Swedish Defence University

Barriers to Crisis-induced Learning within a Public Agency

A process-tracing plausibility probe of obstacles to MSB:s learning from the forest fire in Västmanland 2014

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ABSTRACT

After the devastating forest fire in the Swedish region of Västmanland in 2014, numerous investigations and evaluations suggested measures to improve the Swedish crisis management and preparedness. Yet, after a new wave of severe forest fires in 2018, the Swedish Civil Contingencies Agency (MSB) concluded that the lessons from 2014 had not been sufficiently implemented, since several issues reoccurred. The research area of obstacles to crisis-induced learning among public organizations is rather young, and any widely acknowledged theories are still lacking. This case study focuses on the crisis-induced learning process within MSB after the 2014 forest fire. Three hypotheses are derived from previous literature and modified to the case, and tested through a process-tracing plausibility probe according to an abductive approach. The analyzed material consists of documentation from the learning process in combination with semi-structured informant interviews with current and previous members of staff. The analysis confirms that the crisis documentation was insufficient which in most cases affected the learning process negatively. It further identifies an aspect of accessibility to this obstacle which should be considered in future research. As expected, the crisis learning was mainly based on the single-loop approach, although a few indications of a deeper organizational adjustment occurred. No significant indications of conflicting opinions within MSB were found in the documents, although some informants described how incompatible opinions had emerged. In most cases they impeded the process, as expected. However, in one case the conflicting interests were perceived to improve the learning outcome. This finding suggests that conflicting opinions, in comparison to previous claims, do not necessarily prevent learning. The relation between conflicting opinions and crisis learning must thereby be further explored. Additional indications of possible obstacles were that the process depended on individuals, the institutional memory was insufficient, the learning process differed between departments, and that lacking resources prevented the implementation of measures. The study ends by suggesting learning improvements and discussing the new insights for the hypotheses which can be used in future research.

Keywords: Crisis, Crisis-induced learning, Organizational learning, Crisis management, Obstacles to organizational learning

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1. INTRODUCTION

Crises have occurred through all times, arriving as shocks and disrupting the order and systems of societies. They come in various shapes, such as pandemics, terrorist attacks, or natural disasters, and can result in disastrous consequences. Although certain crises have recurred throughout the years, they sometimes return in new shapes (Boin et al. 2016: 3-5). According to Boin et al. (Ibid.: 126-128), *learning* is one of the five critical tasks of strategic crisis leadership. It is commonly perceived that crises expose failures within rigid and deficient systems, and thereby provide opportunities to learn what must be changed to better prepare for future crises management.

In 2014, the Swedish crisis preparedness was exposed to one of the greatest tests in its modern history. A forest fire in the Västmanland region evoked a societal crisis involving private and state actors, voluntary organizations, 69 rescue services and support from the EU Emergency Response Cooperation Center (ERCC) (Asp et al. 2015). The disaster resulted in 13.800 hectares of burnt down forest, 25 destroyed or damaged buildings, around 1200 evacuated civilians, one casualty and one severely injured person (Coenraads. 2015). Forest fires had not been included among typical events in the 2013 national risk and capacity evaluation done by The Swedish Civil Contingencies Agency (MSB) and it surprised the nation who neither had the mental preparedness nor resources to handle it (Asp et al. 2015).

Although Sweden was to some part prepared for intersectoral collaboration, the event simultaneously required both collaboration and transition within and between different levels of responsibility (Asp et al. 2015). Many agreed that critical lessons needed to be drawn and implemented from the event to better prepare for future crises (Asp et al. 2015; Coenraads. 2015). A high number of investigations and evaluations followed the event, and in early 2015 the Swedish government assigned MSB to analyze and recommend measures for a better crisis preparedness (Regeringskansliet. 2015).

Four years later, in 2018, the summer was exceptionally dry and forest fires soon raged in several regions. More than 500 fires were identified and around 25.000 hectares of forest burnt down (SOU. 2019:7). The situation was particularly complicated, and in the municipality of Ljusdal some 200 people had to evacuate. The event required international help from ten other countries including Italy, France and Germany (Asp et al. 2018).

Despite previous experiences and clearly recommended lessons from the Västmanland forest fire, MSB:s internal evaluation after the 2018 event claimed that several shortcomings that had been identified four years earlier remained during this event. It further concluded that the lessons from 2014 had not been implemented sufficiently (MSB. 2019). Staff at the County Administrative Board (CAB)

in Gävleborg further perceived that the previous crisis experience had not been utilized properly (Asp et al. 2018).

1.1 RESEARCH PROBLEM

This raises the question *why* some lessons had not been implemented until 2018, and how the learning process can be improved to minimize the risk of similar shortcomings occurring once again during future crisis events. If lessons were identified and presented, and many were turned into suggestions for improvement, which factors hindered their implementation? There has been a lack of studies exploring how organizational crisis response and management relates to learning (Deverell. 2010: 103) and the research area of obstacles to crisis-induced organizational learning is rather young. Various suggestions of what may hinder crisis-induced learning within organizations exist. However, many have not yet been sufficiently developed, and any well explored and established theory around what obstructs crisis learning in specific organizations, and *how*, has not been acknowledged. There is a further need for more empirical studies where the existing theoretical suggestions and assumptions are tested and developed.

This study thereby explores the phenomenon of crisis-induced learning within a public agency, by studying the case of MSB:s learning process after the 2014 crisis event. Exploring this case is theoretically interesting due to the lack of established theories, and empirically interesting due to the evident difficulty of implementing crisis lessons.

1.2 AIM AND RESEARCH QUESTION

This study thereby seeks to explore *why* some lessons from the fire in Västmanland 2014 were not fully implemented or utilized to create a higher crisis management capability in 2018. This leads up to the following research question:

What factors obstructed MSB:s learning process from the forest fire in Västmanland 2014 until the subsequent forest fires in 2018?

To limit the scope of the question and connect it with previous research on crisis-induced learning, three hypotheses will be derived from the research area. The immensity of the learning process – involving the great variety of departments at MSB, collaboration between various actors including the Swedish government, and stretching over several years with documentation spread out among various systems – makes a study of the full learning process resource-intensive and time-consuming. Therefore, a process tracing plausibility probe is implemented to test the hypotheses on the case and suggest possible developments. The empirical material partly consists of existing text material from the learning process

such as reports, evaluations and suggested measures, and partly self-produced material in the form of semi-structured informant interviews with current and previous staff members at MSB.

1.3 DISPOSITION

Following this introduction, chapter two presents a review of previous research which leads up to the theoretical framework. In chapter three, the research design and methods are described and discussed. The analysis in chapter four is divided into six sections. The first provides a brief summary of the learning process. The second, third and fourth section analyze the empirical material in relation to the three hypotheses. The fifth section briefly adds additional information about possible obstacles which was not specifically searched for, yet emerged during the interviews. Although the study focuses on the learning process between 2014 and 2018, additional information about the process after 2018 which emerged in some interviews has been added to provide further indications on whether the learning obstacles seem to remain after the 2018 crisis. To add empirical value, the sixth section presents some suggestions on how the crisis-induced learning can be improved, based on previous research in relation to the empirical results. Lastly, a summary and discussion of the results and limitations can be read in chapter five, together with suggestions on possible developments of the hypotheses.

2. PREVIOUS RESEARCH AND THEORETICAL FRAMEWORK

This section consists of two parts. First, a review of previous research and theory relevant to this study is presented. Second, three theoretical hypotheses derived from the previous research are presented and form the theoretical framework for the study.

2.1 CRISIS MANAGEMENT AND GOVERNANCE

There is an increasing connection between crisis management and governance. When crises occur, leaders in society are expected to manage it by stopping the threat or drastically decreasing its consequences. Citizens count on their leaders to investigate what went wrong and make critical changes to, or even discard, dysfunctional strategies and routines. Leaders must further build up new public confidence and increase resilience and preparedness (Boin et al. 2016: 3-5).

Boin et al. describes crisis management as "*a set of interrelated and extraordinary governance challenges*" (Boin et al. 2016: 4) including rapid detection of a crisis, comprehension of the situation and relevant actors deciding on important issues. It should be well organized with functioning communication and an appropriate distribution of accountability. There must further be a collective readiness to *learn lessons* from the crisis event (Boin et al. 2016: 3-5). A common perception around crises is that they create extraordinary opportunities, and effective crisis management can lead to a variety of benefits for companies and organizations also during normal circumstances (Roberth & Lajtha. 2002).

2.2 ORGANIZATIONAL LEARNING

The concept of *learning* has been defined in various ways but is commonly perceived as collecting and applying new ideas and information to policy issues. Typically involved factors are the reexamination, reassessment, and recalibration of present or suggested policies, beliefs and institutional arrangements, or purposeful attempts to do so. Governments must hold both institutional capacity and continuous motivation to draw lessons and make use of them (Boin et al. 2016: 128-132). In his study of crisis-induced learning, Deverell uses the idea of learning as "*a series of crisis-induced lesson-drawing processes*" (Deverell. 2009: 180).

For long, the notion of organizational learning has grown interest within management studies and has been perceived useful when exploring how organizational change relates to knowledge and information. The relation between cognition and behavior has been emphasized by Dekker and Hansén (2004) who

describes the changed knowledge and gathering of insights within organizations as the *cognitive dimension*, while the *behavioral dimension* on the other hand relates to the actual alterations that are being made based on the cognitive dimension. While cognition is used to draw lessons, they must be implemented in the organizational structures through behavioral changes to produce long-lasting results (2004: 216-217). Similar definitions of organizational learning divides between *distilled lessons* - which do not result in changed behavior although they have been stated, and *implemented* lessons - which result in the altering of organizational and individual behavior (Deverell. 2009) which relates to Dekker and Hansen's two dimensions.

However, learning processes within organizations is a phenomenon which has long been difficult to define, isolate and assess. Research in the area has increased, yet the focus on organizational learning specifically induced by *crises* has until recently continued to be low (Deverell. 2009) which makes it a relevant focus for further studies.

2.3 CRISIS-INDUCED LEARNING

Crisis-induced learning can be defined as when a crisis triggers purposeful actions among members of an organization, which in turn creates new knowledge as well as changed behavior (Deverell. 2012: 177). This again relates to the division between the cognitive and behavioral dimensions.

Crisis events and their relation to learning has long been diffuse within the literature. Although organization and public administration scholars emphasize the strong connection between the two, as well as the opportunities for change that crises result in, crisis management research argues that crises do not automatically produce learning. Whether a situation of crisis obstructs or generates learning has thereby been disputed. It has further been unclear when and what organizations do learn (Deverell. 2009). Crisis-induced learning is traditionally perceived to occur *after* a crisis, and since crisis management research commonly focuses on the period *before* or *during* a crisis, empirical examples of the phenomenon have until recently been scarce. Additionally, the focus on crisis-induced learning among traditional public organizations and agencies has remained low, due to the higher emphasis on High Reliability Organizations (HRO:s) such as aircraft carriers and nuclear power stations, which constantly operate under high risk (Deverell. 2012).

Crisis-induced learning is in many ways different from learning in more everyday contexts. Experience from crises comes more rarely than that from regular incidents - learning thereby occurs periodically rather than extracted over a long period of time. Further, crises tend to create situations of stress, uncertainty, lack of time and with important values at stake - which further complicates learning. Finally, the post-crisis period is usually filled with debates around responsibility and guilt, involved

actors are being put under scrutiny by the population and mass media, and the learning process may slow down or get on the wrong track (Deverell. 2012). How organizations manage their learning is, however, argued to have a large effect on whether future crisis situations can be prevented (Smith. 2002).

