JYU DISSERTATIONS 364

Heidi Wirilander

The Preservation of Cultural Heritage from Emergency Planning through to Heritage Recovery Processes

UNIVERSITY OF JYVÄSKYLÄ
FACULTY OF HUMANITIES AND
SOCIAL SCIENCES

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Cover picture: Kaivoksela Church after an arson attack in 2006
(Central Uusimaa Fire and Rescue Services)

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ABSTRACT

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This study deals with the protection, disaster response, and heritage recovery of immovable and movable cultural heritage in accident and disaster situations. The study examines 19 incidents that required the protection, rescue, and aftercare of cultural heritage. The research provides basic information on how and with what type of mechanisms cultural heritage deteriorates in disaster and post-disaster situations. The methods chosen in the disaster response and heritage recovery work can either prevent or increase heritage damage. Existing operational models and available material and personnel resources enable the carrying out of successful heritage recovery work that minimizes the damage to cultural heritage.

The researched incidents occurred in Finland between 1990 and 2010. The research data consists of four independent information sources: 1) themed interviews with the disaster sites' owners (18 interviews, 19 cases), 2) themed interviews with subject matter specialists (nine interviews), 3) Finnish crime statistics between 1990 and 2010, and 4) six disaster case trial conviction documents. Qualitative content analysis was used with the help of Atlas.ti 6.1 software to analyze the research data.

The study shows that cultural values as a background factor had an impact on the funding of heritage recovery. This influenced the success rate of disaster response and heritage recovery processes. A lack of emergency planning and economic resources caused ineffectiveness in both disaster response and heritage recovery work. This sometimes leads to significant secondary heritage damage, especially in the case of water damage. Based on the research data, the deliberate destruction of heritage through vandalism or arson poses a significant threat to Finnish cultural heritage. This should be considered in cultural heritage site emergency planning.

Keywords: cultural heritage, cultural property, heritage studies, risk management, disaster management, heritage recovery, preservation, preventive conservation

TIIVISTELMÄ (ABSTRACT IN FINNISH)

Wirilander, Heidi
Kulttuuriperinnön säilyttäminen – onnettomuuksien ennaltaehkäisemisestä jälkihoitotöihin
Jyväskylä: Jyväskylän yliopisto, 2021, 264 s.
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Väitöstutkimuksen aiheena on kiinteän ja irtaimen kulttuuriperinnön suojelu onnettomuuksien pelastus- ja jälkihoitotöiden aikana. Tutkimus tarkastelee 19 tapausta, joissa kulttuuriperinnön suojelu-, pelastus- ja jälkihoitotyöt ovat olleet tarpeellisia. Tutkimus antaa perustietoa siitä, miten kulttuuriperintö vaurioituu onnettomuustilanteissa ja onnettomuuksien jälkeen. Menetelmät, joita valitaan pelastus- ja jälkihoitotöihin voivat joko estää tai edesauttaa kulttuuriperinnön vaurioitumista. Etukäteen suunnitellut toimintamallit sekä käytettävissä olevat materiaali- ja henkilöstöresurssit loivat edellytykset kulttuuriperinnön jälkihoitotyössä onnistumiseen, jolloin esineistön ja rakennusten vauriot saatiin pysymään vähäisinä.

Tutkitut onnettomuudet ja tuhotyöt ovat sattuneet Suomessa vuosien 1990 ja 2010 välisenä aikana. Käytetty tutkimusaineisto muodostuu neljästä tietolähteestä: 1) onnettomuuskohteiden omistajien teemahaastatteluista (18 haastattelua, 19 tapausta), 2) asiantuntijoiden teemahaastatteluista (9 haastattelua), 3) Suomen rikostilastoista vuosilta 1990–2010 ja 4) kuuden onnettomuuden oikeuskäsittelyjen tuomioasiakirjoista. Tutkimusaineiston analysoinnissa käytettiin laadullista sisällön analyysiä ja Atlas.ti 6.1 -tietokoneohjelmistoa.

Kulttuuriset arvot vaikuttivat onnettomuuksien pelastus- ja jälkihoitotyön taloudelliseen resurssointiin. Kulttuuriperintökohteiden pelastussuunnitelmien sekä taloudellisten resurssien puuttuminen onnettomuustilanteessa aiheuttivat tehottomuutta pelastus- ja jälkihoitotöissä. Tämä saattoi johtaa etenkin vesivahinkotapauksissa merkittäviin toissijaisiin vaurioihin. Tutkimusaineiston pohjalta voi päätellä, että tietoinen tuhoaminen joko ilkivaltaisesti tai tuhopolttamalla muodostaa merkittävän uhan suomalaiselle kulttuuriperinnölle. Tämä tulisi ottaa huomioon kulttuurihistoriallisesti merkittävien kohteiden pelastussuunnittelussa.

Avainsanat: kulttuuriperintö, kulttuuriperinnön tutkimus, riskien hallinta, onnettomuuksien hallinta, kulttuuriperinnön jälkihoito, säilyttäminen, ennaltaehkäisevä konservointi

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FOREWORD

My interest in the effect disasters have on cultural heritage sites and collections awoke while I was working on my MA thesis in conservation at the EVTEK University for Applied Sciences.[1] In 2008, it was not yet possible to study conservation at doctoral level in Finland.

In the late 2000s, many conservators began conservation-related studies at the University of Jyväskylä. I also applied and was accepted to the master's program in museology. My master's thesis *Kulttuuriperintökokoelmien suojelu, evakuointi ja jälkihoito onnettomuustilanteissa* (Protection, evacuation and aftercare of cultural heritage collections in emergency situations) in museology at the University of Jyväskylä surveyed the effectiveness of emergency plans of cultural heritage collections from the point of view of the protection, evacuation, and aftercare processes established by different collections.[2] The topic for the thesis originated from discussions with Curator Karim Peltonen, and was conducted during the autumn of 2008. At the time, Peltonen worked for the Department of Monuments and Sites at the Finnish Heritage Agency. I completed my master's thesis in museology in the spring of 2010.

In the autumn of 2010, I started working on a doctoral dissertation in museology on the preservation of cultural heritage during disaster response and heritage recovery processes. In 2014, I changed the discipline of my PhD research from museology to art history. The supervisors of my doctoral research have been Professor of Museology Janne Vilkuna (2010–2012), Professor of Art Education Pauline von Bonsdorff (2010–), Adjunct Professor of Museology Susanna Pettersson (2013–2014), and Professor of Art History Annika Waenerberg (2014–).

I want to thank all my supervisors for their input. The feedback and comments from my supervisors on dissertation manuscripts as well as presentations have had a significant influence on my work. My PhD research could not have succeeded without their help. I am grateful to Susanna Pettersson, who also read and commented on my dissertation manuscript later on. I also want to thank Licentiate of Philosophy Aki Niemi for providing the figures of my statistical research data. Without Aki's help, it would have been difficult to complete my analysis of the statistical data. I am grateful for journalist and photographer Pentti Halenius who gave comments on my dissertation manuscript, provided one picture for my use, and made the maps of my disaster site regions. I would like to thank my dissertation's reviewers, Director general Elina Anttila, Professor Robert Waller and Associate Professor Suzie Thomas for their valuable feedback and comments. My work has significantly improved because of their detailed feedback. A special thank you to Suzie Thomas for suggesting the use of crime script analyses in my approach to heritage disaster cases.

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[1] Later known as Metropolia University for Applied Sciences.
[2] Wirilander 2010, 1–148.

I would like to thank the Finnish Cultural Foundation, the Jenny and Antti Wihuri Foundation, the University of Jyväskylä, the Fire Protection Fund, the Finnish Evangelical-Lutheran Church's research center, the Oskar Öflund Foundation, the Norwegian Finnish Cultural Foundation and the Alfred Kordelin Foundation for financial support and funding of my PhD research project. I would like to thank all the organizations and individuals who I had the opportunity to interview during my research.

During the research process, the comments and feedback received from several scholars at various seminars and conferences have influenced my research. I want to thank them all. Also, all the people with whom I have discussed my research topic over the years deserve a mention and my lasting gratitude. The student exchange period at the University of Uppsala Department of Archives, Libraries and Museums (ALM) in 2013 and the research exchange at the University of Oslo Department of Archeology, Conservation, and History in 2014 had a particularly massive influence on the development of my research. The courses taught by the senior lecturer PhD Inga-Lill Aronsson at the Department of ALM at the University of Uppsala have been especially important for my research project. Thank you! I am also grateful to the Central Uusimaa Fire and Rescue Services, Turku Museum Center and Helsinki Orthodox Parish for providing pictures about my disaster cases for my dissertation.

I dedicate this research to my parents Riitta and Juhani Wirilander, who have had a significant role in inspiring and encouraging me all my life. Their influence is visible in my research. I also want to thank my friends for being interested in my work as well as my well-being. Thank you for the inspiring and encouraging discussions. My spouse and my little son have kept me grounded. Thank you for all the happy moments that have reminded me of what the most important things in life are.

Helsinki, March 3, 2021, Heidi Wirilander

FIGURES

TABLES

CONTENTS

1 INTRODUCTION

"Scientists search for truth and conservators seek for solutions."[3] This observation by Salvador Muñoz Viñas (2011) about the different orientations of scientists and conservators is present in my dissertation, which seeks to combine both positions. I search for truth as facts and for solutions in the context of long-term preservation of cultural heritage in both disaster and post-disaster contexts.

My doctoral dissertation analyzes heritage disasters through 19 cases that took place in Finland between 1990 and 2010. These 20 years represent an era of strong economic, social, and cultural change influenced by global political changes. Over these years, Finland has witnessed a substantial cultural change caused by increasing internationalization and globalization. Finnish society has also been struck by two major economic recessions that affected individuals as well as communities. During this time, both accident-based disasters and deliberate works of destruction have posed a serious threat to Finnish cultural heritage.

The purpose of my research is to provide solutions to practical preservation problems that affect cultural heritage and are related to its long-term preservation, especially in terms of heritage disasters and accidents. My dissertation is the first study conducted in Finland that analyzes heritage disasters, responses to heritage disasters, and heritage recovery from the viewpoint of preservation and damage prevention.

In this dissertation, I try to broaden the perspectives of preventive conservation and the prevention of deliberate heritage destruction. Heritage studies is part of the field of humanities and the discipline of art history is closely connected to the examination of cultural heritage. Heritage studies approaches multidisciplinary traces of the past that certain groups of people have regarded as inheritance from the past. The humanities research tradition often analyzes the cultural, ideological, and political backgrounds of their research topics. In my research, I will also try to describe the contexts of heritage disasters and understand why these disasters have certain results from the perspective of

[3] Muñoz Viñas 2011, 124.

heritage deterioration and preservation. The topic requires a multidisciplinary approach. My research is situated within the traditions of both heritage studies in the humanities and heritage preservation in the physical sciences.

My dissertation is about the long-term preservation of heritage sites and objects in disaster situations in the field of technical art history. Technical art history is connected to the establishment of new scientific conservation as well as the aims from the 1920s and 1930s of using technology, such as X-ray, in analyses of artworks and heritage objects. As a field of study, technical art history relates to the development of art forensics research in the United States in the 1920s and 1930s.[4]

In Finland, previous conservation-related research has been conducted in doctoral dissertations of art history, museology, and adult education. Previous conservation-related doctoral dissertations in Finland have discussed the development of the Finnish conservation profession (Tuula Auer 2000, adult education), the process of conservation and preservation of paper as material (Istvan Kecskemeti 2008, museology), heritage functions of cultural heritage materials and material research (Ulla Knuutinen 2009, museology), the questions regarding the disposal of an art collection (Nina Robbins 2016, museology), and the questions of the philosophy of materiality and preservation of cultural heritage objects (Ari Tanhuanpää 2017, art history). In Finland, conservation-related doctoral research is currently conducted in the fields of art history, museology, archeology, and contemporary art.

During the writing of my monograph dissertation I have published individual articles on the central areas of my research. Articles were written in order to receive feedback during the research process. It was important to me to receive peer-reviewed statements on my theoretical approaches while I further developed my dissertation manuscript.

My article that analyzed the use of art education theory in analyses of cultural heritage process was published in 2012 in *The congress proceedings of the 11th InSEA European congress.*[5] This article was used in writing chapter 2. My article concerning preventive conservation theory was published in *e-conservation magazine* in 2012.[6] This article I utilized in the writing of chapter 3. I have previously discussed water damage and the case of the Valvilla Wool Mill Museum archives fire in my article that was published in 2013 in the *e-conservation Journal.*[7] Some parts of the article have been used in the writing of chapter 5. Especially the chapter *The Valvilla Wool Mill Museum archives fire* in my dissertation is based centrally on this article.

In 2014 I published an article in Finnish in *Synteesi* magazine about cultural heritage vandalism. In this article I analyzed the deliberate destruction of cultural heritage through the case of Vartiokylä Fort Hill vandalism incidents.[8] This

[4] Ainsworth 2005, From Connoisseurship to Technical Art History: The Evolution of the Interdisciplinary Study of Art.
[5] Wirilander 2012b, 297–306.
[6] Wirilander 2012a, 164–176.
[7] Wirilander 2013, 115–129.
[8] Wirilander 2014, 47–55.

article has been used in the writing of chapter 6. The chapter *Vandalism of Vartiokylä Hill Fort archeological site* in my dissertation in particular is based on this article. In 2017 my book chapter about Finnish church arson attacks and attempts between 1990 and 2010 was published in the *Sacred Monuments and Practices in the Baltic Sea Region – New Visits to Old Churches* publication.[9] This text I have utilized in the writing of chapter 7.

The research is based on the collected research data that was collected in Finland by a native Finnish researcher. Both factors represent a central cultural context of the research. The data is analyzed through research questions and the used source literature by the researcher. The researcher has MA degrees in conservation and in museology. This influences the values through which the data is analyzed and research results are made.

1.1 Main objectives of the research

Accidents and disasters of various kind have always threatened the long-term preservation of cultural heritage. Currently, preventive conservation has been regarded as one of the most important heritage management measures of many heritage owner organizations. Robert Waller is one of the first scientists to have connected preventive conservation closely to risk management work.[10]

Although technical security systems, devices, and security services have improved the safety of cultural heritage and its long-term maintenance, technology sometimes fails to prevent deliberate action from putting cultural heritage at risk of being destroyed. A good example are security cameras. Although in some cases they have helped to solve crimes, they have not prevented crimes from happening. Sometimes security cameras may trigger deliberate destructive action.[11] Technical security systems have limits, and I will examine the effects that education and the changing interpretations of cultural heritage could have on the prevention of its deliberate destruction.

The purpose of my study is to research and provide solutions to practical preservation problems that affect cultural heritage and are related to its long-term preservation in association with heritage disasters and accidents. The main objective is to clarify what kinds of methods can be used to prevent accidents and disasters that cultural heritage faces. Secondly, if this fails and disaster occurs, the question of how damage to cultural heritage can be prevented in disaster and post-disaster phases is addressed. I try to achieve these research objectives through the analysis of 19 disaster cases that have taken place in Finland between 1990 and 2010.

I have connected my research to a tradition that conceives of the question-reply argumentation in terms of dialogue.[12] My research questions do not

[9] Wirilander 2017 208–227.
[10] Waller 1994; Waller 1995; Waller 1999; Waller 2002.
[11] Koskela & Nurminen 2010, 65.
[12] Walton 1989, 3.

represent the black-and-white questions that come with a set of alternative answers. I approach the research questions by applying the idea of knowledge production, which instead of direct answers provides some answers and information to the research questions. My research questions are:

1. What types of direct and indirect threats does cultural heritage face in Finland?
2. How can past severe instances of damage to cultural property in Finland inform how cultural heritage sites, monuments, and collections should be risk-evaluated and protected?

1.2 An overview of the theoretical framework

The central fields of study in my research are cultural heritage and preservation. The previous research that relates to my study deals with heritage studies, preservation, disaster management, and preventive conservation.

In my research, I approach conservation and the role of the conservator from a perspective similar to the one that, according to Salvador Muñoz Viñas, was established in France in the 1830s and in the German-speaking countries in the 1840s. In this approach, the conservator's role is to promote the preservation of cultural heritage, broaden the overall awareness of the value of cultural heritage, and provide principles for the preservation of cultural heritage.[13]

My research approaches the idea of preservation from the perspective of monumental preservation, introduced by Michèle Cloonan. Cloonan's idea of monumental preservation covers both the movable and immovable cultural heritage of human communities and promotes the "survival of human record."[14]

I will analyze both the historical and ideological development of the concept of cultural heritage, because these dimensions influence the conflicts related to cultural heritage. These analyses are more thoroughly conducted in chapter 2. I agree with Brian Graham and Peter Howard (2008), who claim that the past, the heritage, and the identity of a society are better understood as plural, since heritage has many users and producers. In Graham and Howard's approach to cultural heritage, the public and the private, the official and the unofficial, as well as insiders and outsiders all have a part in the creation and management of cultural heritage.[15]

I also want us to think of a more pluralistic way to define a society's past, a way that better suits the current era and does not exclude any perspectives of the past. Cultural heritage may become a dangerous manifestation of the past if it operates in unequal ways towards people, communities, and societies. Heritage becomes a manifestation of power if it only represents the people in power and a hegemonic vision of the nation's past. Defining cultural heritage gets

[13] Jokilehto 1999, 125.
[14] Cloonan 2007a, 747.
[15] Graham & Howard 2008, 1.

problematic when the heritage interacts with the difficult history and social taboos of a culturally diverse society. How can an authentic past and a genuine history be presented through cultural heritage when what it comprises are only fragments of the past?

