on deterrence to expertise, and perhaps most important of all, keeping the expertise even if the experienced person moves away. Aven (2015) defines resilience as an organizations ability to recognize, adjust and absorb variations, changes, disruptions and surprises. The emergency preparedness actors on Svalbard are (1) *preoccupied with failure* through encouraging reporting of mistakes as well as good experiences, and also being allowed to make mistakes while performing activities. Their (2) *reluctance to simplify* shows as they constantly prepare for the worst-case scenario and uses

exercises as a way to discover weaknesses in the system that they can improve. As Svalbard is such a small community, they are not only (3) *sensitive to operations*, but also sensitive to relationships. The emergency preparedness actors know and trust each other which makes their work more effective as they are used to operate with each other and are aware of each other's strengths and weaknesses. They are (4) *committed to resilience* as they constantly strive to improve and have a train as you fight attitude. They have a willingness to learn, and constantly strive to improve. Lastly, they have an (5) *deference to expertise*. Expertise is prized as well as a necessity on Svalbard due to the harsh environment and local variations. They also make a point out of differentiating between experience and expertise as new people arrive with transferable expertise without being experienced on Svalbard, but also because there is such a high turnover on the archipelago.

Keeping an organization resilient requires continuous work as people come and go, and skills deteriorate when not steadily honed. This is especially true in a place like Svalbard that requires everyone to perform when an incident occur, experienced and novel alike. The emergency preparedness actors on Svalbard makes a constant effort to maintain old expertise, improve current and attain new. When proficient colleagues move away from Svalbard, they make an effort to have as much as possible of the expertise provided by that colleague remain on the archipelago. There is a general consensus on Svalbard that everyone attempts to help each other and share their expertise both within their organization, but also out to the other emergency preparedness actors.

While I did not spend enough time with each organization to confirm whether they as individual organizations are resilient or not, I would argue that in total I got an overview on the overall resilience on the archipelago. Similarly, I cannot say with certainty that all of the organizations or a single one covers all of the factors of resilience, but I would claim that they together in total cover the factors of resilience and as an emergency management community, develops resilience.

The high reliability theory is primarily focused on established organizations, and not between two or more organizations that temporarily cooperate. When an event or crisis unfolds on Svalbard it requires the attention of multiple organizations working together to minimize the effects. This joint operation is not only complex on its own but is also carried out in the extremely harsh and hostile environment of the arctic. As such, small errors or mistakes could

lead to substantial consequences on human lives and health. The organizations involved in the emergency management must make few mistakes and be reliable while the decision making is often done under time restrictions and limited or ambiguous information. These organizations responsible for Emergency management on Svalbard are dependent on the qualities and hallmarks of HROs to be able to do their job in a safe and reliable way, and I would therefore argue that high reliability theory is fitting for this assignment.

5.2 Developing cooperation – “*It works because it has to...*”

In chapter 3.2, cooperation can be described as a process where involved actors, without consideration of prestige, work together to solve a common problem (J. M. Berlin & Carlström, 2008; Martin et al., 2016). Doing so in an emergency setting is to do so within a relatively small and tight-knit community (Martin et al., 2016).

Through my stay on Svalbard I found amongst all the informants I talked to and observed, a strong willingness to cooperate with other actors. None of the emergency preparedness actors on Svalbard are equipped to handle bigger incidents on their own, but together they are able to overcome most of the hindrances. All of the informants I spoke to, explained that cooperation was not only convenient, but necessary (A1, A2, A3, A4, O1, O2).

To portray how cooperation is developed between emergency preparedness organizations on Svalbard, I have talked with informants, analysed documents, observed exercise Dark Season as well as participated in the rescue mission with Lufttransport AS and a police officer from the Governor of Svalbard. While there are evidently different approaches to cooperation between the organizations, all of them seemed to understand the value and necessity of it.

In this subchapter, I wish to answer my second research questions RQ2) *How is cooperation developed between the emergency preparedness organizations on Svalbard?* To do this, I am going to present my findings related to cooperation attained from primarily interviews. Then I am going to take a look at my findings from exercise Dark Season. At the end of the chapter, I will conclude my second research question which will lead into the research problem and discussion part of the thesis.

There are different perspectives on cooperation. Two of the most normal ones is *vertical* and *horizontal*, which again can be split into *formal* and *informal* (Kristiansen et al., 2017).

While my primary focus in this thesis is on horizontal cooperation and not vertical, having some insight into how the organizations cooperate within themselves, can potentially tell me something about the overall mindset of the organization towards cooperating. An example of this was given to me speaking with an informant from the Governor of Svalbard. He explained that he tried to see a totality of everything they did, that it was not the police department which solves the crisis, it is the Governor's office. *"If necessary the cleaner here is at the phone receiving phone calls. Everyone has a place in our emergency response organization. Every man on deck actually means every man on deck here"* (O2). This kind of mindset seemed to be reflected by most of the organizations on Svalbard. Another informant from the Local Government told me that while emergency preparedness was not originally a part of their job description, almost every employee there has a role in case of an incident occurring (A4).

A2 from Red Cross pointed out that organizations often have some other organizations they cooperate more with than others, but that bigger exercises such as exercise Dark Season can introduce different actors to other organizations which they normally don't practice so much with. *"It is nice to practice with the Governor and the hospital and such, but we do see that they are not the only ones on the island, and that in a way, it is nice to see how the others operate"* (A2).

A1 from the Governor of Svalbard remarked that as there are many actors from different organizations, it can sometimes be challenging to cooperate because every organization have their own conceptual framework. To combat this, they were trying to get a common vocabulary amongst the emergency preparedness actors. *"The Governor is attempting to apply the standards of DSB to obtain a more common conceptual framework"* (A1). In the evaluation it was also pointed out that contact between the various actors should be better formalized which should improve communication and reduce confusion. As so much of the communication and contact is informal, it is not always necessarily followed up formally.

On a question about formal and informal cooperation, an informant from the Governor replied that on Svalbard, both are important. *"You pretty much know which contact points you have up to each other, we are often on a first name basis and it is quite informal. In general, you know what everyone does and what their job is"* (A1). A2 added that it is important with formal cooperation on larger exercises, but also emphasized more informal cooperation: *"It is very important, we see the benefit of when something really happens"* (A2). This was also

something A1 from the Governor of Svalbard agreed on, saying as there are quite a few real events here, you get to practice the crisis management apparatus at the regional level quite often (A1).

Close ties and acquaintances were often accentuated as one of the key factors for good cooperation. *“The Emergency Preparedness Council works well, perhaps especially since everyone knows everyone”* (A1). A2 informed that the rescue men from Lufttransport AS are also on the mailing list of the glacier group from Red Cross so if there is an activity that they are interested in, then they could also join in. Formal requirements harmonize well with informal acquaintances. It makes the actors to often come together and conduct cooperation training sessions and exercises. Exercise Dark Season is a typical example of this with Avinor (A1). *“The cooperation is formalized, but it is also experienced very informally”* (O2).

Knowing each other also allows planning with several actors work well. *“The planning of the exercise (Dark Season) have gone well, my impression is that cooperation in general on Svalbard is good. Everyone is on first name basis, and it is rather informal in overall”* (A1). The importance of informal relations related to cooperation is further stressed. An informant from Red Cross said that the cooperation with the Governor is very dependent on who is employed there. *“We are very lucky now. We are very much on the luxury side that those who work there are very fond of Red Cross. We get to join in, but I remember when I started here they were a bit more restrictive. So, it is very dependent on who the Chief of Staff at the Governor’s office, and right now he is very pro Red Cross”* (A2).

On a question about what the informant from the Governor thought about Svalbard’s informal way of cooperating compared to his experiences on the mainland, he explained that while the informal is a strength here, it is not necessarily so that it would work as well on the mainland. *“The Governor is, after all, the whole state apparatus here, so we cover everything which is preparedness related as a state actor.* He explained that on the mainland it is very sector-based, while it is more level-based on Svalbard. The Governor of Svalbard is the state and do everything the state does. *“Then you have the local government who does the municipality work, and then you have private actors below that”* (O2).