To increase the understanding of how organizational learning and crisis management are connected, Deverell (2009) presents a conceptual framework based on four essential questions which can be used to investigate and measure crisis-induced organizational learning; 1. *What is learned - single- or double-loop learning?*, 2. *What is the focus of learning - prevention or response?*, 3. *When are lessons learned - inter- or intra crisis?* and 4. *Lesson implementation - are lessons distilled or implemented?* Question four aims to explore whether stated lessons have been implemented or solely observed. The differences between the two connects to the previously discussed difference between cognition and behavior; that realizing new insights is a cognitive activity while a behavioral activity is needed for the lessons to be implemented. Reports and interviews may contain statements which can be used as evidence for whether a lesson was implemented (Deverell. 2009: 130-131). The first of these four questions is further developed in section 2.3.2, as it constitutes one part of the theoretical framework for this study.

2.3.1 Difficulties to Learn from Crises

As mentioned, it is a difficult and complex process to learn from crises, and most organizations do not appear to learn properly. Lessons may be insufficient, symbolic or give rise to inadvertent consequences. Immediate, extensive changes in policies before establishing causal links, or "over-learning" with biased and inflexible applications of hasty evaluations can become self-defeating. Even the efficient and appropriate management of one crisis may contribute to future failures in another, since organizations likely repeat successful actions although they may turn into blind corners during the next occasion. Furthermore, the learning capacity is often undermined by "blame games" and politics of accountability; where information, data and memories are selected and shaped to win arguments and ensure the survival of individuals and institutions rather than to learn. Boin et al. thereby describes the paradox of having a peaking necessity to learn simultaneously as a disappointingly low learning capacity among organizations and their leaders (2016: 128-132). The authors further claim that "*the capacity of governments to learn and change is constrained by fundamental tensions between the imperatives of political crisis management and the conditions for effective reform*" (Boin et al. 2016: 127) and that the competences and strategies typically required for crisis leadership and learning are contradictory (Boin et al. 2016: 128).

Parker and Sundelius (2020) write about *collaborative* crisis management and present five typical failures in this area, where the failure to *learn* is one of them. The authors emphasize how proper organizational learning rarely occurs even when there are good intentions and when commissions,

experts and scholars thoroughly document and investigate crisis events and suggest recommendations on how to prevent similar future mistakes, which can be seen in the chosen case. Although mandates might be altered and symbolic changes may occur, the substantial changes and reforms needed are often missing. A major obstacle to the implementation of lessons is the time required, since quick solutions are often prioritized and those who wish to invest the time needed may not remain in the same position to benefit from the results (2020: 126-127).

Smith and Elliot (2007) further summarize eight suggested barriers to learning from crisis within existing literature, which may possibly obstruct effective organizational learning from crises;
Rigidity of core beliefs, values and assumptions; *Ineffective communication and information difficulties*; *Denial, centrality of expertise and the disregard of outsiders*; *Peripheral inquiry and decoy phenomenon*; *Cognitive narrowing and fixation*; *Maladaptation, threat minimization and environmental shifts*; *Lack of corporate responsibility*; and *Focus on single-loop learning.* The barrier of solely focusing on single-loop learning is further described in section 2.3.2.

Deverell (2012: 121-124) discusses some additional hypotheses around what factors hinder crisis-induced learning, also suggested by different crisis management researchers;

Partiality and collegiality - those supposed to learn from a crisis are often part of its cause, which makes evaluating processes problematic. Investigating failures within the own organization and criticizing colleagues is a sensitive task which may result in resistance or social punishment at work. Therefore, organizations evaluating themselves risk overlooking important details. ***Displacement and distraction*** - after a crisis, decision makers often wish to go back to "normal", and new questions arrive on the agenda. This may distract those who should focus on the crisis experience and learning process. ***Guilt and the search for a scapegoat (Blame games)*** - it is often easier to blame others rather than taking responsibility over failures. Therefore, actors tend to blame each other or even find a scapegoat. This takes away the real interest of learning. ***Known, simple solutions*** - Crises enable the implementation of previously suggested policies, which can be adapted and presented as solutions. Fast and simple solutions are often prioritized over trying to handle fundamental and complex issues. Reorganizations are sometimes just symbolic changes and a compensation for learning. ***Long processes*** - Crisis-induced learning takes time, and proper evaluations of the crisis management is just the beginning of the learning process. There is commonly a lack of the persistence needed to learn properly, and organizations tend to go back to how things were done before the crisis as soon as possible. ***Insufficient documentation*** - crisis managers and decision makers often fail to document important parts of the crisis management, which obstructs the post-crisis work by researchers and investigators. ***Different perceptions and politicization*** - many crises are followed by incompatible opinions around what should be learnt and how (Deverell 2012: 121-124).

2.4 IMPROVING CRISIS-INDUCED LEARNING

Boin et al. argue that relying on historical analogies and generalizing from previous crisis experiences may to some part decrease uncertainty and make crisis management more efficient. However, this reliance may not always facilitate but can also misguide policy makers by obstructing the use of a broader base of information and experiences. It is thereby critical for policy makers to involve a variety of knowledge and experience by using numerous, impartial and systematic experiences and investigations from multiple pertinent crises. To make use of these investigations and improve future crisis response, the results and products must further be communicated between, and embraced by, organizations and individuals and become a part of the learning process (Boin et al. 2016). The authors further argue:

> "*The lessons must become part of a shared and institutionalized memory bank, maintained by organizational units close enough to the heart of the policy-making machinery to be relevant, but shielded as much as possible from post-crisis politicking. From this reservoir of experience-based crisis management knowledge, guidelines for future governmental action can be formulated and disseminated*." (Boin et al. 2016: 164)

Which emphasizes the need for a maintained institutional memory which directly connects to the organization's policy-making processes at the same time as it should not be affected by the politicization which tends to follow a crisis. The authors further claim that to be well capable of effective learning, one should leastwise include *experience based*, *explanation based* and *skill based* learning. Experience based learning comes from crisis exposure, the creation of memories and mechanisms turning them into lessons. Explanation based learning on the other hand is to look for cause-and-effect relations using rational scientific methods. Finally, skill based (or competence based) learning refers to the new skills and techniques which can be developed directly in response to a crisis, through exercises and experimenting procedures (Boin et al. 2016: 128-132). Bynander and Nohrstedt (2020: 119-129) presents a similar reasoning, arguing that by learning from research and practice as well as utilizing scientific guidance better, leaders can improve their crisis management skills and decrease the risk of common failures.

Regarding crisis documentation, Parker and Sundelius further emphasize the importance to not only document lessons but to transform and spread them until they are implemented and institutionalized in the organizational system. To do so, organizational practices and mechanisms must be created. The authors focus on training and simulation exercises and how they may result in new insights which can be used for adjustments and improvements. The exercises may also be used to test and evaluate new

systems and to repeat performances before a future crisis event. The authors argue for the importance of sharing experiences and lessons not only within their own organization but between organizations to improve the crisis collaboration capacity (2020: 126-127).

Deverell discusses how public agencies could learn from High Reliability Organizations, referring to the organizations that regularly perform sensitive and high-risk operations without encountering severe crises, such as aircraft carriers and nuclear power stations (2012: 121). By highly valuing and prioritizing learning and not overlooking defects or failures, extraordinary complex and sensitive operations can be successfully managed. Deverell summarizes a number of capabilities which previous research around these organizations have presented as important for efficient organizational learning (2012: 124-125);

First, crises should be properly and objectively investigated and evaluated by different means. To enable this, there must be a willingness to improve as well as some incident reporting system, preferably based on anonymity. Routines and developed instructions for documentation and investigation, and regular discussions around gathered experiences facilitates a cumulative learning process. Deverell's own research has shown that employees at a number of Swedish media organizations have gathered various work related experiences and continuously evaluate and discuss the outcomes of their work, which could inspire other organizations. Learning from fields and actors that differ from the own organization, such as the media organizations whose work is based on quickly changing environments and crises, could be used to guide the development of the own organizational learning (Deverell. 2010: 187). To decrease the risk of skewed lessons, it is as important to base the learning on experiences from more than one event (Deverell. 2012: 124-125) which relates to the arguments by Boin et al. (2016).

This in turn increases the flexibility, which is another important quality. Flexibility and adaptability must exist within the organization so that documented material can be transformed into action plans, analyses and reforms (Deverell. 2012: 125-126) which relates to Park and Sundelius (2020) reasoning. Flexibility is clearly related to learning, and public administration actors must know how to adapt to new requirements. The dynamic character of crises requires improvisation and a willingness to act outside traditional routines to create new ideas. Here, the importance to include different experiences from several crises rather than basing lessons on one or a few cases is again significant. Deverell further relates the importance of flexibility to the knowledge that old traditions often contribute to the crises (2012: 125-126) which is possible to connect with Argyris and Schön's division between single- and double-loop learning and that the organizational system itself may contribute to the crisis (1978) which will be described further in the next section.

Lastly, an organization should use self-reflection to gain knowledge about its own culture and structures and how they may positively or negatively affect the crisis management in various ways. Obstacles to crisis management that are triggered by elements in the organizational culture can thereby be identified, learned from and changed. Self-reflection may also improve the ability to make diagnoses during and after crises, as well as facilitate post-crisis evaluation processes. It is thereby important to start broadly from a variety of crises when an event is evaluated, instead of isolating the crisis event (Deverell. 2012: 126-127).

2.5 THEORETICAL FRAMEWORK

As demonstrated, previous research in the area is rather broad and suggests a variety of factors which are more or less likely to obstruct the learning process within and among organizations after a crisis event, as well as how the learning can be improved. Many of these theoretical assumptions and hypotheses are still underexplored and provides few detailed predictions. More empirical studies are needed to explore the practical applicability of these inferences on different types of organizations, other than the more commonly studied HRO:s, and in different contexts. To contribute to an increased understanding of some of these suggested obstacles in the context of MSB:s learning process after the 2014 forest fire, three of them are selected and further explored on the case. They are presented and discussed in the following three sections. A further discussion of this selection can be read in chapter 3.

2.5.1 Insufficient Crisis Documentation

To facilitate jurisdictional as well as practical processes after a crisis, and especially to increase the opportunity for learning to take place, it is crucial to investigate and analyze what happened during a crisis, why it occurred and what was done to handle it and minimize its consequences. For investigators, researchers and others to be able to thoroughly analyze this, documentation from the crisis management is necessary. Effective crisis-induced learning requires that communication and meetings are documented, which further facilitates the jurisdictional post-crisis work. Although sufficient documentation does not automatically result in profound and comprehensive analyses, it enables identification of various positive and negative experiences which can thereby be remembered and utilized within the organization (Deverell. 2012: 121-122).

Although documentation is arguably important for many reasons, including the post-crisis learning process, the time pressure, stress and moments of surprise which commonly occur during the event of a crisis tend to switch the focus away from the practice of documentation. It is therefore common among crisis managers and decision makers to fail in this area (Deverell. 2012: 121-122).