Aesthetics have their influence on the cultural values of human communities. These values and evaluations have an impact on the value statements that cultural heritage delivers to wider society. Heritage values are also present in the response to and recovery work of heritage disasters. Therefore, these aspects are described through literature sources in chapter 2. I have used the environmental aesthetics of Pauline von Bonsdorff when creating my own approach in analysis of deliberate destruction of cultural heritage. By using von Bonsdorff's approach[16] it was easier to observe the characteristics of the environments that were deliberately destroyed in the disaster cases of my study. I have used criminological research on vandalism and arson to analyze my research data.

Michel Foucault has been used in contemporary heritage studies and is responsible for the interest in utilizing New Historicism in critical heritage studies. The key concept introduced by Foucault (1982) is *anti-authority struggle*.[17] I have used the concept in those case studies that discuss the deliberate destruction of cultural heritage.

I use preventive conservation and risk management theories to evaluate the efficiency of emergency planning, disaster response, and heritage recovery work of my disaster cases. The viewpoint is that of damage prevention and damage migration. Therefore, the history and the central concepts of preservation are described in more depth in chapter 3 of my dissertation. The central preservation research I have used to build up my theoretical framework concerns the areas of risk assessment and preventive conservation. Preventive conservation research includes the areas of risk management and disaster management as well as the topics of disaster response and heritage recovery. The principal preservation theorists referenced in my research are Jukka Jokilehto, in restoration philosophy and history, and Salvador Muñoz Vinãs, in modern and contemporary conservation theory. Muñoz Vinãs has discussed the theoretical changes in conservation theory in the 1990s and 2000s. In the area of risk assessment and preventive conservation, the theorists most important to my research are Robert Waller, Jonathan Ashley-Smith, and Stefan Michalski.

Previous studies on heritage disaster management have focused on natural disasters and fires. These studies concentrate on the disaster response and heritage recovery work of library collections, collections of natural history, historic buildings, and museum collections. In my research the topic is approached from the perspective of monumental preservation. Because my research is problem-orientated and multidisciplinary, several sources of different fields of research are used as reference literature in order to gain information on the different dimensions of the disaster cases.

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[16] von Bonsdorff 1998b,177.
[17] Foucault 1982, 780–781.

1.2.1 Key concepts

The central terminology of my research originates from the theories of heritage studies, preservation, preventive conservation, and disaster management. The definition of *preservation* has varied throughout the history of conservation and restoration. The development of heritage *conservation* has been connected to the concept of European classical antiquity, which helped create the idea of cultural heritage as well as the practices of its restoration.[18] In the early days of conservation and *restoration*, the ideals of preservation were strongly connected with the philosophical ideas of cultural heritage.[19] In the era of modern conservation there have been different ideas of preservation. Before the 1950s, preservation also referred to collecting cultural heritage. Collections of material objects were considered to preserve cultural heritage. The physical maintenance of heritage objects was initially defined as restoration, and the professional restorers were often artists or craftsmen. Later, the scientific approach to the preservation of cultural heritage placed physical preservation in the category of *heritage conservation*.[20]

Currently preservation represents an umbrella term for heritage management while conservation refers to treatments taken on individual objects or collections in the maintenance of cultural heritage.[21] Conservation treatments preserve and protect cultural heritage.[22] Heritage conservation refers to keeping and preserving cultural resources.[23] It uses the means of remedial and preventive conservation to preserve cultural heritage. Sometimes restoration treatments may be part of the remedial conservation of heritage objects.

I have used the term *disaster* to describe a variety of events that have threatened or deteriorated cultural heritage. These events have required emergency response actions. Although the terms *cultural heritage* and *cultural property* are often used to refer to slightly different things, I use both to refer to a society's selected and defined cultural representatives of the past and "collective memory." The decision is based on editorial needs regarding the dissertation, not on a need to connect the research into a certain tradition of heritage rhetoric. The terms "cultural property" and "cultural heritage" reveal two central features of cultural heritage, which highlight property that is significant to a society as a representative manifestation of its culture. Such heritage is handed to the public as an inheritance from the past with the assumption that it will be cared for and cherished by the public.[24]

The history of the term "cultural heritage" is connected to the 18th century and the establishment of memory institutions. The term has been linked to the preservationist approach in heritage studies, and it has been criticized for its

[18] Vinson 2009, 91.
[19] Muñoz Viñas 2011, 66.
[20] Cloonan 2007b, 134.
[21] Cloonan 2018, 167.
[22] Merritt & Reilly 2010, 11.
[23] Petzet 2004, 9.
[24] Mezey 2007, 2013.

tendency to simplify the relationship between a culture or a social group and its past. The history heritage mediates is often repatriated so that the past becomes the inheritance and property of a certain social group. Although cultures may include multiple groups of people, it does not mean that the culture is shared equally among them. Although cultural heritage may provide an important source of identity for local communities, cultural belonging may also turn into a socially harmful element if it excludes social groups whose existence is not recognized as part of the significant cultural property of a nation state.[25]

The history of the term "cultural property" is connected to the aftermath of the Second World War and the 1954 Hague Convention on the Protection of Cultural Property in the Event of Armed Conflicts. This convention was developed after the Second World War to prevent the strategic and intentional use of cultural property in military action during times of war. The Hague Convention defines cultural property as movable and immovable property that is important to all people. This convention expands the spiritual ownership of cultural heritage by defining it as property that belongs to all humanity.[26]

The new scientific theory of conservation refers to a scientific approach in the field of conservation that uses the methodology, means, and equipment traditionally associated with the physical sciences in the preservation of cultural heritage. In my research, the use of the term *scientific conservation* points to a certain tradition of conservation theory according to which the methods stemming from the humanities are kept separate from the methods of scientific conservation theory. I use the term *preventive conservation* to refer to all methods that work towards the preservation of heritage by preventing it from getting deteriorated and damaged. Preventive conservation uses indirect means to improve the preservation process of cultural heritage.

Emergency planning is part of the risk management and risk assessment of cultural heritage. An emergency plan consists of an organizational part where the alarm and the intervention processes, functions and scope are described, and an operational part in which the technical systems and equipment are described.[27] In my research, *risk assessment* means the identification, evaluation, and estimation of the risks involved in the preservation of cultural heritage. *Risk management* refers to measures based on a risk assessment evaluation. Risk management work is connected to the concrete actions of disaster response and heritage recovery during disasters and accidents. *Disaster management* and *emergency planning* are used to define the preventive actions of heritage owners that seek to ensure the survival and long-term preservation of cultural heritage in disaster and post-disaster situations. *Disaster response* defines the actions and methods used in rescue work immediately after a disaster. The objective of disaster response is the immediate rescue of cultural heritage from the deteriorative effects of the disaster situation. *Heritage recovery* is used to describe the working methods used in the first aid that follows the disaster response

[25] Mezey 2007, 2012–2013.
[26] Mezey 2007, 2009–2010.
[27] Oliver 1995, 50.

process. The objective of heritage recovery is to stabilize heritage's condition and to minimize or prevent secondary damage that may occur after, or sometimes because of, the disaster response.

The use of the term *vandalism* in relation to the deliberate modification of cultural heritage follows the framework of the modification of cultural heritage presented by Salvador Muñoz Viñas (2011).[28] I use this term to refer to any harmful and destructive action on culturally and materially significant property that is defined as cultural heritage. The objective of vandalism is to destroy valuable cultural remains of the past and/or to replace these remains with layers of contemporary culture.

The difference between vandalism and *malicious damage* is sometimes unclear. Vandalism is harming and destroying culturally and materially significant property. The destruction is focused on material culture that has both cultural and historic importance for the society. Unlike vandalism, malicious damage does not usually have a goal or target.[29] The motives of vandalism differ from those of terrorism, as vandalism does not usually have clear political aims. The destructive act is the goal, rendering it an expression of social nausea.[30]

1.3 Research cases and data

The means of data collection is one of the central factors that affect the trustworthiness of the research. The methods used in data collection ensure the reliability of the qualitative content analysis. Reliability relates to how well the collected data can refer to the intended objectives. Often qualitative research data is based on unstructured qualitative material and a combination of different research methods.[31] In my research, qualitative research data consists of diverse kinds of unstructured materials, such as transcribed interviews and trial documents. In my research, statistical data represents the only quantitative research source and it has been used as secondary research data.

Conservation science often approaches the researched topic by studying a group of heritage objects. A set of heritage objects or cases allows the production of research data that can be used to compare individual heritage sites or disaster cases.[32] Because the preservation and deterioration processes of heritage objects and sites are complex, the production of a reliable set of research data requires an approach that is based on many individual cases of deterioration and preservation processes.[33]

My research design follows an approach that is typical in conservation science. My objective is to collect research data that makes it possible to analyze

[28] Muñoz Viñas 2011, 102.
[29] Koski & Rissanen & Tahvanainen 2007, 37.
[30] Koski & Rissanen & Tahvanainen 2007, 38.
[31] Elo & al. 2014, 3.
[32] Muñoz Viñas 2011, 129.
[33] Muñoz Viñas 2011, 130.

and compare different heritage disasters as well as the response and heritage recovery work of these disasters. A set of heritage disasters also makes it possible to analyze the deterioration routes during the disaster and post-disaster phase.

My first list of disaster and accident cases included all Finnish incidents that had taken place in association with publicly-owned cultural heritage between 1990 and 2010. In each of these cases, cultural heritage was at risk of being destroyed or seriously damaged. The final selection of disaster and accident cases contains the cases where the owners of the disaster site gave permission to interview their representative about the disaster. Heritage disasters and accidents with their location in my research are:

1. National Land Survey of Finland office in Uusimaa (Maanmittauslaitoksen Uudenmaan toimisto) archives, water damage in 1994 (Helsinki)
2. National Land Survey of Finland (Maanmittauslaitoksen arkisto) archives, fire during construction work in 2004 (Jyväskylä)
3. Tyrvää St. Olaf's Church (Tyrvään Pyhän Olavin kirkko), arson in 1997 (Tyrvää, Sastamala)
4. Finnish National Library[34] (Kansalliskirjasto), depository under Porthania building, humidity problems and water damage in the 1990s and 2000s (Helsinki)
5. The Finnish Heritage Agency, Vartiokylä Hill Fort (Museovirasto, Vartiokylän linnavuori), vandalism in the 1990s and 2000s (Helsinki)
6. Finnish Literature Society (Suomalaisen Kirjallisuuden Seura), library depository, water damage in 2003 (Helsinki)
7. Valvilla Wool Mill Museum (Valvillan tehdasmuseo) archives, fire in 2003 (Hyvinkää)
8. Kiasma Museum of Modern Art (Kiasma), VR warehouses fire that caused safety preparations in Kiasma in 2006 (Helsinki)
9. National Museum of Finland (Kansallismuseo), gas explosion in 2006 (Helsinki)
10. Porvoo Cathedral (Porvoon tuomiokirkko), arson in 2006 (Porvoo)
11. Kaivoksela Church (Kaivokselan kirkko), arson in 2006 (Vantaa)
12. Turku Castle (Turun linna), art vandalism in 2008 (Turku)
13. Lempäälä St. Bridget Memorial Church (Lempäälän Pyhän Birgitan kirkko), attempted arson in 2008 (Lempäälä)
14. St. Jacob's Church (S:t Jacob kyrka), art vandalism in 2008 (Helsinki)
15. Suomenniemi Church (Suomenniemen kirkko), attempted arson in 2009 (Mikkeli)
16. Hammarland Church (Hammarlandin kirkko), attempted arson in 2010 (Hammarland, Åland)
17. Uspenski Orthodox Cathedral (Uspenskin katedraali), icon larcenies in 2008 and 2010 (Helsinki)
18. Jyväskylä Orthodox Church (Jyväskylän ortodoksinen kirkko), vandalism incident in 2010 (Jyväskylä)

[34] At the time of the water damage, the National Library of Finland was part of the Library of the University of Helsinki.

19. Kotka Orthodox Church (Kotkan ortodoksinen kirkko), vandalism cases in the 1990s and 2000s (Kotka)

Figure 1 illustrates the heritage disaster regions of my research on the map of Finland. The figure was made by journalist and photographer Pentti Halenius.

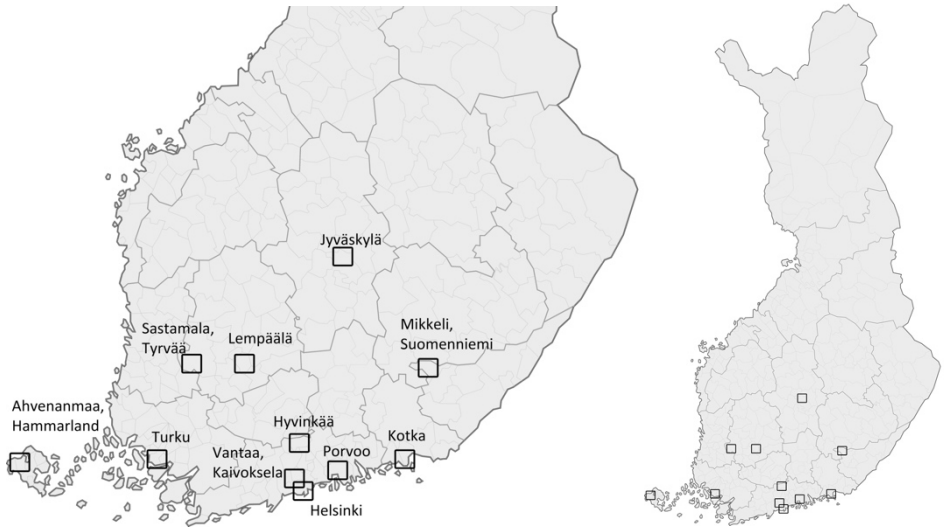

FIGURE 1 The heritage disaster regions of my research in the map of Finland. Maps: Pentti Halenius 2019.

The trustworthiness of research preparations is based on the reliability of the methods used to collect research data, the validity of the sampling strategy, and proper definition of analysis units.[35] My research data is based on four primary information sources: 1. themed interviews with the owners of the disaster sites (18 interviews of 19 disaster cases); 2. themed interviews with subject matter specialists (nine interviews); 3. trial documents from six disaster cases; and 4. crime statistics on criminal damage, attempted serious sabotage, and serious sabotage cases in Finland between 1990 and 2010.

My research shares some features with comparative studies as my data comprises four independent information sources. The research data is compared with each other and with the information found in the source literature. The objective is to identify differences and similarities in heritage disasters and in the destruction of cultural heritage.

I used themed interviews with specialists to collect information on the following four topics:

1. Professional preparedness of firefighters to protect cultural heritage in accident situations (themed interview with the Eastern Uusimaa Regional Fire and Rescue Services);
2. professional preparedness of police to protect cultural heritage from criminal damage and sabotage (themed interview with the Police University College of Finland);

[35] Elo & al. 2014, 2.

3. authority guidance in the protection, rescue, evacuation, and aftercare of cultural heritage (themed interviews with the Finnish Heritage Agency, National Archives, Church Counsel of the Evangelical Lutheran Church of Finland, and the Church Museum of the Orthodox Church of Finland); and
4. the opportunities to prevent crimes that may damage or destroy cultural heritage (themed interview with the University of Turku and University of Eastern Finland Legal and Criminal Psychology Adjunct Professor Jaana Haapasalo).

To gain a reliable view of the disasters, the research data is based on multiform primary sources. I have used semi-structured themed interviews with both disaster sites owners and subject matter specialists to gather new information about the disasters. The themed interview questions for the heritage site owners can be found in attachment 1. The themed interview questions for the subject matter specialists can be found in attachments 2 to 5. I have transcribed the interviews. The transcribed interviews were used in data analysis with Atlas.ti 6.1 software.

The anonymity of the interviewees is secured by discussing the disaster cases at an institutional level. The interviewees are referred to as institutions instead of individual employees of their organizations. The only identifiable interviewee is Jaana Haapasalo, who is a specialist in criminal psychology. The individuals who were responsible for, or involved with, my research on the vandalism and arson cases remain anonymous. My research data will be stored in the Folklife Archives at the University of Tampere, Finland.