Another reason for the cooperation working so well, an informant from the Governor claimed, is that they as a state actor only have one municipality to deal with, while his

colleagues on the mainland often have 10 to 25 municipalities. *“The cooperation here is very good, and close, as the lines here are very short. We have one local government to care for, where they have one person dedicated to emergency preparedness”* (O2). The system is adapted to the size and conditions up here, it is very convenient, very clear he finished.

On a question on whether an informant thought they would make use of what they learned about cooperation from Svalbard on the mainland one informant said that he would use some of it, but that not everything would be transferable. *“There is an Eldorado here for someone who works with emergency preparedness, there are so many things to do. On the mainland you might have to push a bit more paper, flick through plans etc”* (O2). Here it is very operational, to the point and applicable, he said. *“So these things I would take with me down to the mainland, but I may not have the possibility to spend as much time per municipality there as I do here”* (O2).

The informant from the Governor also added that the emergency preparedness council on Svalbard meets once a quarter, which is probably more frequent than most other places (O2). *“There is a very short distance here which is a great advantage. Perhaps we can say that the short distances here counteract a bit the high turnover”* (O2). He said that he could just send a text message to be in dialogue with the Local Government. *“I know for example the technical manager there, it is exceptionally short lines here”* (O2).

On a question of what good cooperation is, the informants came up with quite different answers. For O2, good cooperation is related to relationships. Cooperation is after all, a great concept he said, it is more than just working together in an incident. *“Cooperation is not just that we should be in the same place and work together there, cooperation is a daily routine and if we look at it as a daily thing then it needs to be at a relationship level. Me and the emergency preparedness planner from the local Government must know each other because we are the ones who build the emergency preparedness daily”* (O2). In other words, good cooperation is when there are relationships between the actors, at least on the planner and facilitator level. The facilitators must have laid out the road so smoothly that when the capacities meet, they must hopefully have some kind of relation. *“Perhaps an indicator of good cooperation is whether cooperation just kind of occurs when something happens”* (O2). He continued *“If one shows up at an incident with a very rigid attitude, then I think that’s what cooperation takes away. I*

think collaboration gives flexibility and that one becomes solution-oriented. Good cooperation is thinking outside the box when it is required, and some kind of a trust statement as well” (O2).

When asked about the use of CIM, A1 from the Governor responded that they lacked some kind of tool to involve the entire organization during bigger events such as the helicopter accident in October 2017. *“In such a kind of event one must use all the sub-resources to gather resources and spread information in a good way and communicate and notify, perhaps most of all logging” (A1).*

All of the informants said they found it both useful and rewarding to cooperate, but that not necessarily everyone found it as important (A1, A2, A3, A4, O1, O2). *“In my opinion it is crucial to cooperate, but I do not think all of the actors up here have it prioritized as much as they might have (O2).* Some might be more concerned with building their own emergency response organization with the resources they have set aside, and not thinking much further than that, he said. *“I think it is a shame really, they should try to see the whole picture. It is difficult of course if you do not have enough resources for it, but for us that is the job after all, so for us it is natural to see the whole picture” (O2).*

The governor of Svalbard has a coordinating function towards the other actors. *“Many of the tasks associated with the Emergency Preparedness Council, eh, are simply getting the various emergency response actors on Svalbard to talk to each other” (A1) “That is a lot of what this position here is about, to follow up the local government in their work, push them, and guide them a little in the work they do”. (ibid).*

The unique, harsh and unforgiving conditions and the lack of resources are also emphasised as contributing factors for cooperation (A1, A2, A3, O1). *“If something happens here then we have to make do with the resources we have in the acute phase” (A2).*

On a question about the importance of cooperation the informants are clear, it is very important (A1, A2, O1, O2). *“If you do not talk together and practice together then you do not work well together”* an informant from Red Cross said. *“How is the system? If I need something, can I just grab a person or maybe I have to ask the leader of that group and such things. We must, in a sense, practice this in order for it to settle (A1).* The informant said there is a pretty large turnover in all of the organization on Svalbard. Those who have been here a while become good, then they move down to the mainland and new people arrive. As there is

such a large turnover, this must be continually trained and not something which can be done once then assume everyone just knows.

“Not only is cooperation beneficial, without it, we would simply not be able to do our job” O1 from the Governor said. These conditions and circumstances around Svalbard mean that it is probably more common than the rest of the country to think about safety and preparedness for everyone. *“(…) It has become a part of the culture up here”* (A1). There is seemingly little turf war on Svalbard. *“Everyone understands that when something happens, differences are set aside in order to save lives”* (A1). It is not only during training and exercises, but also real events let the emergency preparedness actors cooperate (A1, A2). *“There have been a number of events in recent years that have made them see the usefulness of our existence and that they know us and such”* (A2).

On a question about who they cooperate with, the answer was simple *“we cooperate with everything that can crawl or walk pretty much”* (O2). He explained last week they were on an exercise with Hurtigruten, cooperated, observed, and gave them feedback. They also took them for a visit to Lufttransport where they got to talk with the rescuer and to be explained various things. *“It is one of the ways we cooperate here, we try to contribute where we see the possibilities. The Governor of Svalbard should be a driving force for cooperation, and we certainly try to be, the informant said. “Getting people to meet and talk together is considered an important task for the police. In fact, it is surprisingly enough many that do not talk together”* (O2).

Still, many of the actors work together and cooperate during smaller events as well (A1). *“We actually work a lot together with fire and rescue otherwise, so I think we should have exercises together more often. That we see what they do, and they see what we do. Because I think they had a slightly different understanding of the situation than we had”* (A2).

An informant from the Governor explained that they see a need, that there are very many emergency preparedness actors here who practice, but that they want to coordinate a bit better to perhaps get better dividends, spend less time planning and more bigger exercises so the resources can be concentrated a bit (A1). *“We need to have an annual exercise, we have a statutory duty to do it once a year, so how can we do it? Then we gathered the actors that wanted to participate and started planning the exercise (Dark Season)”* (A1). Another

informant from the Governor commented that he prefers more training and less full-scale exercises. *“Exercises usually only show you what you can, training teach you”* (O2).

Knowing each other also allows planning with several actors work well. *“The planning of the exercise (Dark Season) have gone well, my impression is that cooperation in general on Svalbard is good. Everyone is on first name basis, and it is rather informal in overall”* (A1). *“We got the job done and it proves yet again that the plan is not the most important, but the planning”* (O2).

5.2.1 Exercise Dark Season

Exercise Dark Season was a disaster preparedness exercise which was held on 13th as a full-scale exercise and the 14th December as a paper exercise in Longyearbyen, Svalbard. The exercise involved agencies who form the emergency preparedness apparatus on Svalbard (Hamnevoll, 2018). The purpose of the exercise was to strengthen the emergency preparedness agencies’ ability to handle crises and unwanted events. Exercise Dark Season focuses on improving skills such as information sharing, resource coordination and making timely decision in demanding situations (ibid).

During the full-scale exercise, I was allowed to observe the exercise management from their “control room” in Xpolar’s office room. From there, the members of the management consisting of the local government, the Governor of Svalbard, and the police was able to follow the exercise through chats, logs, and intercoms. An employee from Xpolar was also present as an expert user of CIM, assisting the exercise management with the tool, and showing them some of the more advanced settings in CIM. Multiple versions of CIM was used on different screens, showing the exercise from several points of views and how the different actors were working, both by themselves, but also cooperating with other actors.

Cooperation was set as several specific overall goals for the exercise;

“#5 The Emergency Preparedness Council shall cooperate so that the crisis is handled in the best possible way; #6 Emergency response actors shall interact to achieve a good information flow to (...); #7 Operational crews shall cooperate at the place of injury, in the evacuation chain (...)” (A1).

During exercise Dark Season, CIM was used as a tool to keep track of what was happening, what measures that was needed and when they were eventually completed, and to create a log of the exercise. Each of the organizations using CIM had their own version specifically built for them, and it allowed the exercise management to have an overview of what the different actors were doing. It also allowed the different actors to request help or offer assistance to each other and let every actor with a smart phone to be kept up to date during the event. It was clear that there was a varying degree of familiarity with CIM amongst the actors, but in the exercise management room, Xpolar was present as an expert user of CIM. It was also accentuated during the evaluation that a person assigned with the responsibility for information on CIM made the information flow and cooperation easier.