A study of several reports from crises in the Nordic countries and the UK, as well as interviews with Nordic crisis investigators, describes the lack of proper documentation from crisis management work and emphasizes the need for change. Several investigators describe this as a problem which decreases the possibility to produce systematic analyses (Johansson. 2018). Nordström and Tonegran further argue that it is difficult to assess a society's crisis preparedness if documentation is lacking, which in turn obstructs the ability to base the national security strategy on relevant decisions (2008: 4).

MSB:s overall coordinating role in societal crises makes its crisis learning processes dependent on various external actors. In the case of the forest fire, the organizational learning should arguably have been affected by both its own crisis documentation as well as the involved external actor's documentation of the crisis management. Previous research provides little detailed explanation on how the obstacle of insufficient documentation plays out in this type of organization. Exploring this hypothesis can hopefully contribute with new insights to this hypothesis.

2.5.2 A Sole Focus on Single-loop Learning

Following the growth of ideas around how profound adjustments must be made to produce efficient learning within an organization, Argyris & Schön created the terms *single-loop* and *double-loop learning* (Easterby-Smith et al. 2004: 373). Single-loop learning refers to the type of learning where practical defects can be corrected although the organizational core beliefs and rules are preserved and can be perceived as when deficiencies are discovered by members of an organization, and thereafter targeted by modifying measures without questioning the assumptions on which the organization bases its work and objectives. This category of learning allows for the implementation of existing policies and goals, and thereby maintains consistency within the organization (Argyris & Schön. 1978: 18-26, Deverell. 2010: 61,128). Since the paradigm where the learning takes place may itself have contributed to conditions for failure, the inability of single-loop learning to question and change it may prevent organizations from effective crisis-induced learning (Smith & Elliot. 2007: 532).

Double-loop learning, on the other hand, signifies the restructuring of underlying norms and priorities (Argyris & Schön. 1978). It challenges the dominant paradigm (Smith & Elliot. 2007: 532), meaning that actors question organizational norms, values and objectives. If deemed necessary, they are exchanged and new understandings will replace the old ones (Argyris & Schön. 1978: 22; Deverell. 2010: 61, 128). Additionally, *deutero learning* can be described as meta learning; the learning of *how* to learn from a crisis (1978). These learning categories have become highly influential within the research area of organizational learning (Easterby-Smith et al. 2004; Deverell. 2009).

Denis Smith (2002) further draws on this concept of single-loop learning when describing *first-order learning* as the superficial changes in an organization's learning process, such as changes regarding

structures, regulations and plans. Investigations, analyses and reflections are made in a superficial manner, which leads to an emphasis on procedural and technical issues. This type of learning does not challenge how organizations assess *how they work* or the "*rationale of the core activity*" (Smith & Elliot. 2007: 524). Based on the concept of double-loop learning, Smith describes the more profound level of learning as *second-order learning*, which "*challenges the core organizational paradigm providing the basis for a full cultural readjustment*" (Smith & Elliot. 2007: 522) and which questions the logic behind the existing system in relation to alternatives. By implementing double-loop learning, an organization can thoroughly evaluate its core activities and how to deal with a crisis event (Ibid.).

Argyris & Schön argue that both learning categories are important for the learning process and outcome, however, organizations tend to place most of their focus on single-loop learning (Easterby-Smith et al. 2004: 373). This predominant focus on single-loop learning is further perceived by Smith and Elliot as an increasingly important obstacle to crisis-induced learning, since a lack of functioning double-loop learning "*seems destined to ensure that organizations fail to learn effective lessons from crisis events.*" (2007: 532).

Single-loop learning could however be sufficient if the organization's fundamental premises are in line with the surrounding environment, as well as if the environment is not rapidly changing (Argyris & Schön. 1978; Deverell. 2010: 61). Following this perception, it is yet argued that MSB:s surrounding environment is rapidly changing. For instance, climate change is estimated to increase the risk of future forest fires (Tinghai. 2017). Also, recurring types of crises sometimes come back in new shapes (Boin et al. 2016: 3-5) which was the case in 2018 when the fires were suddenly spread out around the country rather than concentrated to one or a few regions like previously. The covid-19 pandemic has further shown how even predicted crises can surprise and rapidly change the situational context on local, national and international levels. Based on the previous research, this changing environment requires both a single- and double-loop approach to learning.

As Deverell argues, further research must be made both around double-loop learning as well as single-loop learning to increase our understanding of the two categories, and how they relate and affect each other (Deverell. 2010: 186).

2.5.3 Conflicting Opinions

Another of the previously mentioned hurdles to crisis-induced learning is the occurrence of varying, sometimes incompatible, opinions among actors regarding what lessons should be drawn from a crisis experience, what should be done to solve the issues and improve the crisis management capability until next crisis, and *how* this should be done. Conflicting opinions and interests often occur after a crisis, which can negatively affect the post-crisis work towards learning and change by halting it or making it

ambiguous. Further, societal crises often become politicized, with post-crisis work processes having to simultaneously manage political, economic and jurisdictional issues, rules and demands. Conflicting perceptions and opinions as well as the eagerness to score political points tend to hinder the process of learning the right lessons, and the most severe cases are described as a "crisis after the crisis" (Deverell. 2012: 122-123).

Political pressure has long been perceived as hindering organizational learning. However, Dekker and Hansén argue against this by saying that a political process can both prevent or facilitate a public organization's learning processes, depending on its characteristics. If there is a broad consensus on what changes should be done and how, it will likely increase the likeliness of learning. If actors cannot agree on the problem definition, however, there is a risk for different, sometimes contradictory interpretations (Dekker & Hansén. 2004). Similarly, Deverell emphasizes the importance of actors agreeing on, and together standing behind a common learning strategy for it to be effective and lasting (2012: 122-123). After the forest fire in 2014, opinions differed between several actors, in particular around whether the "Principle of responsibility", which is one of the foundational principles for the Swedish crisis management, should remain. While some research resulted in the suggestion to remove it (see for instance Asp et al. 2015), other actors argued that a removal would not improve the overall crisis management (Toll. 2016).

Societal crises often involve various actors in different areas, and it is natural for different actors to perceive things in different ways. The scarce literature of conflicting perceptions within processes of crisis-induced learning however primarily concern conflicts *between* actors. Due to the design of this study, this hypothesis will however be adapted to instead focus on *one* actor, more specifically to analyze whether there have been different or conflicting opinions *within* MSB during the learning process. The extraordinary broadness of the agency with its many departments in various areas arguably increases the likeliness that different perceptions, opinions and interests exist within the organization. Along with this adaptation, the study will primarily focus on conflicting opinions between departments, units or individuals, and the aspect of politicization will thereby only remain as a secondary focus.

3. RESEARCH DESIGN AND METHODS

3.1 WITHIN-CASE ANALYSIS

Historical events consist of various phenomena which may be scientifically interesting to study for different purposes. By studying a case of a specific phenomenon, the knowledge around it in relation to other cases of the same phenomenon will increase (Bennett & George. 2005). One type of case study is the *within-case analysis* based on internal examination of one single case. A case can further be defined as "*an instance of a class of events"* (Bennett & George. 2005: 24). This study is a within-case analysis where the class of events, or phenomenon, in focus is *crisis-induced organizational learning*, which is studied in the case of the forest fire in Västmanland 2014.

Case studies naturally involve certain limitations. Although generalizations can be made from case studies, it tends to be more difficult than to generalize from large-n studies. The representativeness and frequency of a single case may be hard to estimate (Bennett & George. 2005). However, the main purpose of this study is not to produce certain generalizations of the phenomena, but rather to increase the in-depth understanding of the phenomena in the chosen case. Further, since case studies, especially when using interviews with open-ended questions, creates a possibility to identify new hypotheses or variables (Bennett & George. 2005), the choice is perceived as beneficial for this study.

3.1.1 Case selection

The 2014 forest fire was clearly an urgent, stressful and damaging crisis. The event was reported and evaluated by several actors and resulted in the government mission, which provided a good base of material for researchers, crisis managers and other professionals to work with. Yet, the learning which could initially be expected was lacking. According to existing research, a variety of obstacles should have caused this failure in learning, since not even well investigated and analyzed crises tend to result in learned lessons. This can thereby be perceived as a most likely case, since the selected learning obstacles were likely present during the learning process. It is however important to note that the hypotheses' lack of precise predictions complicates the assessment of what cases are more important for testing a theory than others (Levy. 2008: 12-13) and thereby also the assessment of its usefulness for theory testing purposes (Eckstein, 1975: 113–123). This is however not perceived to be a major obstacle since the primary focus is to develop the understanding of the learning obstacles within this case.

The case is further empirically interesting. Forest fires are recurring in Sweden and around the world, and expected to increase in frequency in the future due to climate change and human behavior (Tinghai.

2017). Sweden consists of huge forest areas which are important for the country in many ways. Increasing the understanding of how to develop and improve the management of future forest fires in Sweden is thereby critical. Further, the forest fires in 2014 and 2018 required engagement from various actors, such as rescue services, municipalities and state agencies, as well as collaboration between different levels and organizational boundaries, like other major crises. Studying the learning process after the forest fire in 2014 can thereby give rise to ideas on what to look for not only when preparing for future forest fires but also other crisis events. Although this crisis itself is well researched, the learning process and what obstructed the lesson implementation is yet to be explored. To prevent all the experience, evaluations and lessons from being lost due to improper implementation, this case requires further investigation.

3.1.2 Actors

As mentioned, numerous actors tend to become involved in crisis management before, during and after a crisis event such as the forest fires. Although studying all involved actors would result in more comprehensive results, this study aims to place a deeper focus on the role of MSB, to create a more profound understanding of the agency's learning process. This is partly due to the advisory role of MSB towards municipalities and other actors within the area of crisis management and preparedness, which gives MSB the power to influence these actors, and partly because of recent adjustments the Swedish law about protection against accidents [LSO; '*Lagen om skydd mot olyckor'*] which gives MSB the responsibility to supervise Swedish municipalities (MSB. 2020). This change increases the importance for MSB to create functioning learning processes to improve the Swedish crisis preparedness.

It is however important to note that the author has a limited employment at MSB while writing this thesis, since it may affect the study in several ways. During the period of the study, this has only consisted of a few of workdays. However, the access to some internal systems facilitated the process of identifying and selecting material, and the use of internal communication tools resulted in faster communication and easier access to employees at the agency. It may as well have affected whether the contacted persons chose to participate or not, some may have been more open to participate in a colleague's research, while others may not have wanted to participate and share information with someone they might encounter at their workplace. It could further have affected the interviewees answers in similar ways. These aspects have been addressed partly by solely interviewing employees who the author has never had any previous contact with. And partly by being transparent and clearly stating that the study is in no way related to the employment at MSB. It was further perceived as possible to study the organization based on the research design and the use of the interviewees as informants.

3.2 PROCESS-TRACING PLAUSIBILITY PROBE

Process-tracing is a method within case study research which was initially formulated by Alexander L. George and has gained popularity for instance in the field of political science. The method is used to identify causal mechanisms connecting causes (independent variables) and results (dependent variables) by thoroughly mapping the process leading up to an outcome. The method is specifically used in within-case analyses, and often in studies where the outcome is known beforehand. The main focus lies on the process rather than the outcome (Esaiasson et al. 2017: 129). Although the method can be used to find different types of explaining factors, it is common to look for explanations related to conscious deliberations done by certain actors (Esaiasson et al. 2017: 131). The process-tracing method is thereby a relevant method for this within-case study due to the aim of identifying factors which contributed to the outcome that some lessons from the 2014 forest fire were not implemented properly. The explanations that are searched for relates to MSB:s conscious deliberations during the period between the two events.