The secondary research data is based on the trial documents of six disaster cases and Finnish crime statistics on criminal damage, attempted serious sabotage, and serious sabotage crimes between 1990 and 2010. The statistical data can be found in attachments 6–23. I collected and analyzed the secondary research data to increase the available information about the disaster cases and the geographical regions where these disasters occurred. The trial documents provided background information for six of the disaster cases.

The public trial verdicts are related to seven of my disaster cases. These cases contain four church arson attacks, one museum archives fire, one icon larceny case, and one riot that took place at the VR warehouses near Kiasma a couple of days before the massive fire at the VR warehouses. This fire led into emergency precautions at Kiasma. Because all these cases have been on trial at district courts and have led to sentencing, the trial verdicts are available for research use. The proceedings of one trial had been declared classified and could not be included in the research data. This case was the natural gas explosion that destroyed the Silver Room at the National Museum of Finland.

1.4 Methods

I chose qualitative research methods for my research because the only way to produce any new knowledge about heritage disasters in Finland was through the analysis of new research data. The data I used to produce new knowledge on this topic had to relate to disasters and accidents that had occurred in Finland, had targeted cultural heritage, and were well-known to Finnish heritage professionals. These disasters had not been systematically documented and therefore no research data existed that I could have used as the primary source in my research. I had to reconstruct the disaster cases using the collected research data. No suitable theoretical framework that I could have used to analyze my research data existed either. My research is empirical, by which I mean that data is fundamental to the research and influenced the selection of literature.[36] The data-driven intensity of the research can be explained by the lack of previous research on the same topic from the perspective of preventive conservation. The data collected from both the disaster site owners and the subject matter specialists is used to reconstruct 19 heritage disasters and their management processes from the perspective of heritage preservation and damage prevention.

My research is a data-driven qualitative case study with each one of the 19 disasters forming an individual case. With the case study approach, I aim to study the research topic through individual disaster cases as intensively as possible. I have analyzed all my case studies considering previous scientific research and themed interviews with heritage site owners and specific subject matter specialists. The interviewed person or organization are experts on the topic of the interview.

Because case studies do not yield generalizations, I will try to understand and interpret the researched disaster cases in their social and cultural contexts. My research may therefore provide information about the mechanisms, processes, and internal factors that influence the researched disasters. This methodological decision is based on the hypothesis that either the heritage disasters can be prevented or, if that fails, the deterioration of cultural heritage can be minimized if adequate disaster management actions are carried out and if the deteriorative effects of a disaster or an accident are grasped in advance.

A case study is a form of empirical research and the information produced by case studies is often assessed using qualitative methods. Multi-method and mixed methods approaches are often used in conjunction with case studies. This is also the case in my research. Although case studies provide detailed descriptions of a specific topic, they also provide tools for gaining a deeper understanding of that topic.[37] Jari Metsämuuronen (2000) suggests that qualitative research is a valid methodological approach when the research cannot be carried out in controlled conditions. Metsämuuronen defines qualitative research as a relevant theoretical approach when the research enables the

[36] Tuomi & Sarajärvi 2006, 20.
[37] Metsämuuronen 2000, 14, 18.

detailed construction of a phenomenon to be uncovered, to reveal the meaning of specific factors in this phenomenon, and when the analysis takes into account correlation relations.[38] Based on Metsämuuronen's definition, I considered qualitative research to be a relevant methodological approach when researching heritage disasters, considering the nature of the available data. The theoretical framework of my research is based on the Anglo-American qualitative research tradition, where methodological decisions are based on the epistemological needs of the research objectives and the available data.[39]

Qualitative research uses multiple methods in data analysis and information production. Critics of qualitative research tend to come from the tradition of positivist science. The positivist research strategy asserts that a qualitative orientation provides no means to verify the findings in relation to the data. But this uncertainty regarding truth and validity is present in all forms of scientific research, whether qualitative or quantitative. All new results may reveal the partial nature of earlier research. All truth statements are framed by the focus of the research. Qualitative research can find answers to questions on how social phenomena are created and through what kinds of mechanisms they gain their meaning, but it will not produce results that could be experimentally verified or measured.[40] This is also the case in my research. My data does not provide results that could be experimentally examined or measured. Although entirely objective and absolute truth is unattainable, especially in qualitative research, the results that reveal representations of the researched topic have significance.[41]

1.4.1 Process of information production

The researched heritage disasters are extremely complex, which is what the theory of knowledge embedded in my research must acknowledge. The results of my research are drawn from the research data based on epistemological convictions. Alternatively, I could have linked my research to the phenomenological research tradition, but the chosen focus made this unfeasible. The fundamental aim is not to understand the actions associated with heritage disasters or the response and recovery work related to them. The focus of my research is based on the theoretical demands set by preventive conservation. The objective is to understand how cultural heritage becomes a disaster scene and how and why cultural heritage is either damaged or preserved in the disaster and post-disaster phase.

The limits that relate to questions of objectivity are common in qualitative research. This research is conducted by an individual researcher, and the qualitative research data is based on themed interviews with individual people. Total objectivity cannot be achieved. I will try to underline the empirical nature of my qualitative research through transparent analysis of the research process

[38] Metsämuuronen 2000, 14.
[39] Tuomi & Sarajärvi 2006, 44.
[40] Denzin & Lincoln 2000, 8.
[41] Denzin & Lincoln 2000, 5.

and the used data. I have tried to analyze my research data as valid evidence of reality.[42]

It is typical of qualitative research that the data and the research problems interact with each other throughout the process of information production. This interactive process was also present in the analysis and the drawing of my research results from the data. Qualitative research data rarely provides direct answers to research questions.[43] Source-driven research approaches result in research methods being used to produce reliable and valid information and results from the data. The chosen research methods are accurate means to produce answers to the research questions based on the data.

When research data consists of interviews, the acquired data often represents wide and comprehensive information sources that can be approached in many ways. Categorizing, analyzing, and drawing the research results from the interview data all interact in the information production. These three parts often operate simultaneously, and it is typical of analysis to develop through the process of the analysis as the researcher becomes more familiar with the data.[44] This is the case in my research data analysis: categorizing, data analysis, and writing up the integrated research results proceeded simultaneously.

1.4.2 Qualitative content analysis

The research data was subjected to qualitative content analysis. Qualitative content analysis is one of the many methods available in qualitative research and it has been regarded as a systematic and objective means of analyzing phenomena. Accomplished qualitative content analysis requires that research data can be narrowed down into concepts that characterize the researched phenomenon. Research questions are used to define the focus of the analysis and the production of information. For qualitative content analysis to be valid, the analysis must be documented in a way that makes the results and conclusions comprehensible to other researchers.

Qualitative content analysis contains three stages: preparation, organization, and reporting.[45] These three stages also exist in my research data analysis. The preparation stage contains collecting the data and deciding on the units used in the analysis. The organization stage consists of open coding and categorization of the data. In the reporting stage, the research results are described through research data and data categories that describe the researched phenomenon through either inductive or deductive reasoning.[46]

Qualitative content analysis that is based on inductive reasoning requires research data that has not been structured.[47] In my analysis, I have used inductive reasoning because the results and conclusions are drawn from detailed

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[42] Tuomi & Sarajärvi 2006, 44.
[43] Ruusuvuori & Nikander & Hyvärinen 2010, 12.
[44] Ruusuvuori & Nikander & Hyvärinen 2010, 11–12.
[45] Elo & al. 2014, 1.
[46] Elo & al. 2014, 1–2.
[47] Elo & al. 2014, 3.

information on individual disaster cases. I have used the information to make some generalizations about the topic. From the perspective of validity, inductive reasoning has both strengths and weaknesses. The strength of inductive argumentation is in the ability to use detailed information in establishing conclusions and generalizations based on the research data. Results and conclusions based on inductive argumentation have often been regarded as more probable and valid than those research results and conclusions that are based on deductive argumentation. Deductive argumentation was inappropriate for my research, because there were no previous generalizations or theories that I could have used to analyze my data.[48] The weakness of inductive reasoning is related to its inability to detect all factors influencing the research topic. Its success in scientific research is based on the level of probability and trustworthiness of its research results and conclusions.[49]

I conducted qualitative content analysis, coded, and categorized all four research data groups using Atlas.ti 6.1 software. I have used Atlas.ti to organize the research data more systematically. I have used the data to analyze the background factors of the disasters. My objective was to find ways to identify the parameters of different disaster cases. I expected that coding the research data with Atlas.ti would reveal a clearer vision of the relationships between the variables present in the research data.

My approach to the analysis is data-driven. This means that the analyzed themes are based on my research objectives and aims, and the analysis was guided by the research questions.[50] The coded units represent themes that provide a wide range of information on the 19 heritage disasters. These themes were related to disaster sites, heritage disasters, responses to the disasters, and heritage recovery work. In the coding phase, I defined the codes of individual contexts of the heritage disaster.

I draw the integrated research results from the coded and categorized research data by analyzing the data from the perspective of the research questions and by comparing the coded data with observations based on the source literature. I used Atlas.ti 6.1 software to make the large amount of research data more manageable. With the software, I systemized my research data, making it easier to analyze. Coding and categorizing made it easier to highlight similarities and differences in the research data.

The reconstructions of the disaster cases are based on the interviews with the owner organizations of the disaster sites as well as on available trial verdicts and archival documents. I have analyzed the reconstructed descriptions of my disaster cases using script analysis that is based on the crime script analysis presented by Derek Cornish (1994).[51] According to Cornish, the script analysis method was developed in the late 1970s and early 1980s in the context of

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[48] Internet Encyclopedia of Philosophy 2015, Deductive and Inductive Arguments. https://iep.utm.edu/ded-ind/
[49] Internet Encyclopedia of Philosophy 2015, Deductive and Inductive Arguments. https://iep.utm.edu/ded-ind/
[50] Tuomi & Sarajärvi 2006, 97.
[51] Cornish 1994, 161.

computer simulation of the human cognitive structures and processes involved in understanding text.[52] The script analysis method makes it possible to generate, organize and systematize knowledge about procedural incidents.[53]

In the script analysis of my disaster cases, I first concentrate on the heritage owners' emergency planning, which clarifies how heritage owners oriented to heritage disasters with the help of risk analysis and risk reduction work. At this stage, heritage owners have also perhaps created operational models for disaster and disaster response situations. In the script analysis of disaster and accident situations I concentrate on the factors that influence the heritage disaster and the outcome of the disaster. In my analysis, disaster response work represents the operational stage that aims at damage migration and prevention of cultural heritage. Disaster response work is based either on planned operational models or spontaneously made response actions that follow the disaster. In the script analysis of heritage recovery work, I concentrate on the disaster recovery stage that contains conservation and restoration work that promotes the preservation of cultural heritage. Actions at the disaster recovery stage are also made to prevent further disasters.

Finnish crime statistics between 1990 and 2010 are analyzed from the perspective of paired comparison. Paired comparison has been regarded as a valid means in human sciences to organize factors into order of magnitude.[54] The figures from the statistical data were done with the help of R Statistical software. I created the analysis tables from the Statistics Finland database. From these tables the figures were developed by a professional statistician, Licentiate of Philosophy Aki Niemi (figures 6–8 and attachments 19–24). My analysis concentrated on describing and comparing the statistical data on criminal damage, attempted serious sabotage, and serious sabotage cases that occurred in Finland between 1990 and 2010. For six of the serious sabotage, attempted serious sabotage and criminal damage regions I also selected six reference regions that would represent the same size and that were located near the original disaster case regions. In this analysis, my objective is to compare differences between the crime statistics of the six disaster regions and the six reference regions (attachments 19–24).

1.4.3 Reliability and validity of the research

Reliability and validity are used to evaluate the trustworthiness of both qualitative and quantitative research. Trustworthiness is considered to be particularly important in qualitative content analysis that is based on inductive reasoning, since the results of such research are drawn from the data without recourse to a matrix of theoretical analysis. Documentation of qualitative content analysis has often been regarded as a key instrument in promoting the trustworthiness of qualitative research.[55]

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[52] Cornish 1994, 157.
[53] Cornish 1994, 151.
[54] Valli 2001, 37.
[55] Elo & al. 2014, 2.

The used research methods are central to the validity and reliability of the research.[56] Some researchers have increased the reflexivity of their research by examining the subjectivity and the objectivity aspects of the research.[57] Validity and reliability are evaluated differently in quantitative and qualitative research. The reliability of qualitative research can be evaluated through its systematics. According to Johanna Ruusuvuori, Pirjo Nikander, and Matti Hyvärinen (2010), systematics in the context of qualitative research refers to the entire research process, including the decisions that are documented and clarified for the readers. This means that the data, the description of the data, and the principles of the analysis are evaluated from the perspective of systematics. Also, any observed limitations of the data must be reported.[58] The validity of qualitative research is based on the evaluation of the conclusions that have been drawn from the research data by means of theoretical frames, research questions and methods of analysis. Validity is based on high-level systematics and argumentation that support the conclusion that proper data has been analyzed using proper means to fulfill the research objectives and answer the research questions.

Even highly trustworthy qualitative research with valid and reliable results is not necessarily reproducible, because of the contextual factors affecting the research conditions. To my understanding this is the case in my research. I have tried to increase the reliability of my research results by thoroughly documenting the research process.

1.5 Structure of the research

In chapter 1, I introduce the topic, the theoretical framework and methodological principles of my research. I describe the research design, the collected data, and the chosen methods of analysis. I also provide arguments and justification for the selected research methods. I analyze the means to increase the reliability and validity of the research results. I describe and argue for the central objectives and research questions that have guided the research process. In this chapter, I present central theorists, the terminology of the research and the justification for the theoretical decisions.

In chapter 2, I clarify the memory-work of human communities and societies from the perspectives of cultural heritage. I describe the philosophical background that led to the establishment of cultural heritage. I analyze the concept of cultural heritage and memory-work from the perspective of the chosen 19 disaster cases. I discuss the meaning of cultural values in defining cultural heritage in relation to the cases. I describe the idea of collective memory and analyze the position of memory institutions in the process of heritage definition.

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[56] Tuomi & Sarajärvi 2006, 58–59.
[57] MacDonald 2002, 11.
[58] Ruusuvuori & Nikander & Hyvärinen 2010, 26–27.

In chapter 3, I describe the historical background of heritage preservation. I analyze the philosophical movements that have influenced and are currently influencing the preservation of cultural heritage. I describe the philosophical changes that affected the renewal of the concept of heritage preservation. In this chapter, I analyze conservation and heritage preservation through the perspective of the 19 disaster cases. I describe the preservation and conservation approaches of my research.

In chapter 4 I concentrate on reporting the research data analysis. At the beginning of the chapter I describe the qualitative content analysis and coding of the research data with Atlas.ti 6.1 software. I also describe the script analysis of my disaster cases. I will try to describe in this chapter what information the research data provides for the *Integrated results* chapter. At the end of the chapter I will concentrate on describing the used crime statistics features. I have tried to explain what the statistical data can reveal about my disaster site regions.

In chapter 5, I analyze accident-based heritage disasters. These disasters are caused by either natural forces or human activities that have led to heritage disasters. The accident-based disaster cases comprise two heritage disasters featuring water damage, two featuring fire, and one explosion-based heritage disaster. At the beginning of the chapter, I describe the common features of water-, fire-, and explosion-based damage in the context of cultural heritage using the research literature. I describe the disaster response and heritage recovery means used with these types of disasters. I clarify the disaster response and heritage recovery processes of the disaster cases at the end of chapter 5. I use script analysis to evaluate the disaster management processes of the individual disaster cases. I analyze the disaster cases and script analysis in relation to the used source literature in the discussion section of the chapter.

In chapter 6, I concentrate on analyzing heritage disasters from the perspective of the deliberate destruction and harming of cultural heritage, which are defined in my research as vandalism. In three cases, movable heritage objects were vandalized, and in three other cases the target of vandalism was an immovable heritage site. I use the existing literature to describe the theoretical backgrounds of criminal damage and vandalism. Through these sources, I analyze the disaster response and heritage recovery methods in relation to my cases of vandalism. I describe the disaster response and heritage recovery processes of the vandalism cases at the end of the chapter. I use script analysis to evaluate the disaster management processes of the individual disaster cases. In the discussion section of the chapter I concentrate on the vandalism-based heritage disasters and the script analysis from the perspective of the research literature.

In chapter 7, I analyze heritage disasters from the perspective of six arson and attempted arson attacks on churches. The chosen heritage disasters comprise three attacks of both attempted arson and arson. I first describe the theoretical backgrounds of arson considering the source literature. I describe the disaster response and heritage recovery processes of the church arson and attempted church arson cases at the end of the chapter. I am using script analysis to evaluate

the disaster management processes of the individual disaster cases. In the discussion section of the chapter I concentrate on the church arson and attempted church arson attacks and the script analysis from the perspective of research literature.