One informant pointed to the use of CIM as a tool to coordinate between different actors, and that more and more actors are using it (A1). The increased use of CIM was accentuated in exercise Dark Season and was included in the overall exercise goals “#3 *The emergency response actors will interact in CIM to get a good information flow so that they will have a good overview of all those involved in the crisis within two hours of the crisis*”. “*Yes it (the use of CIM) is one of the exercise goals we’ve specified. Explicitly, for this exercise as it is still, one might say, an early stage because it is quite time consuming to get people up to a level where they are comfortable using it in an acute event. In that sense, it is good to do it for the first time in an exercise where there is no real event. Get it tested and check if there are things that do not work and which learning points and where they can be improved*” (A1).

While not every exercise goal for each organization was met, the various actors still found it rewarding to exercise and practice the overall exercise goals and to cooperate. Some actors experienced that while the overall goal of the exercise was cooperation, they rather preferred to focus on their own training. To first train on their own, and then later focus on cooperation. “*It is absolutely transferable to practice or exercise cooperation, and to do it in real events. We strive to make it as realistic as possible*” (O2).

Major exercises often become a compromise between the overall exercise goals, and each individual actor internal exercise goals. “*Every actor achieves what they themselves put into the exercise*” (A1). “*What is important for each actor? To spend time and energy to sharpen their own expertise, or become better at cooperation? It is a compromise in a busy and hectic day with priorities*” (ibid).

O2 explained that while the coast guard wants to be a part of the exercise apparatus, they are most likely in another place if something were to really happen, and thus becomes a kind of false assurance. *“While it is nice to practice with the coast guard, it is unrealistic and therefore not as expedient”* (O2).

While the exercise was conducted well, a question can be raised on whether it was a realistic one. It appeared that some of the actors were ready, waiting for the alarm signal to get to work. O2 argued that there was a balance act between making the exercise realistic, and the opportunity to practice more of the resources available. *“A completely realistic exercise main function is to identify where the emergency management stand, and we already have a good idea of that”* (O2). He would personally prefer more trainings and less exercises as he claimed it was an easier and more effective way to learn (O2).

Some of the participants still said they experienced it as a realistic exercise from their point of view, the cooperation worked well, and that there was clear leadership during the exercise. O2 pointed out that improvisation tends to disappear a little on exercises, which allows them to better train the procedures. In real events, skilled preparedness actors tend to improvise in order to work around eventual hindrances that might occur on the way in order to save lives. In exercises these improvised measures do not always occur which in turn reveals faults in the system which can later be improved (O2). *“Improvisation is good, but it is even better if we can learn from it in the future as well”* (O2).

During the exercise, at a point some actors were searching for so called ghosts, or people that did not exist. After a brief search the exercise management decided to pause the exercise for these actors and explain why. This was done for the participants to learn from the event, but to not have it go on for longer so that the exercise time could be used more effectively practicing other things.

It became apparent that there was a lot of tribal language within the different actors. Tribal language is internal jargon and includes unwritten rules for how to express yourself. The exercise management informed me that tribal language was something they were trying to avoid or lessen, but that it in acute situations, many preparedness actors tended to unconsciously return to it. Tribal language has its uses when there is a sudden change of situation and the

communication need to be effective, but this increase in effectiveness is limited to the actors of the same tribe.

Another interesting finding is that the preparedness actors tended to call each other by their first name, including on intercoms. While one can argue that this as well contributes to a faster and more effective communication, the use of first name was also used in the shared intercom channel. This was a channel available to all the actors, and as such, included a lot of people both experienced and new. While experienced actors most likely recognize both name and voice of most of the other actors, it is not necessarily the same case with someone that just moved to Svalbard. An informant also pointed out that as some preparedness actors share name so as to refer to someone simply by their first name over an intercom could easily lead to confusion (A2).

In the evaluation the usefulness of liaisons was emphasized as critical, and that when they disappear, a lot of the coordination dissolves. *“It is very useful for the Governor as well to have us in the staff as they then have access to first-hand information on what the status is on Red Cross, so they can come up with suggestions and so on. I believe the Governor think it’s okay that we are there, if they didn’t we probably wouldn’t be allowed to”* (A2).

The evaluation of the exercise concluded that it was a successful exercise and it involved all actors. It revealed many deviations which might not appear in real events because of improvisation. To divulge these is still considered a strength as it reveals system errors which can be fixed. Smart, well-formulated learning goals provide good results. There needs to be a bigger focus on clarification of concepts and less use of tribal language. There is also a need to adjust the use of intercoms as there is such a wide variety of experience with it. In total, the resources are there, but they do not always find each other.

After the exercise was finished it was sent out digitally a survey which all participants were asked to fill out. While the survey was rather general, it was a way to include everyone in the evaluation and to see whether the participants of the exercise felt they got something useful out of the exercise.

To summarize, cooperation is developed on Svalbard through continuous, day to day interaction between the emergency preparedness organizations. When something happens, there is an apparent need and a strong will to solve the problem together in the community. As

it is such a small community, the emergency preparedness actors often know each other leading to not only a more informal and effective cooperation, but also a seemingly increased willingness to cooperate and mutual trust. There are exceptionally short distances and lines between the various actors on Svalbard, counteracting some of the high turnover. While every organization often do things their own way, the Governor of Svalbard is gradually implementing standards to create a common conceptual framework amongst the actors.

A lot of these findings were demonstrated through the exercise Dark Season. During the exercise the participants seemed to have an informal and unceremonious tone while still focusing on their tasks. Instead of focusing on improvisation as a part of the exercise, the exercise was supposed to test the system, looking for potential flaws that improvisation could otherwise conceal. The emergency preparedness actors on Svalbard work together during practice, exercises and real events to continuously develop and improve cooperation between the organizations.

5.3 Empirical findings summary

It is evident in the empirical findings related to this study that cooperation is essential for the emergency preparedness organizations on Svalbard to effectively deal with emergency situations. They are different organizations with their own special competence which need to coordinate their resources to succeed. Good cooperation is when there are relationships between actors and cooperation naturally occurs. Good cooperation leads to trust, the ability to improvise and to think outside the box.

To facilitate for good cooperation, it is pivotal that the actors feel the usefulness of it. They need to see the benefits of cooperating instead of solely focusing on their own tasks. If the organizations involved carry hallmarks of high reliability and resilience, the organizations seem more willing to learn and to cooperate as well as seeing emergency preparedness on Svalbard in a bigger picture beyond their own organization's role.

6 Discussion

In this chapter, I will discuss the empirical findings up against the theoretical framework for this study, and answer my research problem: *How can cooperation facilitate resilience for emergency preparedness organizations in remote communities?* To do this I wish to first discuss resilience followed by a discussion about cooperation, and how they can be connected.

While there are clearly differences between organization on how they develop resilience, one of the strengths on Svalbard is that the positive, HRO like practices are often practiced together as the organizations cooperate during training and exercises.

6.1 Resilience

The term resilience can be defined as “an organizations ability to recognize, adjust and absorb variations, changes, disruptions and surprises” (Aven, 2015, s. 45). The field of resilience has become one of the most important fields within research on catastrophes and crisis management. Despite an increasing interest about the concept of resilience, there are clear differences in the literature about the topic (Cutter et al., 2008). There is no common definition of, or agreed upon method to measure resilience (Sherrieb et al., 2010).

As mentioned in chapter 3.1.1 however, I will mainly focus on resilience through the five defining characteristics of high reliability organizations (HROs) identified by Weick & Sutcliffe in their book *“Managing the unexpected (2007)”*.