Process-tracing only enables within-case inferences due to its limited applicability to single case studies, and the results should thereby not be generalized to similar cases unless it is combined with other methods. However, the method's strength rather lies in the ability to create substantial causal inferences within the specific case (Beach. 2017). Due to limited time and space, a combination with other methods would be difficult. It has thereby been decided to solely focus on process-tracing as a method. However, the results can lead the way for future research to follow up with comparative methods, and provide new insights on how the hypotheses play out in the chosen case.

This study follows an abductive reasoning. Due to the vague research area, hypotheses based on what previous research has suggested will be modified and empirically tested on the case. The results are thereafter discussed, and new insights to the hypotheses are to be suggested. Since the process-tracing is pursued in an early phase of the research and the hypotheses provides few details on how they will play out in the selected case, the study follows a minimalist understanding of mechanisms. It is still uncertain which mechanisms link the independent and dependent variables and under what conditions, and the causal mechanisms will thereby not be meticulously unpacked, neither theoretically nor empirically. Instead, a "process-tracing plausibility probe" (Beach. 2017) is implemented to identify indicators of the three selected hypotheses, assess their applicability on the case, and look for new insights which can improve the understanding of the hypotheses.

The process-tracing is implemented by tracing and identifying important events during the learning process between the two crises in 2014 and 2018. They will be searched for in the material which is described further down. The identified events are briefly summarized in section 4.1. The indicators of

each hypothesis will thereby be searched for in these events, to explore if, how and when the three obstacles have occurred during the learning process.

3.3 HYPOTHESES

The three hypotheses, derived from existing theoretical suggestions on what factors obstruct crisis-induced learning, will be explored due to several reasons. The research area does not provide any well explored and comprehensive theory on why organizations often fail in their crisis learning. However, researchers suggest a variety of factors that likely obstruct the organizational learning. Most theoretical assumptions and hypotheses have not been sufficiently studied on crisis learning, and thereby lack explanations of how they vary between contexts and organizations. Some have been studied on everyday organizational learning or on HRO:s, yet requires further exploring to determine their applicability on a post-crisis context and on other organizations. Many of the suggested hypotheses are thereby interesting and requires further empirical studies. The limitations of this study, however, require a selection to be made. As described in section 2.5.1 to 2.5.3, the chosen obstacles are likely to have occurred in this case, according to the theoretical suggestions. It is however still unclear how they would have played out in an organization like MSB. They have thereby been selected and will be tested on this case, to produce new insights which could help increasing the understanding of their applicability.

Following this, the hypotheses are tested on an 'easy case'. If the indicators are not identified, this could question their explanatory value in this case. If they are confirmed by the empirical material, the study can however still provide insights which can be used in further development of the hypotheses. They are also interesting to explore due to MSB:s rather unusual broadness and role in relation to other societal actors. The responsibility to manage different types of crises and to coordinate and monitor various actors could arguably affect the applicability of the hypotheses. The organization must often rely on crisis documentation gathered by external actors, the approach to learning is likely affected both by the actors involved in the crisis as well as the incumbent government, and the various departments involved in the learning process may affect the occurrence of conflicting interests. Lastly, the three selected hypotheses were deemed possible to study with the available resources for this study as well as the accessible empirical material.

The following sections present their definitions and operationalizations. In the analysis, the operational indicators will be searched for in the empirical material. The hypotheses are not mutually exclusive, and there is a possibility that none of them will appear in the selected material.

3.3.1 The crisis documentation was insufficient

With **insufficient crisis documentation**, this study refers to the complete lack of, or insufficient documentation from meetings, decision making processes or other key events during the crisis management. Since it is rather subjective whether the documentation has been sufficient or not, the study will look for indications that investigators or others who have analyzed the crisis management, or that have worked with documentation during or after the crisis, perceives that it was lacking and/or have been affected by it. This could either be written in the documents or stated in the interviews. Since this refers to documentation from the crisis event, documents which investigates, evaluates or in any other way analyzes the crisis event will be analyzed.

Operational indicators: The documentation is being described as insufficient or lacking, or any other defects and failures related to the crisis documentation is described.

3.3.2 The process focused on single-loop learning

As previously mentioned, public organizations tend to focus exclusively on single-loop learning, and double-loop learning seems to be rarer. It is therefore likely to be true also in this case. This study will thereby search for indicators of single-loop and double-loop learning in the documents and interviews. Due to the difficulties to operationalize and draw the line between single- and double-loop learning, this may be difficult for interviewees to provide answers to. The main focus will thereby be placed on the written documents.

Single-loop learning is defined as a superficial way of learning which does not question, compare or change the dominant organizational paradigm, core beliefs and assumptions or the rationale behind the core activity. Instead, it relates to *procedural* and *technical* issues, and involves changes of structures, regulations and plans.
Operational indicators: Suggestions or changes related to *regulations*, *structures* and *plans*, or related to *technical* and *procedural* issues.

Double-loop learning is defined as challenging the dominant organizational paradigm and the rationale behind the core activity, in relation to other alternatives.
Operational indicators: Evaluations, investigations or reports questioning *core beliefs* and *assumptions* or comparing it to other alternatives. Suggested or implemented measures which changes these assumptions and beliefs.

Previous research shows that double-loop learning occurs more rarely, and that data on single-loop learning is easier to access (Deverell. 2010: 61). This makes the likeliness of finding indicators of

single-loop learning higher than that of finding indicators of double-loop learning in the empirical material selected for this study. This aspect will be taken into consideration when discussing the results. Further, since a learning process may begin as one category but later turn into the other, creating an operationalization of these categories may become difficult (Deverell. 2010: 128). This study therefore uses Deverell's understanding of single- and double-loop learning as based on the *initial intention* (Ibid.). Therefore, any documents produced after the final report from the government mission Ju2015/1400/SSK will not be relevant to analyze for this hypothesis.

3.3.3 There were conflicting opinions within the organization

Operational indicators: Conflicting information, conclusions or suggestions in the material, or descriptions of the occurrence of conflicting opinions sometime during the learning process.

While investigations and evaluations of the crisis management may describe any varieties in perceptions and information, it is less likely that conflicting opinions within the organization are stated in reports, written decisions, or other documents throughout the learning process. Interviews thereby serve as a good complement where information which has not been included in the written documents can be identified. Much focus will thereby be placed on the interviews.

3.4 DATA SELECTION

The selection of data is determined by the phenomenon being studied and the theories used (Bennett & George. 2005). A variety of material can be utilized when implementing a process-tracing method in a within-case analysis. However, a combination of written documents and interviews is commonly used (Esaiasson et al. 2017: 131) and will be also in this study. The material consists of published and internal documents of the learning process as well as semi structured interviews with former and current employees at MSB.

3.4.1 Documents

The relatively large number of published reports and evaluations of the crisis management during the two cases of forest fires makes the material easily accessible. It is thereby relevant for this study since it has been available for employees in all departments of the organization and thereby possible to use during the learning process. Other documents related to MSB:s post-crisis learning are also relevant. Due to the focus and limitations of the study, only documents produced by MSB and which regards MSB:s own learning process have been used. Some documents are however partly based on information from other actors, which are still relevant for the study due to MSB:s coordinating role among various actors.

The documents have been identified through a combination of searching through the external webpage and the internal system Public360, ordering documents related to the forest fire from the registry, as well as asking interviewees for relevant material. For ethical reasons and transparency, only documents which could be handed out as public were selected. Due to the broad variety of document types, the selection was limited to include reports, analyses, assignment descriptions, project plans, documented decisions and statements. Material such as email conversations and informal information from external actors have been excluded.

One significant issue which occurred along with the selection process was the low traceability of documents relating to the later part of the learning process, together with the great variety of departments with different information management systems. Several informants further described difficulties of knowing which documents exist and where, especially regarding events which happened many years ago. Another issue was the remarkably long time it took to receive the documents from the registry. These issues together decreased the number of documents which could be identified and selected. However, two of the chosen hypotheses; *insufficient crisis documentation* and *single- and double-loop learning* refers to the earlier stages of the learning process, and indicators of *conflicting opinions* are expected to be harder to find among the written documents than the interviews. It is thereby not perceived as a major obstacle for this study, and will be considered when discussing the results.

The documents were first read through to mark the parts which included relevant information for any of the hypotheses. Secondly, the relevant parts were read through more profoundly so that the indicators could be identified and categorized under the hypotheses. The indicators could simultaneously be categorized under more than one of the categories since they are not mutually exclusive.

List of selected documents

The following documents are the final selection which have been analyzed, it is however important to note that the hypotheses partly refer to different stages of the learning process which is why some documents may not be as relevant for all hypotheses.

Publ.nr: MSB798 *Observatörsrapport Skogsbranden i Västmanland 2014*
Publ.nr: MSB585 *MSB:s stöd vid skogsbranden i Västmanland*
Publ.nr: MSB892 *Statlig ersättning till drabbade kommuner vid skogsbranden i Västmanland 2014 - En utvärdering av MSB:s ersättningshantering*
Publ.nr: MSB996 *Ansvar, samverkan, handling - Åtgärder för stärkt krisberedskap utifrån erfarenheterna från skogsbranden i Västmanland 2014 (Ju2015/1400/SSK)*
MSB dnr 2015-1687-1 *MSB ansvar och vidtagna åtgärder under skogsbranden i Västmanland*

MSB dnr 2015-954-1 *Uppdrag till myndigheten för samhällsskydd och beredskap att genom erfarenhetsåterföring stärka samhällets krisberedskap Ju2015/1400/SSK*
MSB dnr 2015-954-11 *Åtgärder för en stärkt krisberedskap - Erfarenheter från skogsbranden 2014*
MSB dnr 2015-954-50 *Övergripande beskrivning av vidtagna åtgärder efter genomförda utvärderingar av arbetet i samband med skogsbranden i Västmanland 2014*
MSB dnr 2015-954-44 *Förlängning av uppdrag till Myndigheten för samhällsskydd och beredskap*
MSB dnr 2016-5224-1 *Rapport - utveckling av myndighetens administrativa stöd i samband med särskild organisation*

3.4.2 Interviews

Since interesting discussions and decisions are often made behind locked doors and not documented properly (Teorell & Svensson. 2007: 89), and since direct observations are not possible in this case, interviews can contribute with complementary information. The interviewees have mainly served as *informants*, meaning that they are treated as witnesses able to contribute with information of how different parts of the studied process looked like, rather than being objects of the study themselves. The information from each interviewee has thereby been treated as *sources*, which have further been analyzed through principles of source criticism (Esaiasson et al. 2017: 235-236). However, it is common to combine questions about what *happened* with the interviewee's *own thoughts* and *opinions* (Teorell & Svensson. 2007: 89). As mentioned, the interviewees will primarily be utilized as informants although thoughts and opinions may be included if they are perceived to add interesting aspects to the results.

Due to this approach, *centrality* guides the selection of informants, which is a common selection principle within informant interviews (Esaiasson et al. 2017: 267). Current and former employees at MSB with experience from or knowledge about the learning process, as a whole or parts of it, are thereby contacted for interviews. The selection follows the snowball sampling technique (Esaiasson et al. 2017: 190-191, 267) since all central informants are not known beforehand. Initially, employees whose names were found in published documents are contacted, as well as others working in related areas. Through these contacts and interviews, new informants are identified, and so on.