In chapter 8, I approach the integrated results from the perspective of the research questions. In this chapter I will try to reflect on answers to the research questions. I discuss the validity and reliability of the integrated results in the conclusion and the discussion in chapter 9. In chapter 9, I also conclude the central research findings and present topics for future research.

2 CULTURAL HERITAGE

The purpose of this chapter is to discuss what kinds of social and cultural meanings are connected to cultural heritage. My objective is to clarify what kinds of disaster sites heritage sites represent symbolically.

Culture is something that both binds people together and separates them.[59] The existence of heritage requires a society or a group of people that subscribe to this representation of their collective past.[60] The concept of cultural heritage has been criticized as a colonizing way to manufacture domesticated cultural products that expound the past as something purified from the "messiness" of human history.[61] Remembrance and memories of the past are both individual and collective phenomena. Memories have a fundamental part in people's individual and social groups' collective processes of identification. The concept of identity has been linked to the social, cultural, religious, economic, and political positions of people.[62]

It is most likely that the connection between cultural heritage and identity was established to serve the needs of a nation state to control the interpretation of its past. This led to heritage becoming something used by state officials.[63] Nationalist ideology has been used to construct social groups, guiding them towards the direction of a unified nation.[64] In Finland's case, the process of defining Finnish culture, identity, and heritage gained prominence in the early 19th century when 700 years of shared history with Sweden came to an end in 1809 and Finland became a Grand Duchy of Russia for 109 years. When Finland was part of Sweden, there were no notable differences in the way the history of these two nations was interpreted. Swedish history was also Finnish history. According to Susanna Pettersson (2011) the need to define "a new identity" for Finland was related to the cultural and religious differences between Russia and

[59] Frow 1995, 2.
[60] Harvey 2008, 19.
[61] Mezey 2007, 2005.
[62] Kallio 2007, 116.
[63] Harvey 2008, 19.
[64] Graham & Ashworth & Tunbridge 2005, 26.

Finland.[65] However, Max Engman (2009) suggests that the strengthening of the position of Finnish language and culture was related to the departure of Finland from Swedish rule to Russian rule.[66] Yet the Swedish interpretation of the past may have influenced the ideas of Finnish history and heritage. Cultural heritage was identified in both movable and immovable representations of historical events, significant people, significant places, and Finnish noble families. The Finnish antiquarian interest in the 19th century promoted archeological and academic research that was related to Finnish pre-history and the inventory of Medieval Finnish churches and castles[67].[68]

The National Romanticism emerging during the second half of the 19th century established Finland as a nation with a cohesive culture. This is a meaning-making process that aimed at a uniform vision of Finland and Finnish culture. In this process, selected elements of geographical Finland's landscape, culture, languages, and traditions were chosen as symbols and signs of a uniform nation that was not yet independent as a state. In Finland's case, the establishing process of national culture and identity occurred simultaneously through the establishment of both the central national state offices as well as the national culture and heritage institutions.[69] Miika Tervonen (2014) suggests that the definition of Finnish culture and identity was part of larger European history writing framework and the ideology of the 19th century nationalism.[70] Annika Waenerberg connects the strong influence of Johan Vilhelm Snellman and Hegelianism with the definition of Finnish culture and cultural institutions in the 19th century.[71]

How can we move on from a cohesive past and heritage to a diverse one? The idea of present-centered heritage has been the central approach in heritage studies since the late 1990s. According to David Lowenthal (1998), heritage and the past are used and explained through present causes so that the past gets integrated with present purposes. The examination of cultural heritage is not directly engaged with the study of the past because the content, interpretation, and nature of heritage are based on the demands of the contemporary society and the projected vision of its future. As a result, heritage may be less about material representations of the past than it is about the meanings connected with the heritage and its interpretations.[72]

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[65] Pettersson 2011, 261, 264.
[66] Engman 2009, 183–218.
[67] Ringbom 1986, 14–22.
[68] Waenerberg 2009, 145–146.
[69] Pettersson 2011, 264.
[70] Tervonen 2014, 138.
[71] Waenerberg 2009, 144; Ringbom 1986, 25.
[72] Graham & Howard 2008, 2.

2.1 Ways of interaction with cultural heritage

Heritage sites and objects are established as cultural heritage in order to turn them into symbolic expressions and signs of a certain past that is being transferred to its audience. The interaction between people and the cultural heritage operates both verbally and non-verbally. The socio-cultural meanings of heritage are constituted through the forms and ways of the prevailing environment.[73] Since heritage represents a selective use of history to fulfill the needs of both the present and the future of a society, both memory and memorial ceremonies are often connected with the establishment process of cultural heritage. National memory often represents official memory that emerges from the values and needs of the nation state and its memory institutions.[74]

Verbally contextualized meanings of cultural heritage open windows onto the thoughts and beliefs of the professionals who have defined the heritage of the respective culture. It also reveals the character of the heritage definition process and the ideologies that have brought the cultural heritage into existence.[75] Cultural values together with cultural heritage can be expressed both non-verbally, through deciding what to define as heritage, and verbally, through documentation and context writing. The verbal definition of cultural heritage is often provided for the site through information signs and other written sources.[76] Verbal meanings are used to define the position, status, and value of cultural heritage.[77]

The eventual meanings of cultural heritage are also defined in human societies through non-verbal expressions that can be communicated either intentionally or unintentionally.[78] The difference between verbal and non-verbal communication in association with cultural heritage can be seen most clearly through cases where a cultural heritage site or object has been deliberately harmed or destroyed by vandalism or arson.

2.2 Creating heritage values

Values are dependent on their social backgrounds. The feelings that heritage objects incite also impact people's behavior. Value assessments are used to define both cultural heritage and the actions connected with this heritage. Money sometimes has been used as a yardstick in evaluating heritage objects' value,

[73] Richardson 1989, 172.
[74] McDowell 2008, 40.
[75] Edson 1997, 33.
[76] Edson 1997, 34.
[77] Edson 1997, 35.
[78] Edson 1997, 34.

although economic value can arouse either positive or negative feelings for people as connected to defining the value of heritage.[79]

Values bound to cultural contexts and heritage change with time and place.[80] John Dewey saw values as a set of appreciations and a way of operating. Appreciations are based on experiences and education.[81] Values and appreciation influence the way cultural heritage is interpreted.[82] Cultural meanings and social interaction influence each other strongly, also through cultural experiences. An individual's inner personality is built on meanings that communities organize.[83] Although the surrounding social groups and their values play an important role in developing and organizing an individual's values, the differences in personality will also cause diversity in values.[84] Valuable places and items gain their meaning when the viewer is familiar with these places and has contextual information about the item.[85]

Most heritage sites and objects that are possibly exhibited for the public require an intellectually oriented experience. An intellectual approach is needed because mature and a culturally aware appreciation and experience of cultural heritage require knowledge about the cultural contexts and historic relations pertaining to the heritage. Similar to any other form of culture, heritage also can provide people with emotional experiences. Therefore, personal differences influence the way people experience cultural heritage. This can be seen in the heritage vandalism and church arson cases discussed in this study.

Authenticity and integrity are values currently considered central to valuable cultural heritage. Because value evaluations are connected to individual people, they cannot be neutral. Values change over time and when people and cultures interact. Although changes in values cannot be accurately predicted, values should be considered as factors that provide much needed information for decision making in regard to cultural heritage.[86]

In discussions on the value of heritage, the long-term value has often been regarded as more significant than the preliminary or short-term value that the fashions and other values of the society often influence.[87] Material culture has traditionally dominated the value evaluations of cultural heritage. This has sometimes resulted in excluding the public from participating in the process. Sometimes this has even led to decontextualizing heritage from the local community as the local community's values and past experiences have been discarded.[88] This has resulted in the local communities' reduced engagement with the cultural heritage of their own neighborhood.

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[79] Ashley-Smith 1999, 82.
[80] Lehtonen 2000, 32.
[81] Väkevä 2004, 214.
[82] Melanko & Elo 2000, 17.
[83] Lehtonen 2000, 54.
[84] Ilmonen 1992, 5.
[85] von Bonsdorff 1998a, 223.
[86] Ashley-Smith 1999, 81.
[87] Ashley-Smith 1999, 87.
[88] Turnpenny 2004, 303.

2.3 Nationalism and cultural heritage

Although cultural memorials were known in the ancient world[89], organized concepts of cultural heritage and collective memory were only developed in the era of romanticism and nationalism.[90] According to Jukka Jokilehto (1999) modern philosophy challenged the belief of absolute knowledge of the past as the basis of collective and social experience. This new philosophical approach to diversity gave birth to a new method of writing cultural history that recognized cultural pluralism and nations with a variety of cultures and values.[91] In the 19th century, cultural heritage had become a tool to promote both conservative and progressive movements in societies. Heritage was used to maintain social hierarchies by promoting certain interpretations of it and to endorse social and economic revolutions. In the middle of the 19th century, the popularization of history was strongly connected to the idea of nation states.[92] Folklore, as an emerging form of cultural heritage, was also used to strengthen national identity and the traditions and languages of nation states.[93]

Nationalism is connected to the ideas of a nation state and national identity that link the feeling of belonging with a certain sociopolitical group in a certain geographical area.[94] Place attachment often results from cultural practice and behavior. It involves affects, emotions, knowledge, beliefs, and behavior associated with a location. Place attachment refers to the feelings of belonging and security in connection with a place or places.[95] The problems related to the use of cultural heritage in an attempt to stabilize cultural identities in nation states or within a specific geographical area became apparent during the Balkan wars of the mid-1990s. Alexandra Ålund (1996) recognized a connection between the structural violation and deformation of personal identities in association with cultural heritage. Visibility and representation became notable parameters in the concept of cultural heritage. Elspeth Probyn (1996), and after her Anne-Marie Fortier (2000), observed that the concept of identity could be replaced with a more clearly defined and less intense term of belonging, of the human longing to feel attachment towards other people, places, and social groups.[96]

Many people from conflict areas took refuge in Western democracies and it was soon discovered that there was a need to replace identity with different symbolic expressions of remembering. The concept of identity became a topic of critical discussion in heritage studies in the mid-1990s.[97]

To exist, national identity requires cultural solidarity and feelings of togetherness. These feelings are maintained through collectively shared beliefs.

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[89] Jokilehto 1999, 3.
[90] Kallioniemi & Lyhykäinen 2008, 107.
[91] Jokilehto 1999, 17.
[92] Harvey 2008, 27.
[93] Jokilehto 1999, 17.
[94] Graham & Ashworth & Tunbridge 2005, 26.
[95] Groote & Hartsen 2008, 181.
[96] Buciek & Juul 2008, 118–119.
[97] Buciek & Juul 2008, 116.

National cohesion is maintained through collective perception and identity that recognizes shared historic experiences. In most countries there are also rejected interpretations of the past and the national memory is supplemented by unofficial memory that sometimes differs strongly from the official one.[98]

In pre-modern Western societies identities were fixed and predetermined because of the rigid social hierarchy. The process of social and cultural modernization transformed the old but stable order. The process of modernization in modern Western countries led identity to become the project of an individual seeking their own true nature. The process of modernization also brought about individualization. The attempt of contemporary societies to form and maintain fixed and uniform core identities appears to be failing since the world in which these identity-projects take place is constantly changing. Since the heyday of nationalism, identities have become increasingly complex and flexible.[99]

2.4 Cultural heritage and memories

Often when cultural heritage is mentioned, the concept of collective memory is discussed.[100] Memories are both context- and audience-dependent.[101] In multicultural and culturally diverse societies, the collective memories treasured and enjoyed by some might be extremely difficult for others. Some people see no conflict in the concept of cultural heritage, while others are troubled by their unpleasant memories and feelings of injustice.[102]

At the beginning of the 2000s, the idea of a past that was fundamentally open, publicly owned, and approachable in a variety of ways gained traction in historical research. The objective was to create a more viable approach to study the past.[103] Post-colonial semiotics has clearly shown the problems related to the concept of cultural heritage in contemporary post-colonial or post-modern states. Nationalism and patriotism are regarded as positive forces in a colonial state, but in a post-colonial state they represent negative forces. Defining some cultural features as national, it is possible that cultural features develop into phenomena that no longer represent actual culture.[104] The process that classifies phenomena as cultural heritage, as representing the past, and even defines the meaning of this heritage, may lead to some people and social groups being excluded and disinherited from their own past.[105]

The process of displacement and social exclusion is often present in both history writing and collective memory. Whether people have their

[98] McDowell 2008, 41.
[99] Sevänen 2004, 3.
[100] Buciek & Juul 2008, 112.
[101] Kavanagh 2000, 15–16.
[102] Kavanagh 2000, 85.
[103] Kean 2008, 60.
[104] Tarasti 2000, 147.
[105] Buciek & Juul 2008, 113.

representatives in the official collective memory discourse or not, they are nevertheless present in this discourse, in one way or another. If some people or social groups are excluded from the past, this does not mean that these people do not have past or memories in their communities.[106] The reason why official discourses of the past exclude people or groups from their conceptions of cultural heritage may relate to difficult histories or questions of power and politics in and of the nation state.

2.5 The definition and identification of cultural heritage

The vision of cultural heritage broadened after the World Heritage Convention (1972) when both human and natural environments as well as architectural and archaeological sites were included in the concept of heritage. Both rural landscapes and urban or industrial environments can now be recognized as cultural heritage.[107] A new approach in heritage studies has defined cultural heritage as representation of the values of contemporary society.

Cultural heritage contains historic, aesthetic, and social value assessments. Values influence the definition of heritage and its interpretation.[108] The value-assessment of cultural heritage is not an immutable cultural construction. New features of cultural heritage get emphasized as the needs of society change. Since the late 20th century, modern technologies used to produce the interpretation of heritage has promoted democratic features of cultural heritage.[109]

According to Jonathan Ashley-Smith (1999), assessing the value of cultural heritage is based on unstable arguments and illogical argumentation that have been used to justify complex decisions. Ashley-Smith defines the value of heritage as a social construct that is dependent on the existing social relations. Because value-evaluations are connected to individual people, they cannot be neutral. Values change over time and when people and cultures interact. Although changes cannot be accurately predicted, values should be considered as factors that provide much needed information for decision-making over cultural heritage.[110]

The concept of cultural heritage has a dual character as it is both a national and international cultural construction. These two ways of thinking on cultural property have yet to reach any clear consensus on the question regarding the ownership of heritage.[111]

As I indicated in section 2.3, the nationalist tendencies of cultural heritage connect the ownership of cultural heritage as property to a certain nation state. The claim is based on the physical location of the heritage inside the borders of a

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[106] Buciek & Juul 2008, 105.
[107] Jokilehto 2005, 5.
[108] Avrami 2000, 19.
[109] Harvey 2008, 30.
[110] Ashley-Smith 1999, 81.
[111] Klung 2010, 711.

certain nation state.[112] The idea of cultural nationalism is based on the synthesis of cultural heritage and cultural definition. According to this principle, an emotionally rich life and secure identity requires that people face their shared history.[113] The nationalist thinking also regards cultural heritage as the collective memory and self-image of a nation state.[114]

The internationalist approach underlines the universal nature of heritage. The internationalist viewpoint contains the idea that heritage belongs to all humans equally.[115] It is a matter of all humanity because all instances of heritage are part of the world's cultural heritage.[116] The internationalist approach justifies the global ownership of cultural heritage by referring to the shared history of humankind. The wish is that all people would be interested in preserving this heritage and enjoying its existence. The idea of cultural internationalism is based on the philosophy of the 17th century French archeologist and architectural theorist Antoine-Chrysostome Quatremère de Quincy (1755–1849). The internationalist approach in heritage discourse led to the establishment in different countries of museums collecting the cultural property of human communities all around the world.[117]

The two main criteria in the evaluation that have influenced the evaluation of cultural heritage are authenticity and integrity. These criteria were defined as fundamental values of cultural heritage in UNESCO's World Heritage Convention (WHC) that launched the List of World Heritage Sites.[118] The concept of integrity has its basis in the 1977 operational guidelines of the WHC. Integrity measures the wholeness and intactness of both natural and cultural heritage sites.[119] It has been defined as the continuing significance of heritage over time.[120] The concept of authenticity is influenced by the cultural identity of a society's cultures and communities.[121] Parameters for evaluating the authenticity of heritage are defined in the "test of authenticity." This test is used to justify nominations for the World Heritage List.[122] Authenticity originates in a specific cultural context, the existence of which is confirmed in the evaluation process.[123]

Authenticity can also give rise to phenomena that have a negative influence on defining heritage. Cultural identities are sometimes presented through