Resilience, viewed through the five factors of resilience identified by Weick & Sutcliffe (2007), is developed with a special emphasis on deference to expertise, and perhaps most important of all, keeping the expertise even if the experienced person moves away. The emergency preparedness actors on Svalbard are (1) *preoccupied with failure* through encouraging reporting of mistakes as well as good experiences, and also being allowed to make mistakes while performing activities. Their (2) *reluctance to simplify* shows as they constantly train for the worst-case scenario and uses exercises as a way to discover weaknesses in the system which they can improve. As Svalbard is such a small community, they are not only (3) *sensitive to operations*, but also sensitive to relationships. The emergency preparedness actors know and trust each other which makes their work more effective as they are used to operate with each other and are aware of each other’s strengths and weaknesses. They are (4) *committed to resilience* as they constantly strive to improve and have a train as you fight attitude. They

have a willingness to learn, and constantly strive to improve. Lastly, they have an (5) *deference to expertise*. Expertise is prized as well as a necessity on Svalbard due to the harsh environment and local variations. They also make a point out of differentiating between experience and expertise as new people arrive with transferable expertise without being experienced on Svalbard, but also because there is such a high turnover on the archipelago.

Keeping an organization resilient requires continuous work as people come and go, and skills deteriorate when not steadily honed. This is especially true in a place like Svalbard which requires everyone to perform when an incident occur, experienced and novel alike. The emergency preparedness actors on Svalbard makes a constant effort to maintain old expertise, improve current and attain new. When proficient colleagues move from Svalbard, they make an effort to have as much as possible of the expertise provided by the colleague remain on the archipelago. There is a general consensus on Svalbard that everyone attempts to help each other and share their expertise both within their organization, but also out to the other emergency preparedness actors.

While I did not spend enough time with each organization to confirm whether they as individual organizations are resilient or not, I would argue that in total I got an overview on the overall resilience on the archipelago. Similarly, I cannot say with certainty that all of the organizations or a single one covers all of the factors of resilience, but I would claim that they together in total cover the factors of resilience and as an emergency management community, develops resilience.

The organizations I talked with emphasized especially the social relationships between each other and the need for both general expertise and local knowledge. After reviewing, one can see that what the informants calls social relationships, contains hallmarks of what Weick & Sutcliffe (2007) refer to as sensitivity to operations. The need for general expertise and local knowledge can be said to be similar to what is referred to as deference to expertise in the theory chapter. The other three factors of resilience were also touched upon but not to the same extent as the two mentioned above. In the following I will discuss and elaborate the different factors of resilience.

6.1.1 Preoccupation with failure

An informant from Lufttransport AS explained how they work with a predictive safety mindset, looking for trends and attempting to anticipate what might happen (O1). This way we can intervene and stop any progression which might lead to something worse in the future O1 continues. This matches with the theory where Weick & Sutcliffe (2007) describe that HRO's treat any lapse as a symptom that something might be wrong with the system or that something could potentially have severe consequences if several small errors happened to coincide.

Further, HROs encourage reporting of errors. They elaborate experiences of a near miss for what can be learned, and they are cautious of the potential liabilities of success, including complacency, the temptation to reduced margins of safety, and the drift into automatic processing (Weick & Sutcliffe, 2007). While mistakes can happen, it is important to learn from them, and hopefully not repeat them again an informant from Lufttransport AS explained (O1). O1 continued further how they note down not only incidents, but small accidents and near misses in a log that everyone in Lufttransport has access to. In this way, not only the individuals involved can learn from the deviation, but the organization. Similarly, they would also log actions which went particularly well, or new improved ways of handling certain situations. This way, they would promote a safety culture where it is not only encouraged to report errors, but also share positive experiences and trade secrets attained through years of work.

Likewise, informants from the Governor of Svalbard and the Local Government shared that being allowed to make mistakes is crucial for their work (A4, O2). A big reason for this, A4 explained, is that there are a lot of people involved in the emergency preparedness work who do not have it as their main job activity. An interesting note about A4's comment, is that the emergency management on Svalbard consists of professionals that have emergency preparedness as their full-time job, volunteers, and organizations which have a different main activity but still has preparedness responsibilities in the case of an event. Naturally, time devoted to emergency preparedness will vary a lot between these actors.

It is, for example, natural that the police department from the Governor of Svalbard, have more time to train, practice and focus on emergency preparedness than someone who has a completely different full-time job, but is also a part of Red Cross Relief Corps during the evenings. This was also highlighted by an informant from the Governor, commenting that the amount of learning derived from exercises varies from organization to organization depending

on how receivable the organization is for new learning. This often depended on how mature the organization was, how often they were able to train, and if they would see the benefits of the new knowledge in their daily routines (O2). This lines up well with Andersson's (2016) assertion that for the participants to feel that an exercise contributes to learning, it needs to contain issues which the participants actually face in their daily work. And that without this link between theory and practice, some of the usefulness of the exercise disappear (Andersson, 2016).

As such, it is clear to see why some part-time emergency preparedness organizations do not see the same amount of usefulness in training and developing cooperation as others full-time emergency preparedness organizations, simply because they do not deal with emergency preparedness work on a daily basis. This was also evident during the evaluation part of exercise Dark Season where some organizations commented that they were not able to practice all of their personal exercise goals, while other organizations were more focused about the overall exercise goals of cooperation. Still, it needs to be accentuated that all the informants I have talked with have commended the professionalism of volunteer organizations like Red Cross and part-time emergency preparedness organizations like the Local Government.

6.1.2 Reluctance to simplify

While success in any coordinated activity requires people to simplify in order to stay focused on key issues and key issues, simplification also cause you to see less (Weick & Sutcliffe, 2007). HROs take deliberate steps to create more complete and nuanced pictures of what they face (ibid). Most of the emergency preparedness actors on Svalbard have good local knowledge. While this in many cases led to the communication and cooperation to be more effective, it also has some downsides. As people often were referred to simply by their first name, some locations were also called by names who locals inherently knew but could not be found on any map. Naturally, this could potentially lead to confusion, especially amongst new arrivals at Svalbard. A member of the exercise management told me that while this was a rather common occurrence, he was working to try and lessen it. While it might be convenient now, it could potentially lead to grave misunderstandings during an incident the informant from the Local Government informs.

When you organize, you simplify (Weick & Sutcliffe, 2007). Everyone makes assumptions about how complex a project will be, what resources are needed to complete it,

and how to avoid entrapment. While routine missions naturally occur regularly, on Svalbard the conditions can change in an instant. The preparedness actors are therefore on a constant alert and do not get complacent during any event, no matter how mundane. The emergency preparedness actors from Lufttransport explained that even on a clear summer day they train and prepare for the worst imaginable scenario. While it can be tempting to sink into routine and enjoy the simplicity offered by a sunshine day, we do our best to prepare for the perfect storm where everything goes wrong (O1).

An informant from the Governor of Svalbard said that they exercise not only to confirm what they know, but also to reveal weaknesses in their system. The emergency preparedness actors on Svalbard try to refrain from the mindset of simplifying and actively seek to find out not only what they can, but also what they cannot. To handle complex situations, it is crucial to know both what you can do alone, but also what you need help with, and from who and where to find that help.

While talking with the informants, I got the impression that this way of thinking was shared by most of the emergency preparedness actors on Svalbard. Svalbard have beautiful, calm days where it could be easy to complete mandatory training in ideal conditions. Yet, the emergency preparedness actors seemed aware that if the training is to be of any effect, it needs to be realistic for when people really need help.

6.1.3 Sensitivity to operations

HROs are attentive to the front line, where the real work is done. The “big picture” in HROs is generally less strategic and more situational than that of most other organizations (Weick & Sutcliffe, 2007). O2 from the Governor of Svalbard explained that he would trust the decisions made at the incident scene without questioning the incident leader. He says that if you have a system where decisions made outside are questioned by those sitting inside, then you have some challenges to overcome.