One limitation following this technique is the risk of only identifying informants with similar experiences or perceptions from the process, which would produce incomplete or skewed results. When informants are given the possibility to suggest other informants, there is always a risk that they choose people they know or share their perspectives. Another limitation is the difficulty of knowing when a "sufficient" number of informants have been interviewed, and when enough information about the process and the organization has been selected to produce a fair description of the phenomena in the studied case. These limitations have been handled by initially emailing a variety of persons from different departments, to make the first selection as broad as possible. Employees who are not

participating themselves can as well suggest new informants. Also, their recommendations often includes employees from other departments or units than those giving the suggestions. Thereby, an attempt to increase the likeliness of identifying enough central informants and to decrease the risk of making a biased selection is implemented. Additionally, due to the research design, the selection of informants is not claimed to represent a bigger population.

Semi-structured and open-ended questions are used in the interviews, and the questions are categorized under the chosen hypotheses and based on the operationalizations. The questions asked further depends on the position, experience and knowledge of each interviewee. Due to their role as informants contributing with various types of experiences and information about different parts of the process, there is no need, and would neither be optimal, to ask the same questions to each informant. This approach further allows for questions to be adjusted or added along with the interviewing process (Esaiasson et al. 2017: 236). The questions thereby varies slightly between the interviews. An example of one interview sheet has been included in Appendix 1. The interviews are performed digitally due to the covid-19 pandemic, and the length depends on the extent each interviewee have been involved in the process. However, most interviews lasted for one hour.

With acceptance from the interviewees, all interviews are recorded and transcribed. The material is analyzed together with the documents. The selected quotes have been translated from Swedish to English by the author. All recordings and transcripts will be deleted when this study is published, and the interviewees will remain anonymous due to ethical reasons. The number of interviewees used in the analysis is eight, and will be referred to as Interviewee 1, 2, 3… et cetera. The area(s) where each interviewee has experience from in relation to the learning process is presented to increase the transparency and trustworthiness of the results.

List of interviewees

Interviewee 1 - Crisis evaluation
Interviewee 2 - Crisis evaluation
Interviewee 3 - Observer mission, Special organization (SO)
Interviewee 4 - Controller, planning and follow-up
Interviewee 5 - Information management
Interviewee 6 - Information management
Interviewee 7 - Strategic advisor
Interviewee 8 - Government mission Ju2015/1400/SSK

4. ANALYSIS

4.1 A BRIEF SUMMARY OF THE LEARNING PROCESS

When the forest fire in Västmanland 2014 increased in strength, MSB did not manage to receive contact with the regional rescue management which was heavily strained at that moment. A decision was made late on Monday August 4th to send two MSB staff members on an observer mission, and they arrived at the management center in Ramnäs early on the following morning. The mission was at first rather preliminary and mainly focused on observing the spreading of the fire as well as the extinguishing work, but was later expanded (Interviewee 3).

On the 14th of August, the Swedish government initiated a state investigation to gather the crisis management experiences. However, in early February 2015 the directives changed (MSB dnr 2015-954-11). Instead of continuing the investigation, the Swedish government decided to give MSB the mission to create conditions for a strengthened crisis preparedness in Sweden, which were to be presented on the 29th of January 2016. It stated that MSB should compile the involved actor's investigations and evaluations, and gather descriptions of implemented or planned measures of improvement. Based on these, recommendations on how to improve the Swedish crisis management, within the existing financial budget, should be made. The proposed measures could be on a local, regional, national, international or EU level (MSB dnr 2015-954-1). The same month, MSB:s observer report was published (Publ.nr: MSB798).

On the 17th of March, a pm was created which shortly described MSB:s roles, measures and support during the Västmanland fire, as well as MSB:s tasks and responsibilities during accidents and crises, preparedness measures and risk analyses (MSB dnr 2015-1687-1). Later the same month, MSB:s project group for the government mission described in the project plan that both short-term measures within the financial budget as well as long-term measures requiring further investigation and without possibility to estimate the economical aspect would be developed. MSB:s management group worked as the project steering group (MSB dnr 2015-954-11).

In May and June, MSB published a report of its crisis support (Publ.nr: MSB585) as well as a sub report about the management of financial compensation (Publ.nr: MSB892).

On the third of December, the deadline for the mission Ju2015/1400/SSK was extended to the 31st of March 2016 (MSB dnr 2015-954-44).

On February 19th, 2016, MSB provided an overall description of which measures had already been taken or was ongoing since the crisis evaluations (MSB dnr 2015-954-50).

On March 31st, MSB published the final report from the government mission. In chapter four, recommended areas where MSB could make improvements were added (Ju2015/1400/SSK). These internal areas of improvement were not required, it was however decided in the project group to include them to improve the trustworthiness (Interviewee 8).

After the final report was published, documentation from the learning process were spread out between different departments and units. For instance, one department suggested improvements of the information management and administrative support to the special organization (SO), which is a temporary organization set up during major crisis events. The suggestions were presented in September 2016 (MSB dnr 2016-5224-1). The low traceability and the suggested improvements being imbedded in everyday work obstructed the process of finding documents after this point, as well as receiving them from the registration function. The difficulty of tracing the documentation was further confirmed by several interviewees, who were not sure themselves where to look for it.

4.2 INSUFFICIENT DOCUMENTATION

As described in the first theoretical hypothesis, previous research shows that failures of documentation commonly occurs during crises, due to the surprising and stressful moments of a crisis event. When analyzing the empirical material, it quickly became clear that so was the case also during the 2014 forest fire in Västmanland.

When MSB initiated the observer mission in 2014, it was difficult to find documentation from the first days of the crisis management, which interviewee 3 describes:

> "(...) *there was a huge lack of documentation the first days. We tried to look for it and there just wasn't much the first three, four, five days. Which complicated both our work but also others follow-up work after the fire (...).*"
> (Interviewee 3)

As described, it complicated both the observer mission as well as later follow-up work. In the case of the observer mission, this was however possible to solve by filling the gaps with information from interviews with involved persons, and was thereby not perceived as a major obstacle when finishing the observer report:

> "(..) *it affected, it did. But I think we still managed to describe quite well what happened the first days. Both regarding the behavior of the fire and the rescue mission. But we had to put a lot of trust in interviews and those things*." (Interviewee 3)

The final report from the observer mission does not mention any issues or difficulties related to documentation (publ.nr MSB798), which can be perceived as a due to the possibility of solving the issue. The interviews were in this case performed both during and after the forest fire, many staff members were interviewed while the rescue mission was still ongoing (Interviewee 3). It is possible to believe that the lack of documentation may have become a larger obstacle if all interviews had been made post-crisis, due to the changing nature of our memory. It is thereby important not to underestimate the value of observing and interviewing throughout an ongoing crisis situation, in order to solve probable gaps in documentation.

On the other hand, it can be difficult to gain support for employing observers during an ongoing crisis, since people working directly to handle the event may not understand the importance of someone who is "just watching". MSB:s thereby faced some external critique for sending the observer mission (Interviewee 8).

When MSB later published the evaluation of their support during the Västmanland fire, it stated that documentation of decision-making processes in MSB:s special organization for the forest fire was lacking. A few, yet important issues leading to significant consequences are presented in the report. First, Estonia had, according to some documentation, offered support. This support was never utilized, and the rescuing management was not aware of it. The documentation around it was so scarce that the evaluators could not find out what kind of support had been offered and who had declined it (MSB publ.nr 585 p.41).

> *"It is remarkable that documentation around MSB:s handling of Estonia's support offer is lacking."* (publ.nr MSB585 p. 44)

Further, a misunderstanding between MSB and the CAB had occurred around reserve power, and some data suggested that the CAB's request had not been documented. The evaluation report states that the misunderstanding had still not been clarified (publ.nr MSB585 p.30). These two examples clearly show the importance of crisis documentation and which difficulties may arise if written information is lacking. The evaluation report includes a recommendation for MSB to ensure that decisions are being documented (publ.nr MSB585 p. 76).

One sub report to the evaluation investigated MSB:s management of state compensation to involved municipalities. A number of events were presented where the documentation had been emphasized, worked well, and had even been improved since one crisis evaluation from a previous event (publ.nr MSB892). However, the report further stated that MSB had at the time of the fire not yet implemented its development work in the area, which had been a recommendation after the previous crisis event. The project had been planned to start during the fall 2014, and the forest fire occurred in the summer (publ.nr MSB892 p. 42). One of three recommended measures in the report was to improve the documentation by creating an accounting system for municipalities applications for compensation (publ.nr MSB892p. 45).

The lacking documentation further complicated the work of the project group at MSB which had been appointed to carry out the government mission Ju2015/1400/SSK. When compiling and analyzing the reports and evaluations from the actors who had been involved in the crisis management, the missing documentation of taken decisions created information gaps:

> *"What we see from the forest fire was that the documentation is lacking. We know things have happened, it's maybe one of the most investigated events in the Swedish history of crises and accidents. We summarized 26 participating actor's evaluations and follow-ups (...) and there are still large gaps. (...) you can't say when the decision was taken and on what basis. Or sometimes decisions stretch over several days, or that we know they have made it but you don't know who made it."* (Interviewee 8)

One contributing factor during the forest fire was that many decisions were made at night when the fire intensity was high, which was problematic since many volunteers who helped with documentation only worked daytime. Therefore, many decisions made during nighttime had not been documented (Interviewee 8). Although the observer mission managed to solve the issue, they initially aimed to focus on the fire spread, weather conditions and the fire extinguishing work (Interviewee 3). The focus of the government mission clearly covered a more comprehensive area, which makes it understandable that the observer report was not sufficient to cover up for the lacking information.

One interviewee perceived that a different mindset among the involved actors during the crisis would have affected the documentation:

> *"...'we will dwell on this event (...) and we need to learn from it, therefore we really need this, and we need to document' - If you would've had that mindset from the start, you would also have thought and prioritized differently around*

> *documentation. Because it's so clear for each and everyone in the moment, but then a lot happens so already tomorrow you won't know exactly when it happened or 'why we motivated this'..."* (Interviewee 8)

This describes the difficulties of people overestimating their memories and believing that they will remember details, since everything seems clear in the moment. A crisis event, however, tends to be filled with happenings which later makes it difficult to recount. In particular if interviews cannot be performed until long after the crisis has ended.