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112 Klung 2010, 711.
113 Klung 2010, 717.
114 Welburn & al. 2009, 2–3.
115 Klung 2010,711.
116 UNESCO 1954, The Hague Convention for the Protection of Cultural Property in the Event of Armed Conflict, 1. http://portal.unesco.org/en/ev.php-URL_ID=13637&URL_DO=DO_TOPIC&URL_SECTION=201.html
117 Klung 2010, 715–716.
118 Welburn & al. 2009, 2–3.
119 UNESCO 2012, Background Document on the Notion of Integrity, 23. http://whc.unesco.org/uploads/events/documents/event-833-7.pdf
120 Stovel 2007, 23.
121 Welburn & al. 2009, 2–3.
122 Jokilehto & King 2000, 1.
123 ICOMOS 1994, Nara Document on Authenticity. https://www.icomos.org/charters/nara-e.pdf

aggressive nationalism, which strives to eliminate minority cultures.[124] When authenticity is at risk, the credibility of cultural heritage is endangered.[125]

Herb Stovel (2007) analyzes the use of authenticity and integrity in relation to cultural heritage's nomination as World Heritage. Stovel sees the integrity and authenticity of cultural heritage as qualifying parameters in defining heritage. Both are needed to ensure that heritage sites and objects can be properly analyzed. These two parameters also provide information needed for the management and conservation of cultural heritage. The concept of authenticity has sometimes indicated the change of tastes through generations and times.[126] The credibility of the values can be evaluated by looking at a nation's history.[127] If the definition of a heritage is based on a falsified or adjusted version of authenticity or integrity, Stovel suggests that the definition should be deconstructed and reconstructed so that its authenticity and integrity can be assessed.[128]

Currently, heritage conventions and laws create frameworks through which cultural elements are evaluated as heritage in nation states. Cultural heritage professionals and memory institutions use these criteria to identify valuable elements from the past.[129] The conventions adopted by different institutional bodies, such as UNESCO, reflect both cosmopolitan and national conceptions of cultural property.[130]

2.6 Collections as representations of heritage

In this chapter I will give a short historical overview of collections. Collecting archeological remains and artworks from classical antiquity for the purposes of study began in the early Renaissance. The earliest collectors were artists and important wealthy families.[131] The idea of cultural heritage was initially linked to collections and museums. Also, the idea of a museum was seen through the objects that formed collections. Collecting was a form of preserving heritage. Objects and collections that were held to be authentic were regarded as links between the past and the present. Later, thoughts on the role of collections in museums changed. The object as cultural heritage can deliver information only if it is connected to its contexts.[132]

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[124] ICOMOS 1994, Nara Document on Authenticity. https://www.icomos.org/charters/nara-e.pdf
[125] Welburn & al. 2009, 2–3.
[126] Welburn & al. 2009, 2–3.
[127] ICOMOS 1994, Nara Document on Authenticity. https://www.icomos.org/charters/nara-e.pdf
[128] Stovel 2007, 35.
[129] Turnpenny 2004, 298.
[130] Mezey 2007, 2010–2011.
[131] Jokilehto 1999, 22.
[132] Rönkkö 2007, 70.

All collections provide information about the collector and the culture in which they have been gathered.[133] The earliest collections belonged to wealthy people from the social and political elite. They had amassed large collections, which subsequently became the oldest part of established memory institutions. The early forms of collecting were based on research and served the interests of knowledge.[134] Later memory institutions have constructed a vision of history and collective past through the act of collecting. At first, collecting concentrated on the history of privileged people while the past of ordinary people was mostly left undocumented. Later, the contexts associated with cultural heritage expanded and memory institutions started to collect folklore. This changed the categories of historic records.

There have been two principal trends in collecting: The first was to collect for the sake of collecting, whereas the second saw the objects as parts of a documentary process that would reveal the truth about the past. The difference between the two approaches is that the first links collections to the values of ownership and order, while the second analyses the object of a collection as evidence pertaining to the past rather than belonging to a selection of objects from the context of life.[135]

Collected objects no longer have a vital role in the social creation of knowledge as they had in previous centuries. When an object was considered to represent evidence from the past, it became the representative of indisputable truth. In the 2000s, the professionalization of memory institutions and social change led institutions to develop their collections: the objects were now seen as interpretations of reality.[136] Also, the vision of collecting in memory institutions shifted in a direction where collection policies were replaced with strategies that adopted a long-term, holistic, and rational vision for the purposes of institutional collecting.[137]

Simon Knell (2004) states that the nature of collecting protects the concept of cultural heritage more than it reveals the true nature of the processes that have created collections as cultural heritage and collective memory. The problem of collecting has led to the problem of decision-making: what should be collected? When something is collected, will it exist forever? The redefinition of collecting has led to a vision where objects can flow in and out of collections.[138]

The growing amount of cultural heritage and limited economic resources have resulted in the value-based evaluation and categorization of cultural heritage and collections. Although the values and needs of future societies cannot be predicted, this type of prioritizing has, for example in the United Kingdom, represented a combination of economic value and usage requests.[139] The collections of a memory institution are related to the meanings the institution has

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133 Cloonan 2018, 89.
134 Knell 2004, 82–83.
135 Kavanagh 2004, 118–121.
136 Knell 2004, 2–3.
137 Knell 2004, 15.
138 Knell 2004, 19.
139 Ashley-Smith 1999, 83.

decided to focus upon itself. Although the objects of the collections have not changed, the changes in thinking have led to the re-evaluation of the importance of collections. It is not possible to ensure that the items that are now considered to be important will have the same importance in the future as the correct heritage or the most representative of the past.[140]

2.7 Contested cultural heritage

Pauline von Bonsdorff (1998b) suggests that otherness is always present in a cultural environment. Sharing a worldview is not enough to prevent people, or groups of people, from remaining to some extent strangers in their cultural environment. Cultural and environmental changes as well as time also provide bases for feelings of otherness. Feelings about and a wish to preserve environments keep changing as time passes. Environments are diverse, inconsistent, dynamic, and changing.[141]

Although feelings of belonging exist among social groups, they do not necessarily exist on an individual level. Sometimes public spaces, such as heritage sites, do not have a social nature. Spaces and environments may also emphasize feelings of otherness and alienation.[142] The best example of this is that throughout history, significant sites and memorials have been destroyed or damaged by willful actions of individual people.[143]

Sometimes the destruction of heritage has been planned, targeted, and even announced and documented.[144] Michéle Cloonan (2018) introduces the term cultural genocide in the context of ethnic cleansing of culture, language and national feelings.[145] A good example of this type of destruction is the Nazi program (1927–1939) to stop the modern "corruption" of art and literature, which they thought had become "Jewish", "degenerate", and "Bolshevik."[146] Although the heritage destruction by the German National Socialist Party focused on modern art and literature, which perhaps had not yet established themselves as cultural heritage, the program had many similarities with other political actions aimed at destroying cultural heritage.

After the Second World War, the ideologically motivated destruction of cultural heritage sites has been connected to, for example, the Balkan Wars and Islamic Radicalism. In the 2000s and 2010s, the ideologically-rooted destruction of heritage sites has been connected to the actions of Islamist terrorist groups that

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140 Dunn 2004, 62, 66, 68–69.
141 von Bonsdorff 1998b, 45.
142 von Bonsdorff 1998b, 143.
143 Jokilehto 1999, 2.
144 Kavanagh 2000, 15–16.
145 Cloonan 2018, 47, 56.
146 A Teachers guide to the holocaust 2017, web article.
https://fcit.usf.edu/holocaust/arts/arts.htm

have sought to purify the Islamic countries' interpretations of the past from culturally diverse elements, which they regard as "pagan" or "idolatrous."[147]

It is not only the targeting of heritage objects and the destruction of sites that should be understood as contesting the interpretation of heritage. The looting of objects and sites is also for example part of armed conflicts. It is common to use cultural heritage to take control of the opposing party's past. One example of the strategic looting of museums took place in Kuwait, when two collections from the Kuwait National Museum were transported to Iraq during the six-month occupation in 1990 and 1991.[148]

One of the reasons why cultural heritage becomes the target for destruction or looting may relate to the symbolic values it represents.[149] Heritage is a manifestation of power. According to Michel Foucault (1982), the use of power means acting on someone with the aim of somehow modifying this person.[150] Sometimes the contestation of heritage has been explained through questions of power relations that relate to the interpretations of history mediated by heritage.

The impulse to preserve heritage seems to be as strong as the desire to destroy it.[151] These impulses are not necessarily connected to an analysis of heritage based on the idea of equality. It is possible that some people, even heritage professionals who wish to preserve their own heritage, are eager to destroy the heritage of other people or cultural groups. It has been noted that heritage destruction sometimes takes place when societies rebuild the interpretation of their national past.[152]

Historically, the destruction of cultural heritage has not just been part of the primitive and barbaric human behavior that occurs during times of war. Later evaluations of earlier attempts to preserve and safeguard cultural heritage have sometimes been considered more akin to destruction than preservation. One example is Lord Thomas Bruce Elgin's[153] (1766–1841) attempt to safeguard the Greek Phidian sculptures in the Parthenon in the early 19th century, when Greece was part of the Islamic Ottoman Empire. Lord Elgin and his workers removed about half of the sculptures from the Parthenon and transported them to the UK to place them in the collections of the British Museum.[154]

The destruction of cultural heritage has also been part of the internal conflicts of nation states. For example, in addition to inspiring the development of heritage and conservation practices, the French Revolution also launched a period of plunder and destruction of artworks and historic buildings. Although the aim of the revolution was social equality, many heritage objects and sites belonging to the Catholic church and feudal noble families were destroyed as a side-effect of the social change. This destruction was even partly supported by

147 Chechi 2015, 84.
148 Norman 2000, 135.
149 Kavanagh 2000, 15–16.
150 Foucault 1982, 788.
151 Cloonan 2007a, 746.
152 Cloonan 2007a, 747.
153 7th Earl of Elgin and 11th Earl of Kincardine.
154 Cloonan 2007a, 746.

the renewed French legislation.[155] At the time, important historic sites and artworks were destroyed, reused, or sold. After this, the responsibility to maintain and protect French national heritage was given to the state.[156]

People as well as communities often experience the destruction of cultural heritage differently.[157] However, cultural conflicts connected to cultural heritage indicate that even the majority population sometimes includes individuals who are extremely critical toward their "own" cultural heritage. According to Costas Constantinou and Mete Hatay (2010), the conflicts over heritage in Cyprus show how members of the majority population can experience their own heritage as a burden inherited from the past that prevents the development of people's cultural identities. Both the destruction and reconstruction of cultural heritage have been connected to cultural conflicts that are based on clashes between different ethnicities. In Cyprus, cases of deliberate destruction and reconstruction of cultural heritage have taken place on sites related to the dominant heritage discourse. The deliberate destruction of the cultural heritage of the majority has often been explained with a reference to the discourse where the majority population is represented as the protectors of cultural heritage and all other groups as its destroyers.[158]

The idea of cultural property has been criticized because it colonizes both cultures and the past by providing it with a given interpretation and turning it into a "collectively shared past." This process gives special values and legal protection to places and produces an interpretation of the past that has not been defined and created in open interaction with local communities.[159]

According to Constantinou and Mete (2010), the ethnicizing features of cultural heritage sometimes allow one ethnic group to establish a dominant role in the heritage discourse. This may result in an ethnic group monopolizing a part of the shared heritage, while other social groups end up losing their existing cultural links to it.[160] Because the discourse on cultural property may easily colonize human cultures, their past, and collective memories, cultural heritage could also be considered as a set of property claims based on a collection of cultural features and fragments of history. Therefore, the links between heritage and certain individuals and groups of people may later turn out to have been superficial.[161] Just like undamaged cultural heritage, destroyed cultural heritage can also be used in the production of ethnic identities.[162] According to Sam Hardy (2014), threats faced by cultural heritage in Cyprus contain both aspects of deliberate destruction and illicit trade of heritage objects that are partly caused

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[155] The National Assembly of France declared in 1792 that the dignified principles of liberty and equality required that the monuments representing "the old tyranny powers" should be kept hidden from the people. As a result, the monuments and works of art that were considered to symbolize either the old feudal order or the monarchy were destroyed. Jokilehto 1999, 69–70.
[156] Jokilehto 1999, 69–70.
[157] Constantinou & Hatay 2010, 1613.
[158] Constantinou & Hatay 2010, 1600.
[159] Mezey 2007, 2005.
[160] Constantinou & Hatay 2010, 1601.
[161] Mezey 2007, 2005.
[162] Constantinou & Hatay 2010, 1614–1615.

by the complicated political situation between Northern Cyprus and Southern Cyprus.[163]

The contemporary theory of cultural property approaches questions of heritage property from the perspective of the cultural and human rights of both individuals and social groups. Stakeholders or people for whom cultural heritage has personal significance should be able to voice their opinions on cultural heritage and its maintenance.[164] When the opinions of non-professionals are being noted, the territory that once belonged to experts only becomes the territory of people who are personally engaged and affected by cultural heritage.[165]

Naomi Marzey (2007) is both skeptical of and interested in the idea of rewriting cultural heritage interpretations to reduce the aggressiveness of cultural conflicts related to contested cultural heritage. Although this redefining of cultural heritage does not or should not displace difficult histories, even if they were to lead to the contestation of cultural heritage, it might start a process that could lead to the reconciliation of difficult histories. Marzey suggests that the questions of power relations and contested cultural heritage could represent a dangerous triggering subject matter that might raise aggression towards the kind of heritage interpretations that are related to difficult histories.[166]

The logic of cultural property suggests that every cultural group should be obliged to respect cultural differences and have the right to have power over their culture and past.[167] Although the logic of cultural heritage speaks for the cultural rights of both individual people and human communities, sometimes the attempts to change the nation state's official interpretation of the past have led to violent conflicts and the destruction of the new and conflicting interpretation of history. Such contested interpretations of the past have often been related to difficult phases in history and social taboos. Struggles over power in relation to cultural heritage indicate that the interpretation of the past is connected to a much bigger critical question about who has the right to define, explicate, and typify the collective memory through specific places and objects.[168]

Because cultural heritage represents a politically motivated interpretation of history that deconstructs, constructs, and reconstructs the memories and identities of human societies, it has become a contested question in many countries.[169] Constantinou and Hatay found that both the preservation and deliberate damaging of cultural heritage have been used as a political tool to support one-sided public information campaigns.[170] Many nation states try to strengthen their national identity and legitimize their power through heritage monuments that are displayed in public spaces. Cultural heritage mediates the

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[163] Hardy 2014, 81.
[164] Muñoz Viñas 2011, 161.
[165] Muñoz Viñas 2011, 162.
[166] Mezey 2007, 2045.
[167] Mezey 2007, 2006.
[168] McDowell 2008, 46–47.
[169] McDowell 2008, 43.
[170] Constantinou & Hatay 2010, 1601.

interpretation of the past as a statement of symbolic power over the public space. People and social groups who challenge the use of public space through their actions often do so to establish important places as well as their interpretations of the past.[171]

Cultural heritage has significant political and symbolic value.[172] In many countries, the strongest interest to produce and maintain cultural heritage has belonged to people in positions of power. These people often need a historical interpretation of cultural heritage to legitimize the existing social order.[173] Heritage sites involving both significant memories and power are often built up in public spaces that operate as sites that both bring people together and separate them. Certain aspects of the past mediated by cultural heritage do not necessarily enjoy the support of the entire population.[174]

Why is cultural heritage deliberately destroyed in democracies during peace time? Could these cultural confrontations be explained through Michel Foucault's analysis of the subject and the instances of power relations? Foucault (1982) defined the forms of resistance in power relations as anti-authority struggles. These confrontations are not limited to a certain nation state, although it is possible that such conflicts could have greater intensity in certain countries. According to Foucault, the objective of these confrontations is the impact power has over individuals. The nature of these struggles or confrontations is instant. Resistance is aimed at powers that are used over individuals.[175]

For Foucault, the target of these conflicts is not the main enemy but the instantly apparent enemy of individuals. These anti-authority struggles do not try to find a future settlement over the confrontations, because they represent anarchistic movements.[176] These power struggles question the role of the individual by underlining a person's right to be unique and fight against all use of power that breaks an individual's connections with other members of the community and forces them into roles that make them controllable. The objective of the anti-authority struggle is to resist the governing through individualization. The confrontation is aimed at powers representing privileges of knowledge that are established through information and proficiency. Foucault suggests that one of the key questions in anti-authority struggles is the non-acceptance of the economic and ideological use of power by the state, scientists, or authorities, that rejects individual identities and decides who individual people are.[177]

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171 McDowell 2008, 46.
172 Graham & Ashworth & Tunbridge 2005, 29.
173 McDowell 2008, 45.
174 McDowell 2008, 45.
175 Foucault 1982, 780.
176 Foucault 1982, 780.
177 Foucault 1982, 781.