When people have well developed situational awareness, they can make the continuous adjustments that prevents errors from accumulating and expanding (Weick & Sutcliffe, 2007). This is possible because HROs are aware of the close ties between sensitivity to operations and sensitivity to relationships. People who refuse to speak up out of fear undermine the system, which in turn knows less than it needs to know to work effectively. People in HROs are aware

that you cannot develop a big picture of operations if the symptoms of those operations are withheld (ibid). Multiple informants told me that they feel that they are encouraged to speak up, to report errors and to share their experiences whether they are good or bad (O1, O2, A4). The preparedness actors on Svalbard knows better than most the importance of sensitivity to relationships. As external help is so far away, they trust and depend on each other to speak up and assist each other. Because of their relationships, trust is developed, both within their own organization, but also between organizations.

Svalbard, or rather Longyearbyen is a small place. With less than 3000 inhabitants people generally know each other both professionally and in private. This is especially true in the emergency preparedness community on Svalbard. O2 from The Governor of Svalbard explained that he has been in an emergency preparedness council before on the mainland, without really knowing anyone there. The emergency preparedness actors are much more closely involved here, and there is a stronger feeling that we are in the same boat, that we are together in this, O2 said.

During the short briefing before the rescue mission with Lufttransport AS and the police, it became clear that all the actors knew each other and even knew the person who owned the missing dogsled. The actors, while being from different organizations also seemed to know each other, their roles, as well as the geography around the search area. All this advance knowledge allowed the briefing to go straight to the point and give more time to topics such as safety during the operation, search areas, alternative ideas or approaches from those present and so on. This was also commented on by A2 from Red Cross pointing out that as they know each other, when something happens they do not need to spend valuable time introducing themselves.

As they know each other, the different actors recognize each other's voices and knows therefore what role the person talking on comms have O1 explained. This was further accentuated by A2 from Red Cross, noting that as you get to know each other, during an incident it helps them utilizing each other as good as possible.

6.1.4 Commitment to resilience

The hallmark of an HRO is not that it is error-free, but rather that errors does not disable it (Weick & Sutcliffe, 2007). Minor mistakes and errors occur naturally from time to time, but as they cannot afford to let them evolve into something bigger, the actors on Svalbard make sure to avoid or minimize mistakes as good as they can. The emergency preparedness organizations on Svalbard have occasionally slip ups but strive to minimize the effect of these and attempt to detect undesired trends before it can develop to anything bigger. During exercise Dark Season most people filled their normal assigned role, but A2 from Red Cross also said that some actors also got to try new roles during the exercise. This way new people would get an increased understanding of other roles in the case of an incident, but also as there is such a high turnover, it is important that people are able to fill a certain role. If for example the operational leader from the police happens to be in Oslo when an event occurs, someone else needs to be able to take that role.

While the preparedness actors on Svalbard in general hold a very high standard, there is naturally some variation both in the professional and the voluntary side. This became apparent during the exercise as many actors were using the same channel on the intercom, communication challenges arose. While some actors were using a form of confirmatory communication to ensure they had understood the message correctly, others were less clear and informal. When the total emergency management on Svalbard consists of experienced, new, full-time, part-time and volunteers it is bound to be a disparity in knowledge and expertise between the actors. Still, everyone seemed very aware of the different strengths and limitations in their own and the other organizations. As such, everyone seemed to know everyone's role and be able to complement each other. O1 from Lufttransport highlighted this, noting that there is a large sense of trust between organizations, but maybe even more importantly, individuals.

Building redundancy seemed to be high on the agenda with everyone I talked with. As mentioned they seemed generally aware of their weaknesses and the high turnover is likely one of the bigger ones. This is accounted for both in the planning phase where they do not only plan for themselves, but also their successors, but also during training and exercises as people are encouraged to try new roles.

There also seems to be a desire to practice and to improve on Svalbard as they have their fair share of real incidents. On a question about what they do to be prepared for the next

incident, the answer was clear, *“to practice, practice, practice”* (O2). A4 from the Local Government responded similarly to the question with practice and risk analyses. A4 noted that in general there is a very high focus on potential risks, but that one risk takes more attention than the others, perhaps too much. The risk of avalanches is naturally often the centre of attention, but that it is important to sometimes turn around and consider what else could happen. With an extreme focus on one thing, one often suppresses other information. This kind of mindset is important not only to prevent groupthink, but also to be prepared for the unexpected.

A2 from Red Cross said that during exercises they try to have *“train as you fight”*. During the exercise, several actors sent liaisons to the Governor to act as a link between them and the Governor’s staff. This way the various actors ensures cooperation through a physical presence. All of the informants I questioned about this said that having a physical liaison was essential to ensure effective cooperation (A1, A2, A3, A4, O1, O2).

6.1.5 Deference to expertise

“There are some very capable individuals with special competence here” (A1). This sentiment seemed to be shared by everyone I talked with. Svalbard is a special place with conditions requiring both general expertise and local knowledge. According to Weick & Sutcliffe (2007), HRO’s push decision making down and around. Decisions are made on the front line, and authority migrates to those with the most expertise, regardless of their rank. This was exemplified during a talk with the crew from Lufttransport AS. During a rescue mission it is the Governor of Svalbard who is leading the operation, directing various resources such as the rescue helicopter from Lufttransport AS. Still, as the police officers from Governor of Svalbard are employed on a 6-year fixed term, the crew from Lufttransport AS is often more experienced. The Governor of Svalbard know what they are doing, but in some occasions, we might have more specialized knowledge and therefore tell them how we should solve something O1 from Lufttransport AS explained. There was also seemingly very little to no turf war between the agencies when an incident occurs. When something happens, everyone does their best to cooperate and the agency with the most expertise usually take the lead, the avalanche group from Red Cross during an avalanche and so on, A1 from The Governor explained.

Experience by itself is no guarantee of expertise, as far too often the people have the same experience over and over and do little to elaborate those repetitions (Weick & Sutcliffe, 2007). O1 from Lufttransport AS illustrated an example to differentiate between expertise and

experience. He explained that Svalbard is not the place you get the most amount of flight hours but that the hours you do get, are varied and of high quality.

The decisions migrate through these organizations in search of a person who has specific knowledge of the event (K. Roberts et al., 1994). On Svalbard there are many operative actors with a lot of expertise. When events occur these expertise holders often take charge regardless of their position or rank in the hierarchy. So, on Svalbard they do not only push the decision making down, but also when necessary, around to other organizations. Cooperating and using each other's expertise is what makes them able to handle so many different incidents (A1, A2, A3, O1).

6.2 Staying resilient

So, the task ultimately becomes not only how they can develop resilience, but because of the high turnover and special conditions, how they can remain resilient. This was a topic all the informants I spoke with found important, but no one could provide a clear answer for. One actor pointed out that this expertise sometimes even has to come from other organizations (A4).

As highlighted in the empirical findings chapter, there is a common challenge on Svalbard with a high turnover and local expertise and knowledge disappearing from the archipelago. Svalbard is a special place, and while some people choose to remain, most people experience Svalbard for a few years, then move back to the mainland (A1, A2, A3). This occurs sometimes enforced, such as with the police officers from the Governor of Svalbard fixed terms, and sometimes naturally such as with the Local Government, where both organizations have a turnover of roughly 20% (O2, A4). Overcoming this challenge and keeping the expertise on the archipelago even if the experienced person moves away, is essential for being able to deal with incidents in the future.

When asked about what they would do if the "right" people suddenly moved out, A2 from Red Cross answered concernedly that a lot of invaluable knowledge would simply be drained out of the Relief Corps which would have been incredibly difficult to replace. A2 said that expertise moving down to the mainland is a vulnerability that we must learn to live with as a voluntary organization. This was also a concern shared by the other organizations I spoke with, volunteer or not (A1, A2, A3, A4, O1, O2).

The Governor of Svalbard also experiences a high turnover as they operate with fixed terms of 6 years for the police officers. Because of this no one has worked here for a long time which is a vulnerability in a place like Svalbard (O2). He explained that after two years you are considered experienced, which is not the case in his opinion. It is a challenge, to have lessons learned brought from one generation to another (O2). He also claimed it could be a mental thing when you know you are going home in a year no matter what, how productive are you the last few months? (O2). In the emergency preparedness planning group, they plan not only for themselves, but also for their successors.