In line with previous research, some interviewees noted that issues around documentation is a recurring theme throughout different crisis events (Interviewee 5, 8), and it was described as a common thread among this type of crisis evaluations:

> *"I have read this type of investigation reports from all kinds of events, the tsunami, the refugee situation, and documentation is a consistent theme. It's a problem that it isn't working as well as one could wish, so I think it's a common thread."* (Interviewee 5)

Even though there are governing documents at MSB regarding how documentation and information management should be done in everyday work, no special governing documents yet exist around how documentation and information management should be done within a special organization during a crisis event:

> *"There are general internal governing documents which apply in normal cases and everyday work, but I also think we must create special ones... because we don't have that today. (...) there are governing documents for other parts of the special organization (...), but they are lacking specifically for information management."* (Interviewee 6)

Despite the information management and documentation during crises often being inadequate, and still perceived as difficult and not perfectly functioning, a lot has been done in the area after 2014 and the understanding of its importance has increased:

> *"I think it was deplorable in the beginning, and that we were really bad. And that it has gone from such a low level as it used to be, until the later bigger events such as the 2018 forest fires and corona - you work in a much more conscious way from day one with the documentation. Then it will probably be*

> *a lesson, guaranteed, again after corona, how difficult it is and how messy it still gets."* (Interviewee 7)

The lessons around documentation from the 2014 forest fire resulted in implemented measures. For instance, the information management function became a part of the special organization to remind and give support around documentation and information management:

> *"After the evaluation of Västmanland 2014, a bunch of measures were created which would be implemented within the agency, and this was such a measure. So, until 2018 we had established that we were part of the special organization, in an active way which we hadn't been before."* (Interviewee 5)

However, another identified issue relates to the situation when new staff members join a special organization during a crisis, and they lack the basic knowledge about documentation and information management since they do not work in the same way in their everyday positions, which can create confusion:

> *"It's a fundamental issue that when you join a special organization you don't have these basic… you don't normally work in this way (...) so when you join a special organization during an event and a lot is happening, the uncertainty becomes very clear (...). The level of knowledge isn't high enough, bigger efforts must be made around that*" (Interviewee 6)

This occurred also in the rescuing function within the special organization in 2018. One interviewee described that sufficient routines on how to manage the documentation was lacking, and that they had to create routines along with the work. The new role MSB had and the chaotic situation in the country was also perceived to contribute to this:

> *"(...) when I came there, it was rather unclear how we were supposed to document. (...) There were so many and big forest fires that the situation in the country was quite messy. And MSB adopted a new role which we developed successively day by day. So, there weren't many complete routines on how to document. It didn't exist (...) in that function. We had to make it up, we had to create the routines there and then, one could say."* (Interviewee 3)

After the 2018 event, there was a greater emphasis on the issue of documentation than in 2014. This was perceived as a result from the increased focus on the question, rather than an indication that the issue itself had increased:

> *"...I would say that it is a consequence from us working actively with the question, that we participated in a completely different way than previously."* (Interviewee 5)

Insufficient documentation was however still a significant problem in 2018 which complicated that evaluation process as well:

> *"A lot of things weren't possible to verify after an interview and so on. I mean, people don't remember and people perceive things in different ways, and answer questions differently. If you then can't go and check what day it was, and what happened... then you can't be a hundred percent sure the data you have is correct"* (Interviewee 2)

Further, the evaluation after the 2018 event was initiated months after the crisis had ended, which affected the interviewing process and thereby the evaluation. If proper documentation had existed, the evaluation project had clearly been facilitated:

> *"There are some difficulties around that, just because the memory changes (...). If one would have had more detailed documentation, that would have been some sort of... that you can confirm certain happenings on a general level.*" (Interviewee 1)

An additional significant consequence was that the lack of documentation of who had worked in a function on certain dates, and what had been done and by whom, made it difficult for the evaluators to know who to talk to (Interviewee 2). Even when documentation existed, there were problems with traceability since it had not been done in a systematic way:

> "*Even when documenting, it wasn't systematic. You didn't write logs, you didn't collect decisions and documents at a certain place, but it was spread out everywhere, in mailboxes, folders et cetera. Which doesn't create any clear traceability of the work*" (Interviewee 1)

Two interviewees mentioned that the need for special governing documents around how documentation and information management should be done in a special organization during the event of a crisis has been identified and is under discussion (Interviewee 5, 6).

The analyzed material thereby clearly indicates that the documentation was insufficient during the 2014 crisis management which negatively affected much of the post-crisis work, and that the issue still remains although measures were implemented after 2014 and the understanding and focus on the area seem to have increased to a great extent.

4.3 A PRIMARY FOCUS ON SINGLE-LOOP LEARNING

Previous research further states that organizations tend to solely focus on single-loop learning after a crisis event. Although the line can sometimes be thin between single- and double-loop learning, the analysis of the empirical material barely included any significant indicators of double-loop learning.

The observer mission in 2014 was initially rather preliminary and the structure was initially not completely thought through due to the fast development of the fires and the chaotic situation. The primary aim was to be present for observation and documentation, and the two main areas to observe was the spread of the fire and weather conditions as well as the fire extinguishing work (Interviewee 3).

The observer report was thereby mainly technical and descriptive. The long duration of the fire and the high number of involved actors made it impossible to give a complete picture of the whole event (MSB publ.nr 798). Among previously known experiences from the Västmanland fire, the report presented fifteen short lessons including concrete advice such as *following fire risk prognoses and indexes* and *educating municipality staff members in crisis preparedness*, as well as broader recommendations such as *collaborating* and *being persistent* (MSB publ.nr 798 p. 11). The report further presents ten experiences more specific for the Västmanland fire. They primarily consist of needs for increased knowledge in certain areas as well as more developed technical solutions and methods, for instance:

> "*The RAKEL system's speaking groups must be adapted for big national events where devices from the whole country should work together*" (MSB publ.nr 798 p.12)

These are all perceived as indicators of single-loop learning. Several other documents included descriptions of fundamental laws, regulations and demands which MSB:s work must apply to or which should be aimed to fulfill. A pm from March 2015 which describes the measures taken by MSB during the 2014 forest fire begins with a brief description of MSB:s responsibilities during accidents and crises,

which is regulated in section 7-9 in the agency instruction, 2008:1002 (MSB dnr 2015-1687-1). The pm is merely descriptive and does not question or compare the fundamental requirements and objectives.

MSB:s own evaluation of the agency's crisis support was further created against a basis for evaluation which included the agency's external demands such as laws, regulations and government decisions, as well as internal demands and objectives such as rules, principles and governing documents. The report stated that MSB:s capability should be equal to these demands (Publ.nr MSB585). The intention of the evaluation was thereby not to question fundamental norms and values or the organizational system, but to evaluate to which extent MSB has fulfilled them, which is according to the single-loop approach.

Two of the interviewees describe that the purpose with this type of evaluation is to use a basis of requirements which you evaluate against. It may for instance consist of the agency's instructions, or routines on a more detailed level. The evaluation thereby aims to investigate whether and to what extent these have been fulfilled (Interviewee 1). To go beyond the requirements and instructions for the agency would require acceptance from the actor who ordered the evaluation:

> *"If you should have a basis for evaluation for this type of evaluation which extends and is about something else than the requirements on MSB, you must probably have a thorough dialogue with those who ordered it (...) and resonate if there are other things that should be included in the basis*" (Interviewee 2)

This is further confirmed by another interviewee who emphasized the importance of which actor has ordered an evaluation, and will receive and use the results:

> "*Another important question is also about the one who will receive the result. If it would have been the Government's offices, then you might have been interested in it (...). But on this level, we have mostly evaluated the internal work, so that has not been in question.*" (Interviewee 1)

As described, this type of internal evaluations of MSB:s own work are often supposed to evaluate what was done in relation to what was expected to be done. The interviewee was further familiar with the term *double-loop learning*, and explicitly stated that it has not been common in this type of internal evaluations of MSB:s organization:

> "*(...) like double-loop learning, there could be failures in the system (...) I understand. In these particular missions that we have focused much around MSB we have maybe not really touched upon that*." (Interviewee 1)

This was also the case in the subproject which evaluated the agency's management of state compensation to involved municipalities. The basis for evaluation in this report consisted of fundamental regulations, operational objectives, demands on MSB and its capability and preparedness. The agency regulation, governmental decisions and related laws, regulations and common advice were further described as prominent. It explicitly stated that the evaluation did not aim to evaluate the system of state compensation, but rather focused on exploring whether MSB had managed the tasks along with the existing requirements (Publ.nr MSB892 p. 8) which as well indicates a single-loop approach.

MSB:s initial reports and evaluations from the crisis event are thereby clearly aimed at single-loop learning. Double-loop learning on the other hand, where the system and its fundamental assumptions are questioned and compared to alternatives, was not identified. This further indicates that double-loop learning is not a part of the agency's general approach regarding its internal crisis investigations, which is in line with previous research in the area. The results indicate that the question of whether to include double-loop learning must be considered on a higher management level.

When exploring the government mission to create conditions for a better crisis preparedness (Ju2015/1400/SSK), the mission specification did not specify which areas to focus on, although it required a compilation and analysis of the existing investigations and evaluations from involved actors, and that the effects from climate change had to be considered. The mission enabled recommendations on local to international levels, and the only written restriction was to propose measures within the existing financial budget (MSB dnr 2015-954-1). This is not perceived as restricting the mission to either single- or double-loop learning. The emphasis on climate change is however perceived to open up for a double-loop learning approach, since considering the changing surrounding environment could produce insights about any defects in the organizational system in relation to its external context.

The shape and details of the mission was formed by the appointed project group together with directors at MSB. Although the mission was supposed to provide the government with recommendations for the Swedish crisis preparedness in general and did not require suggestions for MSB:s internal development, it was decided within the project group to add the suggested areas of improvement for MSB to increase the trustworthiness, be self-critical and to show that the information which had been collected during the project came to use (Interviewee 8).

The project plan stated that investigations and evaluations from involved actors formed the basis for the project (MSB dnr 2015-954-11 p.5), and the recommended areas of improvement in the final report were primarily based on the issues and suggestions proposed in these reports (publ.nr MSB2016-996). This gives rise to the question of whether the project and final recommendations would be less likely to have a double-loop approach if the basis of material from the other actors solely touched upon technical and procedural issues. It is however argued that even if all analyzed reports were exclusively based on a single-loop approach, it would not have prevented the use of a double-loop approach in the final recommendations. It could however have decreased its likelihood. Further, the project group was deployed with broad competence and experience as well as external representation (MSB dnr 2015-954-11 p.7). The broadness and inclusion of external representation could on the other hand increase the likeliness of emerging perceptions questioning the fundamental organizational system. Defects in the system should arguably be less likely to be identified and considered if all project members are part of the system themselves.

As part of the project, actors including MSB were asked to present which measures had already been initiated or implemented. The presentation of MSB:s taken measures to most part involved indicators of single-loop learning, such as; developing new routines; updating, adjusting and strengthening communication systems; developing information networks; reviewing public advice and how to extend them; as well as developing the administrative support (MSB dnr 2015-954-50). At first glance, some measures seem closer to the double-loop approach, such as those focusing on developing the forms of support from MSB during an event. However, these are connected to areas such as material and expertise, international support and geographical information and consists of updates of technical resources and systems, information sharing and resource prognoses (MSB dnr 2015-954-50), which are not perceived to go beyond the fundamental organizational values and norms.

Yet, one measure within the area of coordination and MSB:s situational picture is claimed by the report to exemplify how MSB has developed its role to coordinate and focus a joint management. This connects to changes in the role of MSB, which can be seen as closer to the double-loop learning. However, it is not stated in what way MSB:s role has changed. This is thereby not perceived as a complete indicator of double-loop learning.

In the final report of the government mission, chapter four presented the five areas where MSB had already begun to, or intended to, take measures to meet the identified needs for a strengthened crisis preparedness. The five areas were: *strengthening the capability to collaborate, lead and communicate; develop and use methods and tools; clarify roles, responsibilities and rules; increase the competence and knowledge of the actors;* and *make the use or resources more efficient* (MSB dnr 2016-996 p. 55). Most areas describe suggestions to develop resources, work systems, educational operations, guidance

and support as well as measures related to strategies, methods and tools. Although some suggestions to initiate the creation of new systems are included, for instance a system for collaboration and leadership, they are recommended to be based on existing regulations and concepts. However, they are also recommended to be based on previous experiences, which previous research encourages as a way to facilitate double-loop learning.