2.8 Cultural heritage and disaster types in my research

In previous chapters (2.1–2.6) I have described the key concepts of cultural heritage. I have also tried to clarify how cultural heritage is being established in societies and how people interact with cultural heritage in societies. This information is needed to understand the social and cultural contexts of heritage disasters. The cultural heritage sites and collections in my research occurred in Finland between 1990 and 2010. The disaster sites are publicly owned and they were commonly known among museum professionals in Finland. The owner organizations of these heritage sites and collections also gave their permission to interview their representative about the disaster that occurred. One heritage site owner did not give the permission to interview their representative about the occurred church arson. This case was not included in my list of disaster cases. Finnish cultural heritage discourse also contains the cultural heritage of Finnish Sami, Jews, Gypsies and Muslims, but the heritages of these cultural groups are not discussed in my research because no commonly known heritage disaster case from these cultural groups existed in this period.

Heritage disasters that have taken place either before 1990 or after 2010 are not analyzed in my research. Also, those heritage disasters that took place between 1990 and 2010 and were not commonly known among museum professionals were not included in the list of these disaster cases. During the previous 100-year time period, cultural heritage in Finland has been threatened by similar disasters and accidents, which are examined in my research. Only disasters caused by acts of war have not been analyzed among these disaster cases. Finland has not been in war since the Continuation War (1941–1944) and the Lapland War (1944–1945). In my opinion, the researched 19 disaster cases cover rather well heritage disasters that may take place in Finland currently.

Both the historical and contemporary visions of the cultural heritage of Finnish memory institutions are present in my disaster cases. I suggest that cases representing the earliest vision of the Finnish cultural heritage are based on a national romantic featured interpretation of Finnish culture and Finland's past, with sites underlining the cohesive past of Finland as a nation. This definition of heritage is strongly linked to the histories of the Finnish Literature Society (SKS)[178] and the Finnish Antiquarian Society[179]. In ten of the disaster cases, the

[178] The Finnish Literature Society (SKS) was founded in 1831 by the scholars of the Imperial Alexander University of Finland (1809–1917) who were interested in Finnish folk traditions and the Finnish language. Initially, the central objective was to promote the collecting of Finnish folk traditions and folk poetry, but later in the 19th century, the society committed itself to publishing Finnish literature in order to develop written Finnish. The Finnish Literature Society 2015, SKS in a Nutshell. https://www.finlit.fi/en/finnish-literature-society-sks/sks-nutshell#.YDO2ENVxdPY

[179] The Finnish Antiquarian Society was founded in 1870. The background of the society was in the general concern over the deterioration of Finnish Medieval castles and stone churches. The objective was to operate as a scientific association that educates the public and collects ancient remains, arts, and old items for the collections of the future The National Museum of Finland. The Finnish Antiquarian Society 2015, History of the Society. http://www.muinaismuistoyhdistys.fi/historia.html

heritage interpretation followed the historical romantic national idea of Finland's past and cultural heritage. These cases were linked to national memory institutions, such the National Museum of Finland and the National Library of Finland. Also, Finnish medieval castles, pre-historic archeological sites, Evangelical Lutheran churches, and the collections of the Finnish Literature Society have in my opinion represented the earliest idea of Finnish cultural heritage. Although the National Library of Finland, hosted by the University of Helsinki, only became an independent organization in 2006, the idea of national memory institutions such as museums, libraries, and archives are a nationally inspired way to organize cultural heritage. The water damage at the National Library of Finland could also be approached from the perspective of built cultural heritage, because the damage took place in a storage located in a modernist architectural site. The disaster cases related to nationally inspired heritage sites are:

1. Vartiokylä Hill Fort, vandalism in the 1990s and 2000s
2. Turku Castle, art vandalism in 2008
3. Tyrvää St. Olaf's Church, arson in 1997
4. Porvoo Cathedral, arson in 2006
5. Lempäälä St. Bridget Memorial Church, attempted arson in 2008
6. Suomenniemi Church, attempted arson in 2009
7. Hammarland Church, attempted arson in 2010
8. Finnish Literature Society Library, water damage in the archives in 2003
9. National Museum of Finland, gas explosion in 2006
10. National Library of Finland (previously also Library of the University of Helsinki), depository under the building Porthania, humidity and water damage in the 1990s and 2000s.

In the remaining nine cases, cultural heritage is approached from the wider perspective of historical documentation. Here I suggest that heritage serves as evidence of the cultural, political, and economic changes as well as the history of Finnish society. In these cases, heritage represents socially widely accepted and recognized approaches to the past. The cases are:

1. St. Jacob's Church, art vandalism in 2008
2. Jyväskylä Orthodox Church, vandalism in 2010
3. Kotka Orthodox Church, vandalism in the 1990s and 2000s
4. Uspenski Orthodox Cathedral, icon larcenies in 2008 and 2010
5. Kaivoksela Church, arson in 2006
6. National Land Survey of Finland's Uusimaa office, terminal archives water damage in 1994
7. Archives of the National Land Survey of Finland, fire during construction work in 2004
8. Valvilla Wool Mill Museum's archives, fire in 2003
9. Kiasma Museum of Modern art, VR warehouse fire that caused safety preparations in 2006.

2.8.1 Heritage of Finnish folk churches

In my research there are also heritage sites that belong to Finnish folk churches. In this chapter I clarify the history and the position of folk churches in Finland. Religion has shaped local societies and cultural landscapes through built environments. These cultural forms of the past represent political control, social order, cultural identity, and social power. Religion and cultural conflicts have a long history in both maintaining and destroying heritage sites with symbolic value.[180]

Christianity and the battle between the Western and Eastern worlds have had their impacts on Finnish folk religions. The history of the Evangelical Lutheran Church of Finland and the Orthodox Church of Finland indicate Finland's long history between the East and the West. But the history of Christianity in both Scandinavia and Russia precede the division of the Christian Church in 1054 into the Eastern Orthodox Church and the Western Catholic Church.

Historic documents indicate that influences came to Finland from the west through Sweden as Roman Catholicism and from the east through Novgorod as the Orthodox faith. Sweden's first crusade to Finland took place possibly in 1155.[181] The conversion of Finland to Catholicism was not completed until the late 13th century with Sweden's third crusade over the Gulf of Bothnia, this time to eastern Finland.[182]

Orthodox Christianity came to Karelia and the south-eastern parts of Finland in the 11th century through the influence of the Novgorod principality. In the 15th and 16th centuries, Orthodox Christianity had become the religion of the Karelian people, but Novgorod nevertheless tried to expand its influence into western Finland while Sweden tried to broaden its influence into the eastern parts of Finland.[183]

In both Sweden and Finland, King Gustaf Wasa enforced the Reformation in Västerås, Sweden, in 1527. This resulted in the kingdom of Sweden becoming Lutheran and, afterwards, the previously Catholic parishes in Sweden and Finland becoming Evangelical Lutheran parishes.[184] The development towards a state church, which had started when the country was Catholic, continued after the Reformation. Since the 16th century, the Evangelical Lutheran Church has held a central position in Finland.[185]

Both the Evangelical Lutheran Church and the Orthodox Church are today recognized as Finnish folk churches. Over the last twenty years, the position of

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[180] Singh 2008, 125.
[181] The Evangelical Lutheran Church of Finland 2014, Suomalaiset lähetystyössä.
http://evl.fi/evlfi.nsf/Documents/60F1795C5F785657C225752F0045966A?openDocument&lang=FI
[182] Christensen 1995, 586.
[183] Uskonnot Suomessa 2015, Ortodoksiset kirkot.
http://www.uskonnot.fi/uskonnot/view.php?religionId=16
[184] Kansallisbibliografia 2014, Gustaf Wasa.
http://www.kansallisbiografia.fi/kb/artikkeli/315/
[185] Christensen 1995, 588.

the Evangelical Lutheran Church both as an institution and as a religious community has faced increasing challenges. In 1995, the Evangelical Lutheran Church's recognized position in Finland made it into public discussion, but so far there have been no changes to the official status of the church.[186] The cultural changes in the Evangelical Lutheran Church's position in Finland have been like those in Sweden and Norway. Finland, Sweden, and Norway are also the only Nordic countries where arson and attempted arson attacks on Lutheran churches have occurred since the 1990s.

The Evangelical Lutheran Church has been an object of antiquarian interest since the days of National Romanticism and Finland's cultural self-determination in the 19th century. The common term "Finland's churches" refers to the Evangelical Lutheran Churches of Finland. The churches, especially the medieval graystone churches, have been recognized as heritage sites since Finnish cultural heritage was first defined and the Finnish national awakening took place.[187] There are four medieval churches among the disaster cases in my research. These are the 1997 arson attack on Tyrvää St. Olaf's Church, the Porvoo cathedral arson attack in 2006, the 2008 attempted arson attack on Lempäälä St. Bridget Memorial Church, and the attempted arson attack on Hammarland Church in 2010. There are also two younger churches that fell victim to arson in the late 2000s. These are the attempted arson attacks on Suomenniemi Church in 2009 and the Kaivoksela church arson attack in 2006. The 1950s St. Jacob's Church belongs to a Finnish-Swedish Lutheran parish in the suburb of Lauttasaari, Helsinki. The church was burgled and some of its ecclesiastical objects were vandalized in 2008. Most of these churches are protected by the Church Law.

The disasters in the Orthodox Churches of Finland are Uspenski Cathedral's icon larcenies in 2008 and 2010, Jyväskylä Orthodox Church's vandalism incident in 2010, and Kotka Orthodox Church's vandalism cases in the 1990s and 2000s. All these Orthodox churches are important to the history of the Orthodox Church of Finland.

2.8.2 The cultural heritage of Finnish memory institutions

In this section, I will present disaster cases that represent the cultural heritage of Finnish memory institutions. The terminal archives in the Uusimaa office of the National Land Survey of Finland suffered from water damage in 1994, and the roof of the same organization's new archives building caught fire in 2004, just before the building's construction work was finished. The National Land Survey of Finland's archival documents represent cultural heritage that have both significant cultural historical meaning and are socially important. The archives are used by both researchers and authorities. The Archives of the National Land Survey of Finland are an important source of information for official records and databases.[188]

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[186] Christensen 1995, 597.
[187] The Finnish Antiquarian Society 2015, Historia.
http://www.muinaismuistoyhdistys.fi/historia.html
[188] Archives of the National Land Survey of Finland 22.5.2009, themed interview.

The Porthania building represents the cultural heritage of the 1950s in Helsinki. The international organization DOCOMOMO[189] has listed the building as an important example of Finnish modernist architecture. Built as the institution center of the University of Helsinki, Porthania was constructed using the latest building techniques.[190] Part of the ground floors were designed as a depository for the Helsinki University Library. In 2006, the library was divided into two organizations based on collections. This research examines the water damage that deteriorated and endangered the collections of what was later to be known as the National Library of Finland. The collections located in Porthania represented important national cultural heritage. According to the interviewed representatives of the library, the water damages started in the 1980s. They were caused by both natural forces, such as heavy rains, and construction techniques of the building.[191]

The Finnish Literature Society was founded in 1831 to support the development of Finland's national identity through the promotion of Finnish language and culture. This was very much in line with early 19th century regional power politics. The Finnish Literature Society had a key influence on the national development of Finland. The society promoted Finnish language through publications and recorded Finnish ethnographic data such as oral folklore and cultural traditions. The development of Finland into an independent nation was based on the establishment of Finnish language and culture. Both the language and the culture were central to the identification of the Finns as Finnish.[192] Since the Finnish Literature Society has had a significant role in Finland's national development, the society's collections also represent essential cultural heritage in Finland. The storage facilities where the water damage occurred in the summer of 2003 were situated in the underground floor of an apartment building in Helsinki city center.

The Valvilla Wool Mill Museum was established in 1981 to preserve the traditional textile manufacturing history of the city of Hyvinkää. The museum also represents the history of Finnish textile industries, especially wool textile production. Wool Mill Ltd., later known as the Valvilla Wool Mill, was founded in 1892 in the city of Hyvinkää by the Finnish manufacturer and engineer Mr. Ossian Donner.[193] The establishment of the wool mill launched Hyvinkää's development into an industrial community. The Wool Mill was initially a spinning mill, but it later grew into one of Finland's largest and most diverse production wool mills.[194] The growth of the factory also influenced the growth

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189 DOCOMOMO = International Working Committee for Documentation and Conservation of Buildings, Sites and Neighborhoods of the Modern Movement.
190 RKY 2015, Helsingin yliopiston rakennukset keskustakampus. http://www.rky.fi/read/asp/r_kohde_det.aspx?KOHDE_ID=4633
191 The National Library of Finland 4.2.2011, themed interview.
192 The Finnish Literature Society 2015, SKS in a Nutshell. https://www.finlit.fi/en/finnish-literature-society-sks/sks-nutshell#.YDO2ENVxdPY
193 RKY 2015, Hyvinkään Villatehdas. http://www.rky.fi/read/asp/r_kohde_det.aspx?KOHDE_ID=4023
194 RKY 2015, Hyvinkään Villatehdas. http://www.rky.fi/read/asp/r_kohde_det.aspx?KOHDE_ID=4023

of its host city, Hyvinkää.[195] In 1981, textile manufacturing in Hyvinkää ended, but the company still continued as a spinning mill until 1991.[196] Finland underwent a severe economic depression between 1990 and 1993. The Wool Mill closed in the early 1990s and the company donated both the museum and its whole collection to the city of Hyvinkää.[197] In 2003, Valvilla Wool Mill Museum's archives were severely damaged and partly destroyed in a fire.[198] Figure 2 shows the old factory building where Valvilla Wool Mill Museum is located.

FIGURE 2 Valvilla Wool Mill Museum. Photo: Pentti Halenius 2012.

The National Museum of Finland[199] was founded in 1893 and the museum collections are based on the cultural historical and ethnographic collections of the Imperial Alexander University[200] and the collections of the Finnish Antiquarian Society. An architecture competition for planning a museum building was organized in 1902 and won by architects Herman Gesellius, Armas Lindgren, and Eliel Saarinen. The main parts of the museum were built in 1905–1910 and it opened to the public in 1916. The building of the National Museum of Finland represents the late-1890s and early-1900s idea of museum architecture, with the building itself reflecting the museum collections.[201] There was a natural gas explosion in the National Museum of Finland's treasury troves silver display in January 2006.[202] Both the museum building and the silver collections represent significant national cultural heritage in Finland.

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[195] Hyvinkää City Museum 2012, website of Valvilla Wool Mill Museum. http://www.hyvinkaa.fi/Kulttuuri-ja-vapaa-aika/Kulttuuri-ja-taide2/Museot-galleriat-nayttelyt/kaupunginmuseo/Valvillan-tehdasmuseotekstiilimuseo/
[196] Hyvinkää City Museum 2012, website of Valvilla Wool Mill Museum. http://www.hyvinkaa.fi/Kulttuuri-ja-vapaa-aika/Kulttuuri-ja-taide2/Museot-galleriat-nayttelyt/kaupunginmuseo/Valvillan-tehdasmuseotekstiilimuseo/
[197] Hyvinkää City Museum 20.5.2009, themed interview.
[198] Hyvinkää City Museum 20.5.2009, themed interview.
[199] In Finnish: Valtion Historiallinen Museo.
[200] Now known as the University of Helsinki.
[201] The Finnish Heritage Agency 2015, Kansallismuseo, Helsinki. http://museovirastorestauroi.nba.fi/museot/kansallismuseo
[202] The National Museum of Finland 9.2.2011, themed interview.

Turku Castle is the oldest of the administrative castles of the Swedish crown in Finland. It was in use from the Medievals to the early 19th century. Turku Castle was used as the seat of the Swedish government in Finland during the whole era Finland formed part of Sweden. The castle was founded in the 1280s and its oldest parts were built at the beginning of the 14th century. It was extended in the late 14th and 15th centuries and modernized into a Renaissance castle in the 16th century. In the 1770s, part of the castle was turned into a prison after the government moved closer to the current Turku city center. The castle was used as a prison and a storage space during the late 18th century and most of the 19th century. In 1890, Turku Historical Museum[203] took over part of the castle. The restoration of the entire castle and its conversion into a museum began in 1939, with the restoration work pausing for the war years, and continuing after the Continuation War. With the restoration completed, the castle was opened to the public in 1961.[204] Because the castle plays a key role in Finnish history, it represents important national cultural heritage. The permanent museum exhibition in the castle presents both Finland's history during Swedish rule and the history of Turku. Some museum objects, mainly portraits, were vandalized at the exhibition in 2008. Some portrait canvases and paint layers were damaged with carved or pressed marks.