In a place where attained local knowledge, expertise and social relationships are essential, to put a limit on how long an experienced police officer can stay on Svalbard could appear, in the informant's own words, *unfortunate*. The Governor of Svalbard has a unifying role on the archipelago, facilitating for the other emergency preparedness organizations to talk with each other and cooperate (A1, O2). This job naturally requires in depth knowledge of not only their own organization, but the other organizations as well to facilitate this as effectively as possible. Additionally, building relationships and trust takes time, and to have a police officer lead a complex operation in demanding conditions while being the least experienced among the emergency preparedness actors involved can be challenging to say the least. Informants from Lufttransport AS told about instances where under operations led by the Governor, they would sometimes need to direct the police as they would have far more knowledge about for example a certain aspect or local conditions than a newly arrived police officer would.

Another part to this is the social aspect. An informant from Red Cross said that their cooperation with the Governor of Svalbard largely depended on who was currently in charge there (A4). Red Cross is held in high regard by all of the informants I talked with as a very capable and professional organizations despite being by and large a volunteer organization (A1, A2, A3, A4, O1, O2). As O2 from the Governor pointed out, cooperation is about relations. If those relations are changed every six years or less, cooperation becomes a lot more difficult.

A2 from the Red Cross Rescue Corps said that while they also have some turnover, they also have some who have been there for a long time. Much of this expertise is transferred through having exercises and sharing the expertise with others. A2 explained that they would often have more experienced members guide the other members in their field of expertise. This

was also heavily emphasized by O1 from Lufttransport AS, noting that it is crucial to have this indispensable knowledge carried over to the next generation.

Other agencies also stated that they had different ways of transferring knowledge, the police operate with a buddy system, and most of the agencies have a systematized experience bank either in CIM or in a similar program (A1, A2, A3, A4). While it is important to maintain the expertise within the different organizations, it is also important to maintain it between the agencies as well, something A4 from the Local Government highlighted.

This challenge became apparent during the exercise Dark Season between the experienced ones and the new. It seemed that in some cases the experienced ones expected that if something had been discovered in a previous exercise and trained on, it should not occur again. While this could be a fair expectation, it is not necessarily so that new entrants participated at the previous exercise and therefore did not have that experience. In other words, it is possible that there is a certain gap between expectations and reality. It was also commented during the evaluation that there was not always compliance between those in a leader role, and those who should have it. In some occasions people with no leader position took command when they deemed it necessary. It was my impression that this was largely accepted by everyone as the structure of the organizations generally are very flat, and the relationships informal. The emergency preparedness actors seemed aware and respectful of that expertise could come from anyone in the hierarchy in their own organization or another.

Ultimately, staying resilient for an organization on Svalbard on their own appears to be, to say the least, challenging. The harsh, cold environment on Svalbard, the limited resources and personnel combined with often a high turnover makes everything difficult. Fortunately, the emergency preparedness organizations on Svalbard seems very aware of this and chose to work together, to cooperate. In the theory chapter, cooperation is described as a process where the involved actors, without consideration of prestige, work together to solve a common problem (J.M. Berlin & Carlström, 2008; Martin, Nolte & Vitolo, 2016). Martin et. al (2016) adds that cooperation is when organizations with similar ends and means pursue similar goals following similar strategies to achieve them. These descriptions of cooperation fit very well with my experience of how the emergency preparedness actors on Svalbard work together. In the following chapter I will discuss my findings related to the cooperation of Svalbard and how the

emergency preparedness actors work collectively to together strengthen the emergency management on Svalbard.

6.3 Cooperation

Cooperation in, and between sectors was establishing itself as a popular working methodology towards the end of the 1980s in Norway after a period characterized by a majorly focus on competition (Kristiansen et al., 2017). Research has shown that to cooperate is both more expedient, as well as more effective than attempting to solve a situation alone (J. Berlin & Carlström, 2013; Jamal & Getz, 1995). While cooperation has been a well-known approach for some time, cooperation was introduced as an official principle for Norwegian preparedness and emergency management after the events of 22. July 2011. The objective of the government by presenting cooperation as an official principle, was to explicate the governments overall responsibility for societal safety and security, as well as preparedness across sectorial boundaries (Justis- og Beredskapsdepartementet, 2011-2012). The intention was to utilize the resources across public, private and voluntary sector as good as possible (ibid). The cooperation on Svalbard between the public, private and voluntary sector seems very good on Svalbard. Full time emergency preparedness actors such as Lufttransport AS and the Governor of Svalbard commended both private and voluntary organisations on Svalbard for their professionalism and expertise (O1, O2, A1). O2 from the Governor of Svalbard commented on how he felt that on Svalbard the close ties and the relationships between the actors and organizations allowed them to work much more closely with both the private and voluntary sector to make the cooperation as good and effective as possible.

Preparedness is a big part of the culture on Svalbard (A1), and as such it might be easier to develop trust between professional and non-professionals. In an earlier master thesis about the local population's role during avalanches, Tengesdal (2017) found that the local population on Svalbard voluntarily showed up and offered help to the emergency preparedness organizations. The emergency preparedness actors also have an expectation of the local population to assist them during avalanches (Tengesdal, 2017). Evidently, there seems to be an expectation both ways that the emergency preparedness actors expect help from the local population, and the local population expects to be allowed to help. When the informants were asked about comparing Svalbard to mainland Norway, one of the things that came up was the difference in relationships and trust.

Longyearbyen is such a small place with limited resources which in many ways makes it very apparent the necessity of working together and utilizing every resource as good as they can. When something happened to someone in a small community, everyone seemed to be eager to assist. An example of this was the dogsled that went missing while talking with informants from Lufttransport AS. Because the situation allowed it, Lufttransport started a search after the dogsled and adapted their daily training flight to combine it with a search. The search was initiated by themselves as they wanted to assist in the already ongoing voluntary search by the local population.

6.3.1 Informal cooperation

Cooperation can be described as a process where the involved actors, without consideration of prestige, work together to solve a common problem (J. M. Berlin & Carlström, 2008; Martin et al., 2016). Cooperation in a literal way means to “co” “operate”, that is, to operate alongside another (Martin et al., 2016). Organizations with similar ends and means pursue similar goals following similar strategies to achieve them (ibid). Doing so in an emergency setting is to do so within a relatively small and tight-knit community (ibid). In a place like Longyearbyen with roughly 3000 total inhabitants, this is truer than most places. Actors often know one another and nearly always know the other organizations operating in their area. As they know each other so well, they would often be rather informal and unceremonious with each other, regularly assisting each other even without any formal requests.

Informal cooperation could be established directions and routines which has been developed by informal relations and non-verbal understandings, like for example knowledge to each other’s capacities through previous cooperation, relationship building, or a sense of community because of similar background or sector affiliation (Kristiansen et al., 2017). There seemed to be a very informal relationship between the actors. The informality was seen on as a clear strength as it let the emergency preparedness actors be more effective. This became apparent on multiple occasions during my stay on Svalbard. The actors used less time presenting themselves to each other as everyone already knew each other’s name and role. A2 from Red Cross pointed out that this knowledge let them often get more straight to the point on occasions when time was precious.

It could also become almost too informal, such as during exercise Dark Season when everyone was using peoples first name on comms and sometimes referring to places by their

local names. It is possible to imagine that during bigger incidents where help is sent from the outside this could lead to some challenges when new people without local knowledge don't recognize neither the names or places. This was highlighted by an informant from the Local Government saying that he was working on trying to lessen the use of tribal languages as it can often be restrictive to the specific tribes (e.g. the fire department, police etc). A1 from the Governor of Svalbard also informed that they were promoting the standards of DSB so that the various agencies and organizations use the same words for the same concepts. Being able to talk and to understand each other is fundamental for good cooperation as misunderstandings can prove costly.