> *"The work should be based on current regulations and experiences from occurred and practiced events (...)"* (MSB dnr 2016-996 p. 57)

One recommendation emphasizes the importance to consider the *preparedness* work during an accident investigation. It is followed by an example from Norway where regulations were changed (MSB dnr 2016-996 p. 62). If there would have been a deeper questioning around the regulation, and considered whether to change it in Sweden as well, this had been perceived as an indicator of double-loop learning. The report however states that MSB is hesitant to change the regulations and instead recommend that the responsibilities are emphasized (MSB dnr 2016-996 p. 62), and this is thereby not perceived to follow the double-loop approach.

It is further described that deciding when to end an ongoing rescue mission has in many crisis occasions shown to be difficult, and that it was done too late after the 2014 forest fire according to the regulations. The delay was due to the difficulty of returning the responsibility of the burnt, and to some parts blocked, forest areas to the more than a hundred landowners, which were all in different conditions to take care of it. Although this issue with the regulation was not unique for this event, the report recommends the creation of a guidance on how to interpret the regulation (MSB dnr 2016-996 p. 62-63), rather than questioning it or comparing it to other possible alternatives.

This was further mentioned by one of the interviewees, who described that some farmers and landowners wished for someone to step in after the forest fire to take control over the damaged areas instead of being responsible of handling it themselves, and that they thereby asked for a fundamental change in the national system since this type of laws do not exist in Sweden:

> *"Then they ask for (...) a completely different societal system, since we don't have any crisis preparedness system (...). When they think 'but who takes command, who will step in and take over', they ask for a completely different management than our democratic fundamental system. (...) since we don't have this exceptional legislation its'... it affects the management and it affects the learning"* (Interviewee 8)

It is thereby clear that the current system can be, and is by some actors and individuals, questioned after crises like this one, although that type of double-loop learning did not become a part of the project within the government mission. It is however important to note that this regards the whole societal system, and is thereby not directly related to MSB:s internal organizational system, although it is affected by it.

The final report from the government mission therby followed a single-loop approach in its recommendations for MSB:s internal learning process, although a few vague indications of a double-loop approach emerged. However, one interesting aspect which indicates a bigger organizational change between 2014 and 2018 was that MSB:s role in relation to the crisis events had changed, as described in one interview:

> *"(...) we had very different roles… in 2014 (...) you could say that we had a more defensive role. We supported the mission in different ways in Västmanland, but we were not as participating in the actual event as we were in 2018 - then we were much more involved both in individual rescuing missions and that we also had a much more active role in the overall resource distribution planning of different rescue services. (...) it's difficult to say whether we had learned, since we had very different roles in the two different events."* (Interviewee 3)

Although the selected material did not provide any clear significant indicators of a double-loop approach in the initial learning process, this change of the organizational role in relation to crises indicates a change in perception of how MSB should relate to a crisis event like the forest fires. Another indication of a deeper change happened after 2018, when the system switched from stating that the CAB's were responsible for ordering fire extinguishing airplanes, and later being able to apply for financial compensation from MSB (MSB dnr 2015-1687-1), to MSB being the provider of flying resources, free of charge. One of the interviewees perceived this as a type of paradigm shift in how to address forest fires:

> *"MSB later had the opportunity to develop the flying resources, and develop helicopter capacity in particular, and provides it for free to the rescuing services. That has been a huge change. (...) The focus switched from previously being quite focused on doing the best possible and trying to extinguish forest fires on ground. And if they got big enough and helicopters must be obtained, we did so (...) but you often waited until the last minute. (...) But today most rescuing services and MSB have the perception that a forest*

fire shouldn't have to grow big, but we should extinguish it when it's small." (Interviewee 3)

Although this still relates to technical and material resources, it is a change in perception of what responsibilities MSB should have towards other actors, which is viewed as one step closer to double-loop learning. The analysis however concludes that the *initial intention* of MSB:s learning process after 2014 was almost exclusively based on single-loop learning, as demonstrated.

4.4 SOLVED AND UNSOLVED CONFLICTS

Lastly, previous research indicates that the post-crisis learning is often complicated by different and sometimes conflicting opinions around the problem definition, what should be learned and how it should be done. As expected, the selected documents did not provide any indicators of conflicting interests and opinions within MSB from the learning process. As previously argued, this is not perceived to indicate that no conflicting opinions had occurred.

Neither did all interviewees perceive any significant differences in opinions regarding the work they had participated in. For instance, no significant issues of conflicting opinions affecting the observer mission was remembered, and the gathered information from the crisis management was perceived to have been rather consistent as described by one interviewee:

> *"The overall picture I have is probably that it was quite consistent information we took part of. Both around how the fire was behaving and how the extinguishing work was done, and even a lot around the problems which occurred with the rescuing mission, both technically and with the rescuing management, and those parts."* (Interviewee 3)

This could as well relate to the previous discussion around the importance of observing missions, and to perform interviews during an ongoing crisis situation for a better situational picture and more consistent information material. When little time has passed since a decision was taken or something happened, the answers will probably be closer to the reality. If something is unclear or different perceptions are identified in the material or among the interviewees, the possibility to go back and clarify what really happened further increases.

However, some interviewees described occasions when incompatible opinions or misunderstandings had occurred. For instance, during the project with the governmental mission, different and sometimes incompatible opinions and perceptions arose within the project group. This was consciously addressed

by the leadership, and by debating the conflicted topics between the project group members whose opinions differed. This internal questioning was however perceived to be strengthening the durability of the final suggestions, since they had been internally criticized before they were finalized and presented:

> *"(...) then they got to debate with each other until they had found a solution or understood what the other did not understand. (...) it also made some suggestions last long, (...) since we had thought about that, we kneaded and tried to (...) falsify and trap our own suggestions. Rather than trying to praise and think we were invulnerable, we tried to find all defects ourselves"* (Interviewee 8)

Due to the importance of the project, as well as its prestige, it was possible to find time and space for this internal debating of some areas (Interviewee 8). A relevant question is thereby whether this would have been possible to do within a less prioritized or prestigious project with less time and resources. It further indicates that time and resources as well as a strong leadership and the determination to find a solution may affect a situation where conflicting opinions emerge, and turn a negative situation into positive results.

When the final report from the government mission was later presented, the chapter including the internal areas of improvement for MSB received varying responses from within the agency. It was perceived by one interviewee that some understood and supported the suggestions:

> *"I didn't perceive that any of the, then four, department managers thought there were any issues, they had more or less been standing behind this. (...) Because they knew how well prepared it was, how processed it was, that's my experience."* (Interviewee 8)

While there was a dissatisfaction among others:

> *"What I experienced to be difficult, was the step in between (...) my experience is that the unit managers were not satisfied at all."* (Interviewee 8)

It was yet perceived that none of the suggested areas of development were seen as problematic, although opinions around the details could differ (Interviewee 8). Another mentioned obstacle regarded the increased focus on and work to improve the documentation and information management during crisis situations. Although there has been an increased understanding and agreement that the area must be

developed further, and work is being done, there has not been any generally acknowledged perception of *how* it should be done or where the responsibility for different parts of the work should be placed:

> *"I also think that we don't have a common perspective on how this should be done; who should be responsible for things, who should be responsible for making sure that the job is done."* (Interviewee 6)

Regarding causes for conflicting opinions or different perceptions, one interviewee believed that the financial inability to implement every suggested idea may sometimes be perceived as resistance by the decision-makers, since some ideas must be dismissed due to a lack of resources. Although it may not relate to resistance at all, and many non-implemented ideas are perceived as good even if they cannot be prioritized at the time:

> *"I believe that we in parts of the organization have a lot of good ideas about what we need to do. (...) The department I work on (...) says 'it sounds great but we don't have money to do this', (...) and then it gets stuck there. It can probably be perceived a bit like (...) that we are resistant. But I have perceived it more like if you give us the resources, we can probably implement that as well. We also want to do a good job and have the right resources (...). It's easy to write that we should have this (...) and this needs to be developed. But when you are going to implement it, it requires staff resources and money if you must buy things or educate people."* (Interviewee 7)

One aspect of conflicting interests which affected the evaluation after the forest fires, in particular after 2018, was a perception by two interviewees that the evaluated department did not want to be evaluated in the first place:

> *"Another crucial aspect for how the work was done, and I would say the result as well, was that the department that was going to be evaluated did not want that. Especially in 2018, they clearly stated that they didn't want an evaluation of their function. (...) that was a bit problematic."* (Interviewee 1)

After 2018, this perceived unwillingness to participate in the investigation resulted in difficulties of getting access to data, which in turn complicated the evaluation process:

> *"It's about difficulties of getting access to data, especially. If those who have data don't want us to get it, or if they don't understand the purpose with it and don't see the value in cooperating".* (Interviewee 2)

This relates to the obstacle of insufficient documentation, and suggests that the obstacle may not only involve cases where documentation is missing, but also where documentation exist but cannot be identified or accessed by those working with the learning process. Further, when the evaluation of the crisis management had been finalized, different perceptions around the results emerged:

> *"And then that department (...) didn't want to acknowledge what we wrote, they thought we were completely wrong."* (Interviewee 2)

Another interviewee, however, described how their department had wished that the evaluation would have been delimited to areas that had not already been investigated, and perceived that they were not given the opportunity to comment on things they disagreed with:

> *"We tried to (...) maybe get them to limit more to what we felt were not included in the other ongoing [evaluations]... but did not reach them. (...) what was concluded there, it was mostly already addressed, due to that we instantly, related to the government mission, started developing our internal way of working (...). Because we had (...) this Erfa work as well."* (Interviewee 7)

During the improvement work after 2018 there was, however, also an understanding of a united MSB with a general agreement around the problems and what had to be done, which resulted in a fast and efficient development until 2019:

> *"After the fires we started this, according to the government mission, a project with our department and the other departments. (...) And there we agreed about what the problems were, as I perceived it. And then we received money as mentioned, and there you could say that at record speed… until next summer 2019, we had done a lot. Then we had helicopters, vi had developed our reinforcement resources, developed the cooperation with the County Administrative Boards and the municipal rescue service around the focus and coordination of resources, and a lot of those things. So, I think that it was because we were quite on the same page about what we had to do until 2019. (...) Since we received money as well of course, it makes it easier, then we could drive this and employ people, and expedite this work. But I also think*

> *that MSB was completely united behind what we had to do, so I cannot remember that we disagreed about something, or so."* (Interviewee 7)

This was however perceived by other interviewees as wrong focus, and several identified issues were understood as being left out. One interviewee perceived that most implemented measures were visible ones resulting in media attention:

> *"... [you] focused on fixing things that were visible… media attention (...) But there were a lot of other things (...), which hasn't been implemented at all."* (Interviewee 2)

While another interviewee perceived that the issues regarding the special organization had been left out:

> *"...what I think one isn't doing much about is the internal crisis management organisation, the special organization. And that the recommendations and development areas which have been identified there aren't implemented."* (Interviewee 1)

Lastly, one interviewee described that much work is being done to implement lessons from previous experiences, although the documentation of what has been done should be improved, in particular regarding the so called "Erfa" work which is a learning process to implement experiences and lessons in the everyday work:

> *"There, I really think we need to become better at documenting as well, specifically around Erfa. What we have seen and what we have done, and when we are finished."* (Interviewee 7)

Since several interviewees mentioned the various and sometimes complicated systems for work documentation, as well as the difficulties of knowing the details of other departments work processes, one issue could be that some less visible tasks and measures are difficult to find for those who are not directly working with them. This could in turn lead to misunderstandings around what is actually being done, and whether lessons are implemented or not.