The history of the Finnish Museum of Contemporary Art began in 1939 when the Finnish Contemporary Art Association was founded to improve the position of modern art and modern artists in Finland. The society had a prominent role in the Finnish art world, especially in the 1950s. The Association for the Museum of Modern Art was founded in 1983. The association's objective was to participate in public discussions and to influence public opinion on modern art in Finland. The Museum of Contemporary Art was established as part of the Finnish State Art Museum, since 2014 the Finnish National Gallery, and its work started in 1990 in temporary premises.[205] In 1991, the Museum of Contemporary Art moved into the renovated Ateneum Art Museum.[206] The architecture competition for the Finnish Museum of Contemporary Art was won by the U.S. architect Steven Holl in 1993. The construction of the museum and exhibition building named Kiasma began in 1996 and was compleated in 1998.[207] Kiasma[208] represents the history of contemporary art since the 1960s in Finland and both the museum building and its collections represent nationally important cultural heritage in Finland.

The warehouses of the national railway company VR were designed by the architect Bruno Granholm and were built between 1898 and 1899. The railway

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[203] Turku Historical Museum was established in 1881. The museum was later known as Turku Provincial Museum (1981–2009) and Provincial Museum of Southwest Finland (2009–)
[204] RKY 2015, Turun Linna.
http://www.rky.fi/read/asp/r_kohde_det.aspx?KOHDE_ID=1844
[205] Pettersson 9.1.2019: discussion about Kiasma Museum of Modern Art.
[206] Pettersson 9.1.2019: discussion about Kiasma Museum of Modern Art.
[207] Kiasma 2015, Birth of the Museum of Contemporary Art Kiasma.
http://www.kiasma.fi/en/kiasma/story-of-kiasma/
[208] The Finnish Museum of Contemporary Art.

transportation services used the warehouses until the late 1980s, when they were turned into a site for a variety of cultural and arts activities. In the 1990s, a popular flea market took place at the VR warehouses and they became an important central hub for young adults in Helsinki.[209] There was a massive fire at the VR warehouses closest to Kiasma. The fire gases, heat, and the large crowds caused safety precautions in Kiasma. Before the fire, the future of the VR warehouses was a topic of widespread public debate. A decision had been made to tear them down to clear a space for a new music hall. A large local community considered the VR warehouses as important cultural heritage, the value of which was not fully recognized by the local building protection authorities.

Vartiokylä Hill Fort is situated in a suburb in Helsinki. The site is surrounded by an area of detached residential buildings and is located near Vartiokylä Bay. The hill fort is one of Helsinki's most important archeological sites, because of its long and multi-layered history. The site comprises three archeological vestiges related to Finnish military history. These are the ruins of a Late Iron Age or Early Medieval fortress, a brick mill that manufactured bricks for Suomenlinna Sea Fortress, and the remains of the First World War fortress, Base V.[210] As a heritage site, Vartiokylä Hill Fort is part of the "national awakening" and heritage definition history of Finland. Archeological interest in the hill began in 1877 when the pastor Henrik August Reinholm visited the site and published an article about it in the Finnish Antiquarian Society's Journal VI.[211] The first recorded documentation of Vartiokylä Hill Fort was conducted by J. E. Tuomala in 1886. Wider documentation and a description of the hill fort was done by the secretary of the Finnish Antiquarian Society, Hjalmar Appelgren, in the summer of 1888. The first map of the hill fort was done on the basis of Appelgren's description, and since then, Vartiokylä Hill Fort has been one of the most important prehistoric archeological heritage sites in the capital city area of Finland.[212] The site was evaluated in 2011 as belonging to the first category of archeological heritage sites in the capital city area of Finland.[213] Vartiokylä Hill Fort has been target of constant deliberate destruction and vandalism since the 1980s.

[209] Magito.fi 2019, web article. http://www.magito.fi/makasiinit.net/historia.htm
[210] Schulz 1998, 4–5.
[211] Schulz 1996, 6.
[212] Schulz 1996, 7.
[213] The Finnish Heritage Agency, Department of Archeology 2.3.2011: Themed interview.

3 THE PRESERVATION OF CULTURAL HERITAGE

The purpose of this chapter is to describe how the concept of preservation has changed over time and how idea of preservation is used in my research. My aim is to analyze how conservation theories have been used to prevent or reduce the risk of destruction that threatens cultural heritage. I am using preventive conservation theory to adopt measures to prevent heritage disasters and to reduce heritage damages in disaster situations.

Throughout history, conservation have pursued the preservation of values attached to cultural heritage.[214] Jonathan Ashley-Smith (1999) suggests that the value of cultural heritage correlates with its overall state. The deterioration of cultural heritage affects the time in which the loss in value occurs and heritage's overall condition is weakened.[215] From this perspective, rapid catastrophic accidents and disasters affecting cultural heritage are the most threatening events for the long-term preservation of cultural heritage, because they can very quickly lead to either the total or a significant loss in its value.

The preservation of cultural heritage has been "a moral responsibility" for organized societies because it maintains and strengthens the cultural identity of a nation and the definition of its past. Since the 18th century,[216] the central objective of preservation has been to safeguard the existence of human heritage.[217]

The aim of preventive conservation is to minimize the deterioration and loss of cultural heritage. Today the concepts of continuous preventive conservation and risk management have a leading role in the heritage preservation strategies of many organizations. Minimal intervention has been used to protect the historical integrity of objects and to retain re-treatability.[218] Current ethical principles of conservation support the idea of minimal intervention in cultural heritage.

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[214] ICOMOS 1994, Nara Document on Authenticity. https://www.icomos.org/charters/nara-e.pdf
[215] Ashley-Smith 1999, 24–25.
[216] Jokilehto 1999, 1.
[217] Cloonan 2007a, 747.
[218] Waller 1996, 7.

3.1 Development of modern conservation

According to Jukka Jokilehto (1999) the history of modern preservation and restoration started in 14th century Rome, where the focus was on historical monuments and churches that still had their uses. The protection of ancient monuments was valued because of their documentary value, which resulted in the prioritization of monuments with Latin inscriptions. Later, ancient objects and historical structures without inscriptions were also considered to have documentary value.[219]

The most important ideological development in modern heritage conservation took place during the Romantic era. There was increasing historical awareness in original features of heritage sites and objects, now considered to be an essential part of their authenticity and valued not only because of their aestheticism but also as representations of history. Historical sites representing national monuments were restored by architects and builders who tried to maintain their ability to mediate a particular interpretation of cultural history. This new philosophical approach resulted in restoration becoming a professionalized process aiming at stylistic unity.[220]

At the beginning of the 19th century, the Romantic movement existed side by side with the development of positivist philosophy and modern scientific and industrial progression.[221] In the 1830s, restoration practices started to follow a research-based minimum intervention approach. When the protection of historical buildings started to gain interest in France, the evaluation of the value of cultural heritage focused on the documentary and artistic values of the site.[222]

The discussion about restoration principles continued throughout the 1840s. The core of this debate related to the scale of treatments and the basis on which decisions on restoration were made. There were professionals who supported the minimal intervention approach as well as those who preferred large-scale restoration. The professionals preferring the minimal intervention approach argued for the documentary nature of heritage sites. This approach concluded that even multilayered cultural heritage should be conserved intact. Supporters of the full-scale restoration movement underlined the historical and monumental features of heritage sites while also taking into consideration the aspects related to the use of the buildings.[223] The 19th century was an important period in the history of the protection and conservation of cultural heritage as it saw certain of its key concepts, such as originality and imitation, defined for the first time in the context of cultural heritage.[224]

The development of modern historicity and theory of preservation resulted in increased state control over both cultural heritage and its preservation. The

[219] Jokilehto 1999, 301.
[220] Jokilehto 1999, 101.
[221] Jokilehto 1999, 137.
[222] Jokilehto 1999, 153.
[223] Jokilehto 1999, 149.
[224] Jokilehto 1999, 17.

framework of control created regulative norms and legislation that were used to protect the maintenance of cultural heritage. At first the concept of cultural heritage contained mostly historical sites and works of art but was later expanded to also include historical objects, ethnographic collections, historical gardens, cities, and landscapes. The regulative norms for the protection of cultural heritage and heritage administration were established to maintain cultural heritage that was publicly owned. Regulative protection was later extended to also cover significant privately-owned heritage sites.[225]

The criteria of authenticity and integrity have strongly influenced the evaluation of cultural heritage.[226] These values have sparked a discussion on the ethics of intervention.[227] As a result, treatments that respected the authenticity and the effects of time on cultural heritage were regarded as suitable modes of conservation.[228]

3.1.1 Aesthetic theories of modern conservation

In the mid-20th century, two theoretical movements of modern conservation became common in the field of heritage preservation. These were the aesthetic conservation theory and the new scientific theory of conservation. Both theories followed the tradition of classical conservation, which also aimed at the preservation and recovery of the integrity of cultural heritage through the means of conservation.[229]

Cesare Brandi was a modern conservation theorist who emphasized artistic and aesthetic values in the preservation of cultural heritage. This meant that the aesthetic values of cultural heritage were recognized in making conservation decisions.[230] In modern conservation, the aesthetic theory focused on the aesthetic and artistic integrity of cultural heritage. Aesthetic theories provided conservation and preservation with difficult tasks such as maintaining the historical authenticity of cultural heritage and recovering its artistic integrity.[231]

Classical aesthetics approached cultural heritage in a way that bound together the history and artistic authenticity of its objects. The field of conservation was heavily influenced by the theories of objectivism and the 20th century philosophies that examined the nature of truth. The use of aesthetic theories as the central theoretical basis in conservation has been considered problematic because aesthetic theories often highlight the artistic nature of heritage objects and limit the analysis to historical and artistic integrity.[232]

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[225] Jokilehto 1999, 18–19.
[226] Welburn & al. 2009, 2–3.
[227] Brooks 2014, 6.
[228] Brooks 2014, 7.
[229] Muñoz Viñas 2011, 67.
[230] Muñoz Viñas 2011, 6.
[231] Muñoz Viñas 2011, 67.
[232] Muñoz Viñas 2011, 69.

3.1.2 New scientific conservation

The key principle of new scientific conservation is to preserve the material information of cultural heritage. This principle rises from the belief in scientific knowledge and the need to preserve the material information embedded in cultural heritage. Like classical conservation theories, scientific conservation also seeks to gain truth through the preservation of cultural heritage. In this context, material truth is regarded as the truth of cultural heritage.[233] The second important principle influencing both classical conservation theories and new scientific conservation is related to the originality of heritage. As a result, the conservation of cultural heritage often aims to preserve some of the original appearance of cultural heritage.[234]

In the late 1880s, the scientific methods of the physical sciences started to gain ground in the conservation and preservation of cultural heritage. This resulted in museums establishing their own conservation laboratories. The first conservation laboratories were founded in the Königliche Museen zu Berlin[235] in 1888 and in the British Museum in 1919. Similar conservation laboratories were later established in the Louvre and in museums in Cairo and at Harvard in 1925, followed by Rome, New Delhi, and Tokyo in 1938.[236] The development of scientific research methods and knowledge at the beginning of the 20th century allowed for the use of conservation and preservation as new scientific methods.[237] The conservation treatments were developed in the established research laboratories.

The general development of physical sciences influenced modern conservation, resulting in the simultaneous development of both the conservator's profession and the regulated conservation treatments from the 1930s onwards. A crucial step was the establishment of the International Museum Office[238] and its active role in increasing the interaction between conservators and researchers based in different countries. The first International Conference for the Study of Scientific Methods for the Examination and Conservation of Works of Art was held in Rome in 1930.[239] This congress led to the establishment of normative agreements, or charters, of heritage conservation. Later, these agreements became the central means of developing the conservation practices of conservator-restorers. The Athens charter established in 1931 was the first charter drafted by conservator-restorers and other heritage specialists. After this, charters have been the central means in defining the professional ideas about heritage conservation. Conservation professionals and scientists started to have

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233 Muñoz Viñas 2011, 81.
234 Muñoz Viñas 2011, 82–85.
235 Now known as Staatliche Museen zu Berlin – Preußischer Kulturbesitz.
236 Jokilehto 1999, 299.
237 Waller 1996, 1.
238 International Museum Office was a body of the Languages of Nations that existed before the UN. von Imhoff 2009, 2.
239 von Imhoff 2009, 2.

more regular international interaction with each other on questions regarding the conservation of cultural heritage.[240]

The International Institute for the Conservation of Museum Objects[241] was established in 1950 to promote and support the use of natural sciences in heritage conservation. After the 1950s, the scientific conservation theory started to receive more recognition in the field of conservation, and it was regarded as the best theoretical approach to the preservation and maintenance of cultural heritage.[242] New scientific applications were applied to the preservation of heritage and significant progress was made in conservation research in the 1970s and 1980s.[243]

Different theoretical approaches to conservation have dominated in different geographical areas. In the Mediterranean countries and South America, the approach emphasizing aesthetic and artistic values has been the central theoretical movement. In Anglo-Saxon countries and in Finland the approach modelled after physical sciences has prevailed.[244]

The increased regulation of conservation approaches led to the establishment of conservation guidelines, which have since been regarded as standards. The development of standards in conservation were based on the initial stages of modern scientific conservation, experiences, and contemporary knowledge. The objective of the guidelines was to improve the preservation of cultural heritage while maintaining its usability.[245] According to Rebeca Alcántara (2002), the use of standards was introduced in the field of conservation in the late 1940s as recommendations for the preservation of collections. These standards included recommendations for the suitable levels of relative humidity, temperature, and light. During the 1960s, these early recommendations were used in association with preventive conservation measures. The earliest standards concerning preventive conservation were Robert Fuller's *Standards of Exposure to Light* (1963) and Nathan Stolow's *Standards for the Care of Works of Art in Transit* (1981).[246]

Although the profession of conservator was established in France in the 1830s[247], it started to develop into its current form in Europe and the United States in the 1950s and 1960s.[248] Behind the development was concern over the treatments carried out by poorly trained conservation technicians and artisans.[249] The American Group of the International Institute for Conservation of Historic and Artistic Works (IIC) presented its first set of guidelines and standards in 1963 in a document known as *The Murray Pease Report*. A code of professional ethics

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240 Muñoz Viñas 2011, 6.
241 Currently known as the International Institute for Conservation of Historic and Artistic Works (IIC). Muñoz Viñas 2011, 69.
242 Muñoz Viñas 2011, 69–70.
243 Jokilehto 1999, 299.
244 Muñoz Viñas 2011, 6.
245 Alcántara 2002, 15.
246 Alcántara 2002, 8.
247 Jokilehto 1999,125.
248 Alcántara 2002, 7.
249 Alcántara 2002, 8.

was later added to the document and it was published as *The Code of Ethics and Practice* in 1979.[250]

The history of organized conservation training began in 1956 when UNESCO established the Rome Centre, which started its work in 1959. The Rome Centre has been known as ICCROM[251] since 1977.[252] During the last decades of the 20th century, the methodology of physical sciences gained a more central role in heritage preservation and conservation processes, largely because of the increased use of scientific techniques and equipment in the conservation of cultural heritage.[253] After scientific conservation theory had become the leading approach in preservation, conservation became an academic discipline.[254] Since the early 1980s, many countries have provided conservation training at higher education institutions, mostly at universities.[255]

Due to the changes in the theoretical thinking of heritage and conservation, the assessment of the value of heritage has been recognized from the 1970s onwards as a key part of the preservation process.[256] As a result, the theoretical concepts related to conservation started to evolve in the 1970s into an appreciation of minimal intervention in heritage preservation. This resulted in the rapid development of preventive conservation theory. Together with the re-evaluation of the possible reversibility of conservation, the development led to minimalist tendencies starting to dominate conservation practices.[257] This progress made preventive conservation methods more precise and extensive.[258] In the late 20th century, new scientific conservation theory and the aesthetic conservation theory started to influence the field of heritage conservation. The new scientific conservation theory underlined the importance of scientific techniques in heritage conservation more than the aesthetic and philosophical theories had done.[259] In the new scientific conservation theory, physical sciences such as chemistry and physics played a significant part in the conservation of cultural heritage while the meaning of humanities was slightly reduced.[260]

The dominant new scientific conservation theory has also been subject to criticism.[261] The main criticism has been the strong role of physical sciences in conservation practices and decision-making. Although it is widely agreed that physical science has improved preservation processes, the actual benefits and significance of scientific conservation practices have been contested. Not all

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250 Alcántara 2002, 7.
251 ICCROM = The International Centre for the Study of the Preservation and Restoration of Cultural Property.
252 Redondo 2008, 1.
253 Muñoz Viñas 2011, 6.
254 Muñoz Viñas 2011, 6.
255 von Imhoff 2009, 4.
256 Avarami 2000, 19.
257 Redondo 2008, 1.
258 Waller 1996, 1.
259 Muñoz Viñas 2011, 6.
260 Muñoz Viñas 2011, 7.
261 Muñoz Viñas 2011, 144.

problems of conservation practice can be solved with the means of physical science.[262]

3.2 Contemporary conservation theory

Current scientific conservation theories use multiform approaches to analyze cultural heritage to promote its preservation.[263] This contemporary approach can also be identified in my research. According to Salvador Muñoz Viñas (2011), the theoretical discussion on conservation started to include more critical and varying voices from the 1980s onwards. These often conflicting voices convey an image of fragmented and disjointed theoretical thought. Novel ideas were usually presented in research papers, conservation reports, and in communication between conservation professionals.