This way of toning down the local tribe language and promoting standards could be seen as a way of formalizing the informal jargon between the emergency preparedness actors. Informants from Red Cross, the Local Government and the Governor of Svalbard all agreed that formalizing and standardizing especially the communication between organizations could lessen confusion between the agencies in an otherwise rather informal community (A1, A2, A3, A4, O1, O2). While Svalbard in general seemed very informal, what struck me as interesting is the way the emergency preparedness actors often attempt to harmonize the informal with the more formal. The formal cooperation is in many occasions supplemented by informal relations such as using shorter lines to contact people in other organizations and so on. This harmony between formal and informal cooperation seems to be a big contributing factor to how things are done. In many ways, one could argue that the formal cooperation is contributing to ensure that the cooperation between the organizations even after key actors move away from the archipelago. Informal relationships and cooperation make the lines between the emergency preparedness actors shorter and it makes it faster to contact each other.

An example of this was exercise Dark Season. A1 explained that the exercise was a formal, statutory requirement. Yet, formally inquiring other organizations if they are interested in partaking the exercise can be a slow tedious process. As mentioned before however, the communication lines on Svalbard are short and informal. O2 from the Governor of Svalbard stated that what he found the most important thing for cooperation to work was that the planners knew each other. Good cooperation is when there are relationships between the actors, at least on the planner and facilitator level (O2). The facilitators must have laid out the road so smoothly that when the capacities meet, they must hopefully have some kind of relation (O2).

When different organizations meet, they tend to bring diverse methods, principles, languages and cultures. They may have various priorities, wishes, approaches and methods. These are issues that should be solved before an incident occurs (Kristiansen et al., 2017). This was exemplified by an informant from the Local Government about use of first name, places, tribal languages and so on. During exercise Dark Season, the various agencies participating would send a person acting as a liaison to the emergency preparedness management. This person would act as a bridge between the organization he represented, and the management. The use of liaison's seemed very effective to ensure that misunderstandings did not occur. The liaison would keep the management up to date with their organization's status, as well as bring directly any needs of assistance directly to the management, but also to the other liaisons who would have an overview of what their organization could contribute with.

The use of liaisons during exercises seemed to work very well to shorten the communication lines between the various organizations. It was pointed out during exercise Dark Season that without liaisons, the cooperation would likely not be as smooth or effective. It is likely to assume that another key factor for the liaisons is the relations and the familiarity they have with each other. As they often work together, and likely bumps into each other on a daily basis they get to know each other's strengths and weaknesses.

6.3.2 Developing cooperation

One of the ways to develop cooperation is through exercises. There are many different types of strategic and operative exercises. The one that is found the most expedient for practicing different agencies working together, is called *collaboration exercises* (Andersson et al., 2014). The collaboration exercise Dark Season showed how the various emergency preparedness actors worked together in a potential event on the airport, requiring aid from most of the emergency preparedness apparatus on Svalbard. It was a notified exercise, meaning that the involved parties knew about it in advance which led to some of them almost waiting in the hallway for the start signal. One can question the realism about some of the things at the exercise, but when confronted about it, the exercise management seemed in general more interested in including as many actors as possible and testing the system rather than make it completely realistic or allow for too much improvisation. While the exercise was deemed successful and multiple points of improvement was uncovered, it did not necessarily fit the criteria of collaboration exercises described in the theory.

Research suggest that to strengthen the level of cooperation in real situations, collaboration exercises should have a stronger focus on learning and different learning elements (Kim, 2013). Examples of learning elements related to cooperation are *focus*, *realism*, and *improvisation* (ibid). While there was a strong focus on learning especially through trial and error, realism and improvisation were not focused on as much during exercise Dark Season. An informant from the Governor of Svalbard commented that he would rather have more training and less exercises as he found those more expedient and more value for the resources spent. As they have quite a few real events where they get to see where they stand, they would rather train and test as many as possible on these exercises rather than do everything as a surprise (O2). A seemingly recurring theme in emergency preparedness agencies is the explanation of “If it was real then obviously we would have done otherwise”. This was also used as an explanation during exercise Dark Season, in particular about the lack of improvisation. While I naturally do not have the same expertise related to these kinds of exercises, I question the “rise to the occasion” belief that some of these explanations could lead to. Still, other actors such as Red Cross claimed they have a “train as you fight” attitude towards exercises so there might be different points of view regarding the topic on the archipelago.

It was mentioned during the evaluation of the exercise that exercises test the system, while real events are more prone to improvisation as people would be more inclined to try to improvise if they saw that the system was failing (O2). During exercises participants are more likely to play out their role, while during real incidents it is more important that things are being done, rather than who are doing them (O2). As mentioned earlier, there is a lot of expertise on the archipelago attained either on Svalbard or from somewhere else. These expertise holders are more likely to act outside of their intended function when lives are at stake. This could be for example a volunteer from Red Cross instructing police officers during a real avalanche event whereas during an exercise, the volunteer might be more likely to let the police officer take the lead.

For exercise Dark Season, multiple of the overall exercise goals were directed specifically towards cooperation. A1 from the Governor of Svalbard said that they had spent a lot of time together developing the exercise goals as it is those that ultimately decides whether it is a good exercise or not (A1). A1 commented that in his experience this kind of exercises often become a mixture of organizations focusing on their own exercise goals, and the overall exercise goals. According to Kim (2013), it is important that the focus for the exercise is precisely cooperation

instead of organizations focusing on their own defined objectives. In the evaluation of the exercise, it was commented on that while not all the organizations managed to complete their own goals for the exercise, they still appreciated that they got to practice cooperating with the other agencies. My impression from observing the exercise was that the participants to a varying degree focused on cooperation, some of them had it as a main focus, other were concerned about their own role and had the cooperation come secondary. This fits well with O2 noting that he felt organizations with a full time focus on emergency preparedness tended to put more emphasis on cooperation than other organizations where preparedness would be more of a requirement for them to do their actual job.

There is little research done on learning outcomes and the effect of exercises that involve several actors (Kristiansen et al., 2017). Existing research show however that to cooperate is something which is more often regarded as rhetoric rather than practically applicable (J. M. Berlin & Carlström, 2015), and that collaboration exercises have limited effect on cooperation in real emergency situations (Borell & Eriksson, 2013). Berlin & Carlström (2011) discovered that participants in collaboration exercises could to a limited extent refer to real situations where themselves had initiated or observed other involved cooperation with other actors. When I inquired about this topic to my informants however, they could all on multiple occasions refer to situations where they did cooperate (A1, A2, A3, A4, O1, O2). In fact, it seemed to be a very low threshold for the emergency preparedness actors to cooperate during training, exercises or real events. They would also talk about how valuable it was to practice cooperation in a controlled environment and that there was a lot of transfer value to real events.

6.3.3 Improvisation and trust

What is interesting is that some of my findings on Svalbard contradicts research and theories about cooperation. This leads me to believe that, for the emergency preparedness community on Svalbard, training and practicing cooperation is not so much about it being a simulation of a real event where every factor is as close to as possible realistic. Rather, cooperation is the daily meetings, the relationship building that develops into trust over time. By spending time and working together on a daily basis, they know each other in's and out's and are therefore able to work so well together. According to Carlström & Berlin (2009), practicing improvisation is important in collaboration exercises to increase cooperation learning. During exercise Dark Season however, they rather wanted to practice the system without improvisation. This way they would see where the system worked and where it fell short. Doing

this, O2 explained, allowed us to see where there are holes in the system that we can attempt to fix. If weaknesses in the system is covered up by improvisation, then it is more difficult to see where we can improve (O2).

It is conspicuous that the emergency preparedness actors place so high value on good cooperation facilitating for improvisation without appreciable focus on improvisation during training or exercises. One possible explanation for this could simply be the level of expertise and experience present on the archipelago. *“There are some very capable individuals”* (A2) is a sentiment that seems to be shared by all of the informants. When you are offered a job on Svalbard, you already have quite a few years of experience (O2). This experience and expertise might be what allow them to work so well together and manage to improvise during real events even with limited focus on it during exercises.