The analysis thereby concludes that the written material did not provide indicators of conflicting opinions, although the indicators which emerged in some interviews did in many cases affect parts of the learning process.

4.5 FURTHER OBSTACLES

In this section, indications of obstacles which were not initially searched for, yet emerged in the interviews are briefly presented.

It further became clear that many efforts to develop the learning process had been initiated and run by engaged staff members in various departments. For instance, discussions around how to make the learning process more systematic has been initiated between some departments:

> *"We have in some way initiated that dialogue with each other, from both ways you could say. (...) It's rather we ourselves who have been running it"* (Interviewee 4)

Several interviewees, however, described how parts of the learning process were highly dependent on these committed employees. One interviewee described how the cooperation between departments around a certain area in the process halted when the interviewee's partner left the agency:

> *"During some periods, the work has been ongoing. Then it turned out that it was very dependent on individuals. When my partner (...) left the agency, suddenly nothing happened (...). We have tried to work with these questions continuously, but we (...) cannot run the work alone. We must be joined by the ones this concerns as well."* (Interviewee 5)

The institutional memory was thereby mentioned as something which to some part did not exist, for instance regarding how the project group worked with the governmental mission:

> *"And then the team dissolved and many of us have other jobs today, which means that we are not still at MSB. So, this institutional memory and that… around 'what' and 'why' does not exist anymore."* (Interviewee 8)

It was further perceived by some interviewees that the way of learning could differ between departments:

> *"I think we still have a lot to do there, actually, if we speak generally among the units. And there I think we work very differently on the units as well. If you look at how we identify things that are not working so well, to be able to learn how we should do next time."* (Interviewee 4)

Lastly, an aspect brought up by one of the interviewees was the question of resources, which was mentioned briefly in section 4.4:

> *"After 2014 when I started, it was in the phase where we should implement these decisions. And then it became a question of resources, as I remember it. A focus and decision to develop reinforcement resources for rescue managers existed (...) but there were no resources for that. So, it got stuck there (...) So I remember that there was a constant discussion of how we should get financial resources for that, which we actually didn't find a solution for until… after 2018 we received a bunch of money, and then it was also easier to do."* (Interviewee 7)

4.6 SUGGESTIONS FOR IMPROVEMENT

In this section, suggestions for improvements are presented, based on the previous research.

As argued by Boin et al. (2016) and Deverell (2010; 2012), crisis-induced learning and the improvement of crisis preparedness must not rely on one or a few previous crisis experiences or historical analogies. Learning should preferably be based on a broad set of experiences and knowledge from various events and organizations. The 2014 forest fire was investigated by numerous actors, and the measures suggested through the government mission were based on these findings together with other types of material and research. The purpose of the mission was to improve the crisis preparedness in general. The project group further continuously analyzed the suggestions on other events such as the ongoing refugee situation. The learning process was thereby not fixed on the single event of a forest fire. Yet, reports and evaluations from the specific event constituted the main basis for the proposals. Following existing research, the basis for learning should rather consist of numerous experiences and knowledge not only from different actors but also from various events. To enable this, a data bank should preferably be used where the experiences can be gathered, categorized and analyzed, so that patterns can be identified.

Further, as pointed out by Deverell (2010), an openness to learn from external actors in different fields, such as media organizations, can improve learning. High Reliability Organizations (HRO:s) often demonstrate efficient organizational learning, and thereby tend to avoid or moderate crisis situations. It is thereby suggested to increase the openness towards searching for inspiration from outside the own organization. If other organizations already have created solutions to similar issues, utilizing that knowledge, if possible, may facilitate the process. This further relates back to Parker and Sundelius (2020) emphasis on the importance of not only spreading the experiences within the organization but also between organizations.

One successful tool many HRO:s have implemented is an internal system for incident reports, where employees can, preferably anonymously, report defects or issues within the organization which could contribute to, or worsen, a crisis situation. The anonymity would arguably increase the possibility to identify risks which may not have been expressed otherwise. This type of system may further increase the motivation among employees to strive for constant improvement, since it creates a sense of contribution. It would of course require resources to make it work efficiently, yet, there is no doubt that a crisis can be way more costly. It is thereby important to remember that investments in crisis preparedness and learning will likely be cheaper in the long run.

Further, based on Parker and Sundelius (2020) example of using training and simulation exercises both to produce new insights and to test new systems or performances, this could be improved within MSB by creating a systematic process connecting experiences and new knowledge with the educational functions. This was brought up in one of the interviews as an identified area where improvements are being discussed and initiated.

Another aspect is the results showing that the learning process mostly consisted of Argyris and Schön's (1978) category of single-loop learning, which is common among various organizations. The previously mentioned suggestion to implement a data bank where experiences and new knowledge can continuously be registered and analyzed could however be a first step to make a double-loop learning approach more feasible. When a broad collection of different experiences from various events is analyzed, possible defects in the organizational system are more likely to be identified, which could be followed by more profound adjustments. This further requires the flexibility and adaptability Deverell (2012) describes.

5. CONCLUSION

5.1 DISCUSSION OF RESULTS AND HYPOTHESES

First, the lack of sufficient documentation from the crisis management in 2014 was evident in some reports from the crisis event, and some significant consequences were brought up. It was further confirmed by several interviewees that insufficient documentation in many cases resulted in information gaps. Only during the observer mission, the lacking documentation could be solved by interviews. The possibility to carry out interviews during the ongoing crisis became a success factor, since later projects who did not have the same possibility were negatively affected. Despite the increased focus on the issue, it seemed to remain also in 2018. Some interviewees referred to documentation failures as a common thread, which is in line with previous research. The hypothesis was thereby confirmed by the analyzed data. The results, however, suggest that this learning obstacle may not solely occur when crisis managers failed in their crisis documentation, but also when sufficient documentation exist although it is either not shared with those who need it or lacks traceability. It is thereby important to divide between the different scenarios, to identify where the actual problem is. This is further crucial for the improvement of the learning process.

Second, the text material was almost exclusively based on single-loop learning, as expected by existing research. This could have depended on the difficulties in finding indicators of double-loop learning in documentation. However, most informants confirmed the focus on single-loop learning. This hypothesis is thereby also confirmed by the analyzed data. The question around which approach is followed could in this case be related to different levels. The recommendations for internal improvements were largely based on existing recommendations from involved external actors. However, the mission Ju2015/1400/SSK was decided on a governmental level. Although much of the learning process seemed driven by individuals, this aspect seemed especially difficult for individuals to affect. The relation between interconnected actors and the levels of authority are thereby interesting aspects for future research around these learning categories, to further explore how they emerge and relate to each other.

None of the analyzed documents indicated any conflicting opinions, yet, some interviewees described the emergence of incompatible interests. While most issues remained unsolved and negatively affected the process, some had been successfully addressed, solved and were even perceived as strengthening the outcome. This demonstrates how the management of conflicts may affect the impact on the learning process, and suggests that conflicting opinions do not automatically prevent learning. The hypothesis was thereby not confirmed by the analyzed data, and require further investigation and development. The findings suggest, although vaguely, that the interference by strong leadership can positively affect

the issue, since it emerged in the case where the conflict could be solved but not in the cases where it remained unsolved.

Additional emerging obstacles were that parts of the learning process were highly dependent on individuals, that an institutional memory was insufficient, and that some departments were seen as reluctant to self-criticism and learning. This was however perceived differently by the interviewees, which relates back to the aspect of incompatible opinions. One additional issue was the aspect of financial resources, which clearly affected the efficiency of the lesson implementation after 2018 as compared to after 2014. This can as well be related to the governmental level.

Based on previous literature, this study suggested improvements for effective crisis-induced learning within MSB. A data bank could be established, where various experiences can be registered, categorized and analyzed, which could in turn facilitate a focus on double-loop learning. An increased openness towards learning from external organizations such as HRO:s and media organizations could provide valuable insights on how to make the learning process more systematic and efficient. A successful learning tool to implement is the internal incident report system. Lastly, the value of simulations and scenario practices can be improved by directly connecting them to experiences as well as new systems. They can thereby both provide new insights and assess the applicability of new practices and systems.

5.2 LIMITATIONS

These findings must be considered in relation to the limitations of this study. Due to the chosen research design, this study should not be perceived as an attempt to provide generalizable results. The findings have rather increased the in-depth understanding of the case, as well as identified interesting insights regarding the hypotheses. The low traceability of the documentation from the later part of the learning process complicated the identification of and access to relevant material. Thereby, some relevant data may have been excluded. However, it is still perceived that enough material was analyzed to explore the hypotheses. The lack of traceability can further be perceived as a significant learning obstacle in itself, since it clearly affects those working with the learning process. Further, the interviewees provided both similar and varying accounts of the different parts of the process. This confirms that the selection did not only include interviewees with similar perceptions. However, due to the extent and complexity of the case, a higher number of informants will be needed to cover all aspects of the process.

5.3 FUTURE RESEARCH

As mentioned, the research area of crisis-induced learning within public organizations is young and more empirical research is needed to develop more precise theories. This study has provided more in-

depth knowledge about this case, and provided some interesting insights about the hypotheses which future research can continue to explore. Further studies must as well focus on large-n and comparative studies. The understanding of the various theoretical assumptions and hypotheses around obstacles to crisis-induced learning, how they vary among organizations and contexts, and how they relate to each other must increase. Another, even less researched area requiring more focus is what facilitates crisis-induced learning.

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Interviews

Interviewee 1. 2020.11.16. 60 minutes

Interviewee 2. 2020.11.16. 60 minutes

Interviewee 3. 2020.11.19. 60 minutes

Interviewee 4. 2020.11.23. 50 minutes

Interviewee 5. 2020.11.26. 50 minutes

Interviewee 6. 2020.11.26. 50 minutes

Interviewee 7. 2020.12.02. 45 minutes

Interviewee 8. 2020.12.01. 85 minutes

7. APPENDIX 1 – Example of Interview Sheet

Interviewee: Name, workplace and position
Date and time: xx-xx-xx, xx.xx

1) The interviewees involvement in the learning process
a) When did you start working at MSB?
b) What role did you have between 2014 and 2018 (alternatively after 2018)?
c) In what way were you involved with the post-crisis work/the learning process after the forest fire/forest fires?

2) Documentation
a) Did MSB have any routines in 2014 on how to manage documentation during a crisis situation?
b) Do you perceive that the documentation from the crisis management during the forest fire in 2014 was sufficient? (alternatively from the forest fire in 2018)

No

c) Did that affect your work, or someone else's work in any way?
d) What do you think was the reason for that?
e) How do you think the crisis documentation could be improved?

3) Single- and double-loop learning
a) What basis for evaluation is used for this type of crisis evaluations?
b) Would it have been possible to question it / MSB:s role during a crisis?
c) Would it have been possible to compare with/suggest any alternatives?
d) Who decides what will be used as a basis for evaluation?

4) Conflicting opinions
a) Did you experience any occasion where different or conflicting perceptions, interests or opinions occurred within MSB?

Yes

b) How did that affect your work, or other's work?
c) Did you manage to solve it?
d) Were there any statements, decisions, or other parts of the process which you didn't agree with?

5) Is there anything else you want to add, or that you think is relevant to discuss regarding the learning process?