In fact, a lot of the work on developing cooperation on Svalbard seemed to be towards the human level, focusing on creating relationships between the emergency preparedness actors. This is reflected well when the informants were asked what good cooperation meant to them. Good cooperation is when there are relationships between actors and cooperation naturally occurs (O2). Good cooperation leads to trust, the ability to improvise and to think outside the box. According to Andersson et al. (2014), cooperation does not naturally occur by different actors responding to the same event. Cooperation requires volunteerism and the actors need to see the usefulness and be willing to work across disciplines to achieve a common goal (ibid). While the informant from the Governor of Svalbard contradicts Andersson (2014)’s statement about cooperation occurring naturally, I believe one of the primary reasons for this is because the usefulness of cooperation is very apparent on Svalbard. The amount of events that happen on Svalbard and the daily cooperation which naturally occurs during training and exercises makes the link between theory and practice very clear.

This builds further on the inherent expertise that exists on the archipelago. The emergency preparedness actors on Svalbard are very experienced and have most likely already participated in numerous incidents which required the aid of multiple agencies. Weick (1993) writes about bricoleurs, individuals that are able to create order out of whatever materials is at hand and remain creative under pressure. Bricoleurs are able, usually in company with other similarly skilled people, to improvise and make do with whatever resources they have available (Weick, 1993). Based on my observations, I would argue that there exists several bricoleurs amongst

the emergency preparedness organizations on Svalbard. These bricoleurs are essential within the emergency management, facilitating and managing to make do with what they have available. While there are limited resources on Svalbard, these bricoleurs are able to make the best of them and compensating when there is a lack of it with improvisation and good cooperation.

7 Conclusion

In the following paragraphs, I will attempt to summarize my findings from this thesis, and to answer my research problem: *How can cooperation facilitate resilience for emergency preparedness organizations in remote communities?* At the end I will come with some suggestions for further research.

The emergency management on Svalbard is vulnerable because of the environment, the lack of resources, geographic location as well as the high turnover in organizations. To combat this, the emergency preparedness organizations on the archipelago have realized that they cannot overcome these challenges on their own. By cooperating daily with each other they have the possibility to cover their own limitations and contribute with their strengths. My findings indicate that the emergency management is able to stay resilient thanks to the good cooperation between the actors. The key factors for their cooperation are their informal relationships and the inherent expertise that is present on the archipelago. Their informal relationships and association with each other allow them to save time during incidents as they already know one another and each other's aptitudes. Because of their relationships, trust is developed both within their own organization, but also between organizations. Trust allows them to be more honest with each other and allows the front line to make decisions without being overruled by those higher up in the hierarchy. Finally, informal relationships allow them to communicate more effectively as they know who is responsible for what and can communicate directly to the person they need.

"There are some very capable individuals here" seems to summarize well the emergency preparedness actors on Svalbard. Amongst the various organizations, there is a lot of expertise on everything from avalanches, glaciers to helicopter rescue or firefighting. Expertise alone however, is trivial if it is not used appropriately. In a setting where expertise is valued and listened to, it is irreplaceable and will make the resources be used as effectively as possible. When people know and trust each other, they are more likely to work together. When they work together, they facilitate resilience.

Further research:

Svalbard is an Eldorado for those working with emergency preparedness (O1). While this study has looked at cooperation facilitating resilience for the emergency preparedness organizations

on Svalbard I believe there is still a plethora of undiscovered information left on the archipelago. Related to this study I think it would be interesting to look at how vertical and horizontal information flow and cooperation affects mindfulness in the organizations. If a group of organizations work well together, how does it affect the collective consciousness? I believe with further research related to cooperation in areas like Svalbard it should be possible to gather valuable data as to how a community like this one solves difficult problems in even more challenging conditions.

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Appendix

Interview Guide

Hei, du mottar dette informasjonsskrivet i forbindelse med mitt masterprosjekt om samvirke mellom beredskapsorganisasjoner under krevende forhold

Målet er å kunne beskrive hvordan dette formelt og i praksis gjennomføres.

I forbindelse med prosjektet ønsker jeg å gjennomføre et intervju med deg, hvor jeg vil gå inn på temaer som:

- Arbeidshverdag
- Faglig bakgrunn
- Reliabilitet / robusthet
- Samvirke

Lydopptak:

For å sikre presisjon i arbeidet, ønsker jeg å benytte lydopptak under intervjuet. Lydopptaket og eventuelle transkript (skriftlig gjengivelse av lydopptak), vil bli avhendet (slettet) etter at prosjektet er avsluttet og gitt karakter.

Hvis du ønsker kan du når som helst i prosessen trekke deg fra intervjuet, uten å oppgi årsak. Hvis du ønsker å gjennomføre intervju uten lydopptak, har du mulighet til å reserve deg mot lydopptak.

Personopplysninger:

I henhold til lov om personopplysninger (<https://lovdata.no/dokument/NL/lov/2018-06-15-38>), er stemmen din å anse som en personopplysning.

Du kan når som helst kontakte meg for å:

- Få informasjon om hvilke personopplysninger som håndteres av prosjektet
- Få slettet personopplysninger som håndteres av prosjektet

I dette tilfellet vil personopplysninger være stemmen din. Ved lydopptak, vil dette stille krav til forsvarlig oppbevaring, behandling og avhending.

Hvis du har spørsmål kan jeg nås på:

E-post: pesvane@gmail.com

Tlf: +47 46 95 49 66

Med vennlig hilsen Peder Svane

Intervju desember samvirkeøvelse

* Hvilken stilling har du?

* Har du mottatt og satt deg inn i informasjonsskriv om forskningsprosjektet?

* Er du villig til å delta i dette forskningsprosjektet?

1. Introduksjon

1.1 Kan du kort beskrive bakgrunnen din?

1.2 Hva innebærer stillingen du har i dag?

1.3 Kan du beskrive en typisk arbeidsdag for deg?

2. Resiliens

2.1 Hva gjør dere for å være forberedt på den neste hendelsen?

2.2 Hvordan håndterer dere nesten-hendelser/ulykker?

2.3 Hvilke forberedelser gjør dere i forkant av et typisk «rutineoppdrag?»

2.4 Ville du vært komfortabel med å si ifra hvis du så noen andre, eller du selv gjorde en feil?

2.5 Hvordan tror du det ville bli mottatt av de andre?

2.6 Hvis en situasjon forandrer seg mens dere er ute på oppdrag, hvem fatter beslutningene da?

3 Samvirke

3.1 Hender det at dere samvirker med andre beredskapsaktører? Trening, øvelser, reelt?

3.2 Hvordan opplever du å samvirke med andre? Givende, nyttig, hensiktsmessig?

- 3.3 Har dere noen formelle retningslinjer eller lignende for samvirke? Hva synes du om dem?
- 3.4 Hvordan opplever du det mer uformelle samvirket? Bekjentskap osv.
- 3.5 Hva opplever du som mest avgjørende i forhold til å sørge for at samvirke fungerer best mulig?
- 3.6 Hvordan opplever du samarbeidet innad i organisasjonen, mellom ledelse og operative?
- 3.7 Hvordan opplever du samarbeidet mellom aktører på samme nivå?
- 3.8 Synes du det er for mye, for lite, eller passende fokus på samvirke?
- 3.9 Opplever du det som nyttig å øve på å samvirke?
- 3.10 Oppfatter du samvirke under en øvelse som en reel presentasjon av hvordan det vil fungere under en virkelig hendelse?
- 3.11 Hvordan fungerer samvirke på øvelser i forhold til samvirke under en reel hendelse?
- 3.12 Hva legger du i godt samvirke?
- 3.13 Hva vil du si godt samvirke bidrar med under en hendelse?
- 3.14 Mener du det er en sammenheng mellom samvirke og god beredskap?

4 Øvelsen

- 4.1 Kan du si noe om hvordan planleggingen av denne øvelsen har vært?
- 4.2 Hvordan har samarbeidet i forbindelse med øvelsen fungert?
- 4.3 Har samvirke vært et sentralt tema under planleggingen av øvelsen? Hvorfor / hvorfor ikke?
- 4.4 Opplever du overføringsverdi fra å samvirke på øvelser og reelle hendelser?
- 4.5 Hvordan tilrettelegger dere for samvirke på øvelsen? Mulighet for å improvisere, realistisk øvelse?

5 Eventuelt

- 5.1 Har du andre ting du ønsker å utdype eller fortelle mer om? Er noe uklart?