This new movement in the preservation of cultural heritage was defined by Salvador Muñoz Viñas as *contemporary conservation theory*. Muñoz Viñas argued that the movement represented a theory because the new conservation ideals reflected a uniform conceptual approach to the preservation of heritage. Contemporary conservation theory did not follow classical conservation theories and it sometimes even promoted approaches that directly contradicted the classical conservation theories.[264]

The guiding principles of contemporary conservation theory are the function and value of cultural heritage.[265] The functional approach does not limit its focus to the aesthetic and historical aspects of cultural heritage but it also highlights other uses, such as those driven by political, economic, or cultural interests. Cultural heritage can be used, for example, to market commercial products or places and to create cultural cohesion among social groups. The value-led approach is connected to the functional approach in conservation. The criteria are led by a set of values that individual people and social groups have placed on cultural heritage.[266] The fundamental idea behind value-led conservation is that decisions should be based on analysis of the values that cultural heritage represents for different people and social groups. The objective of conservation is to produce a result that will promote the balance between different parties. This approach suggests that in the 1990s and the 2000s, heritage preservation processes have sometimes become interactive, with public opinion influencing the decisions of heritage professionals.

Since the 2000s, the value of cultural heritage has been recognized as being part of both the planning and the actual process of conservation. Both the Nara Document and the Burra Charter were important in turning the assessment of the value of heritage into a recognized part of the conservation processes.

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[262] Muñoz Viñas 2011, 145.
[263] Muñoz Viñas 2011, 69.
[264] Muñoz Viñas 2011, 7.
[265] Muñoz Viñas 2011, 171.
[266] Muñoz Viñas 2011, 177–178.

Participation-based processes that involved interest and stakeholder groups in the preservation process became a more common approach in Western countries. Participatory processes were used to promote the sustainability of conservation treatments.[267] In Finland, the use of participatory processes in the conservation of cultural heritage has remained uncommon.

In Salvador Muñoz Viñas' contemporary conservation theory, the conservation processes take place in interaction with stakeholders. The aim is to reduce power-related conflicts. Viñas states that contemporary conservation theory is based on "negotiation, equilibrium, discussion and consensus."[268] This theory emphasizes the three main reasons for conversation presented by Stefan Michalski: 1. the preservation and improvement of the meaning of heritage as scientific evidence; 2. the preservation or improvement of the symbolic meaning of heritage for its stakeholders; and 3. the preservation or improvement of the emotional and symbolic meaning of heritage for both individuals and groups of people.[269]

Contemporary conservation theory recognizes the expressive function of conservation. The expressiveness of conservation means that preservation has an impact on society, even if it is represented as a by-product of the preservation process. The decision to conserve a cultural object results in the object being regarded as cultural heritage rather than as an object that requires conservation and preservation. This expressive nature of preservation may cause the re-evaluation of cultural heritage through funding and social values. The classical conservation theories that were built on the concept of truth have not been open to this communication-based approach in conservation.[270]

The increased recognition of cultural diversity and the physical condition of heritage has brought about a new situation where the meanings of cultural heritage and the politics of preservation have been reassessed.[271] According to Michèle Cloonan (2007b), the traditional heritage preservation strategies, based on the guardianship and maintenance of memory institutions, changed into the heritage preservation model where local communities contributed more to the preservation and maintenance processes of cultural heritage of their own societies.[272] Michèle Cloonan (2018) suggests that the preservation of cultural heritage should be approached in a new way in the contemporary world. Contemporary heritage preservation requires the efforts of an increasing number of stakeholders.[273]

Emma Waterton, Laurajane Smith, and Gary Campbell (2006) suggest that community participation should contain both negotiation over the meaning of cultural heritage and heritage and conservation values. Conservation ethics should, according to Waterton, Smith and Campbell, be open to redefinition. The

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267 Avrami 2000, 19.
268 Muñoz Viñas 2011, 163.
269 Muñoz Viñas 2011, 175.
270 Muñoz Viñas 2011, 176–177.
271 Jokilehto 1999, 19.
272 Cloonan 2007b, 133.
273 Cloonan 2018, 184.

aim is to develop an inclusive heritage practice that engages heritage professionals in communications with stakeholder communities. This communication should be open to criticism and self-reflection.[274]

From the 2000s onwards, there have also been critical voices concerning conservation and preservation, especially in the cases of severely damaged or destroyed cultural heritage. One of these critics is Cornelius Holtorf (2006) who has argued that destruction and loss are part of the topicality of cultural heritage. Holtorf believes that in contemporary mass production societies, the destruction and preservation of cultural heritage should not be treated the same way as it has been treated in the past. He claims that both culture and history have modified the ideology of preservation so that we now seek to conserve all records.[275]

3.3 Risk management and risk assessment

Risk management refers to actions that aim at the management of cultural heritage in conditions that threaten its long-term preservation.[276] My objective is to study the management work of heritage risks through 19 disaster cases.

Risk management begins in organizations with the political will to protect cultural heritage against observed risks and by providing available financial resources for risk management and reduction work. Risk management work consists of risk analysis and evaluation, risk reduction, and emergency planning.[277]

Risk management measures are rarely able to prevent disasters, but they can limit their effects on cultural heritage and minimize the loss of value after the disaster. Risk management comprises the evaluation of general heritage risks, the estimation of the impact of risks, and the planning of measures that aim to reduce the loss in heritage value. Climate change has increased the global importance of risk management and risk assessment work.[278]

Risks cannot be evaluated before they have been identified. In addition to assessing the likelihood of catastrophe, risk analysis must also estimate its effect on the overall condition of cultural heritage. The influence of risk on cultural heritage is evaluated in relation to its present condition and potential loss in value.[279] Risk management is based on a decision-making process that contains the evaluation of the possible impacts action may have on cultural heritage. All options that can be used to reduce risks have to be evaluated, and risk management means are selected, introduced, and monitored. The most

[274] Waterton & Smith & Campbell 2006, 351.
[275] Holtorft 2006, 101.
[276] Wang 2015, 212.
[277] Oliver 1995, 44.
[278] Wang 2015, 212.
[279] Ashley-Smith 1999, 82.

important part in the decision-making process is the selection of risk management or risk reduction methods.[280]

Risk assessment analysis does not only allow for the identification of the main risks but they also provide the possibility to define the most important risk reduction and disaster response actions.[281] Cultural heritage risk management does not define individual decisions but a group or a series of decisions that as a process aim to either eliminate or reduce risks. In accident and disaster situations, first- and second-stage decisions must be defined in advance and the outcomes of these decisions must be evaluated from the perspective of heritage risk management.[282]

Stefan Michalski (1990) presented an overall framework that set out preventive conservation, emergency planning and remedial conservation for the use of heritage preservation. This early charter that contained perspective on the preservation process of cultural heritage approached the preservation of cultural heritage through deterioration agents, deterioration stages, means of preservation and means of emergency planning. Michalski's chart provided a disaster management model that could be applied in risk assessment and disaster management work. The five stages in Michalski's chart are: 1. avoid source of the deterioration agent, 2. detect the deterioration agent, 3. block the deterioration agent, 4. respond to the deterioration agent, and 5. recover heritage from the deterioration agent.[283]

In 1990, Stefan Michalski defined nine factors that were responsible for the physical deterioration of cultural heritage and one factor causing non-physical deterioration.[284] Physical deterioration is caused by 1. physical forces; 2. fire; 3. water; 4. criminals; 5. pests; 6. pollutants; 7. light and radiation; 8. unsuitable temperature; and 9. incorrect relative humidity. The deterioration agent causing non-physical deterioration is custodial neglect.[285] Most of these factors are present in the disaster cases discussed in my study—only deterioration caused by pests, light, and radiation are not. Michalski's parameters did not include deterioration caused by microorganisms such as fungi, bacteria, and mold. Later, deterioration caused by living organisms was defined as biological deterioration, including damage caused by pests and microbes.

At the beginning of the 1990s, no systematic means to identify the risks faced by the collections of memory institutions existed. As a result, no precise information on the evaluation of the relative magnitude of risks was available. Robert Waller (1994) developed his risk assessment framework at the Canadian Museum of Nature to provide cost-effective means to minimize risks faced by the collections of the museum. Included in Waller's framework were the definitions of both the benefits and the limitations of his model. The limitations and uncertainties were based on the limited understanding of the deterioration

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280 Ashley-Smith 1999, 22.
281 Pinhero & Macedo 2009, 434.
282 Ashley-Smith 1999, 34–35.
283 Michalski 1990, 589.
284 Waller 1994, 12; Waller 1995, 21.
285 Waller 1995, 22.

process and the difficulty of defining precise and objective evaluations of certain parameters of deterioration.[286]

Soon after he had presented his framework, Waller (1995) went on to develop Michalski's model by defining the relative importance of the deterioration agents and risk types. Waller divided Michalski's deterioration agents into three categories. The categories were based on an evaluation of how severe damage the deterioration agent could cause for cultural heritage in a certain type of disaster situation. The risk types Waller used in his risk assessment model were: 1. catastrophic; 2. severe; and 3. mild or gradual. The relative importance of the types was based on four categories varying from less important to most important. In his risk assessment table, Waller placed the frequency of occurrence and severity of effects of the different risk types into a framework where rare and catastrophic risks formed the first category; sporadic and severe disaster risks the second; and risks that occurred constantly and had either mild or gradual effects formed the third category.[287]

The objective of Waller's model of risk assessment was to give the different risks faced by cultural heritage collections a defined and more easily measurable form. The aim was to evaluate both the severity and the probability of the risk. Evaluation of the probability of risks belonging to the first category, such as floods or earthquakes, requires geographical and meteorological knowledge. Risks in the second category can be evaluated by museum professionals. Conservators have a vital role in this work as they evaluate the condition of cultural heritage. The assessment of risks belonging in the third category requires climatological research.[288] It is possible that climate change has changed the frequency and occurrence of the risk types globally, so that some of the rare disaster risks have become more sporadic or even constantly occurring.

In 1996, Waller presented a formula for cultural heritage risk analysis: P × FS × E × LV. In this formula, P represented the probability of damage; FS the fraction of the collection susceptible to damage; E the extent of damage; and LV the expected loss of value in the collection.[289] An increase in one factor of the formula has a multiplier effect on the entirety of cultural heritage risks.

Waller approaches risk assessment from the perspective of a 100-year period and through the evaluation of the magnitude of heritage risks. In 1994, Waller introduced a formula for the evaluation of the risk magnitude (RM) of cultural heritage.[290] According to Waller, risk magnitude could be evaluated with the formula FS x LV x E = MR, which provides the magnitude of a risk for a certain collection and for a specific risk type. In this formula too, each factor has a multiplier effect to risk magnitude. As a result, probability (parameter P), extent (E), fraction susceptibility (FS), and loss in value (LV) that might take place over a 100-year period vary between the frequencies of constant (3), sporadic (2), and rare (1). This model made it possible to identify both the risk assessment needs

[286] Waller 1994, 12, 15.
[287] Waller 1995, 23.
[288] Waller 1995, 24.
[289] Waller 1996, 3.
[290] Waller 1999, 113.

of certain heritage collections and the potential methods of control in cultural heritage risk management.[291] Despite the advantages of Robert Waller's risk management approach, he also points out the difficulties and uncertainties in defining specific risk magnitudes affecting collections because of a lack of precise information.[292] Climate change, however, makes it difficult to evaluate risks from a 100-year perspective today.

Waller (1995) has also defined three methods that can be used to manage cultural heritage risks. These are: 1. eliminate the sources of risks; 2. place a barrier between the heritage and the source of risk; and 3. act on the deterioration parameters responsible for the risk. According to Waller, quite often all three means can be used to mitigate the risks but often one of them proves to be the most effective.[293] Waller identified eight possible areas in which the three means of risk mitigation can operate: 1. location; 2. site; 3. building; 4. room; 5. cabinet; 6. specimen; 7. policy; and 8. procedure.[294] In my analysis of disaster cases, I have used Robert Waller's risk assessment model from the viewpoint of risk management of the disaster site, disaster response, and heritage recovery processes. In 2002, Robert Waller presented a more developed version of his risk assessment model, called the CMN.[295]

Memory institutions in other countries have also applied Robert Waller's models to collection risk management. According to Ana Catarina Pinheiro and Maria Filomena Macedo (2009), one of the models was applied successfully in Portuguese archives.[296] Risk management models have also been established to counter specific types of risks such as fires and insects as well as to generate more general-level preventive measures related to the long-term preservation of collections.[297]

Jonathan Ashley-Smith (1999) has presented several models for managing heritage risks. The common feature of these risk management models[298] is that all the stages where decisions must be made, all the possible decisions, and the estimated outcomes of these decisions will lead to either successful or unsuccessful management of risks. According to Ashley-Smith, in risk management processes the first-stage decisions and their outcomes will lead to a specific risk management route that will frame the options that are available when a certain risk is actualized. The first-stage decisions often dictate what kind of second-stage decisions can be made. From this perspective, the first-stage risk management decisions seem to be the most important. The second-stage decisions will influence the outcome of the risk management work, defining the

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291 Waller 1995, 24.
292 Waller 1995, 26.
293 Waller 1995, 24.
294 Waller 1995, 25.
295 CMN stands for the Canadian Museum of Nature.
296 Pinheiro & Macedo 2009, 429.
297 Wang 2015, 210.
298 Jonathan Ashley-Smith called his heritage risks management process models "decision trees." Ashley-Smith 1999, 36–41.

success of the process.[299] I have used all these models in my research data analysis.

3.4 Preventive conservation

Preventive conservation approaches the preservation of cultural heritage through policies and control that relate to environmental conditions, object handling, storage, exhibition, transportation, and risk management.[300] The objective of preventive care is to generate the kind of conditions for the storage, use, transportation, and handling of cultural heritage that promotes its long-term preservation.[301] The measures of preventive conservation are based on indirect actions that aim at the slowing down or prevention of the future deterioration of cultural heritage.[302] Research on the deterioration and preservation of cultural heritage materials has made it possible to apply specific means of preventive conservation. The collection policies and the collection management strategies became the central instruments through which the preventive conservation of cultural heritage started to develop in memory institutions.[303]

The ICOM Code of Ethics has defined preventive conservation as a central instrument in maintaining museum collections, influencing both museum policies and collection maintenance. Because preventive conservation plays a central role in the preservation work of memory institutions, this theoretical approach can be regarded as one of the most cost-effective means to create and maintain a protective environment and conditions for the everyday handling, storage, display, and transition of cultural heritage.[304] According to Robert Waller (1994), effective preventive conservation requires the ability to identify the risks that endanger the preservation of cultural heritage and the quantity of the events where these risks could be actualized.[305]

Elena Lucchi (2018) has identified five periods in the history of preventive conservation: 1. pioneer theories (1965–1975); 2. debate on preventive conservation (1976–1985); 3. strategic design (1986–1995); 4. research and operative tools (1996–2005); and 5. sustainability and energy efficiency (2006–

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[299] Ashley-Smith 1999, 36–41.
[300] Merritt & Reilly 2010, 11.
[301] E.C.C.O. PROFESSIONAL GUIDELINES March 1, 2002: I THE PROFESSION, I. Definition of the Conservator–Restorer. http://www.ecco-eu.org/about-e.c.c.o./professional-guidelines.html
[302] ICOM–CC 2008: Terminology to characterize the conservation of tangible cultural heritage. https://www.bing.com/search?q=ICOM–CC+2008%3A+Terminology+to+characterize+the+conservation+of+tangible+cultural+heritage.&form=ANNTH1&refig=edc2711fc4c14e0fbacb8c62d6d49c00&sp=-1&pq=icom–cc+2008%3A+terminology+to+characterize+the+conservation+of+tangible+cultural+heritage.&sc=0-89&qs=n&sk=&cvid=edc2711fc4c14e0fbacb8c62d6d49c00
[303] Rose & Hawks 1995, 1, 3–4.
[304] ICOM Code of Ethics: 2. Museums that maintain collections hold them in trust for the benefit of society and its development, 2.23 Preventive Conservation.
[305] Waller 1994, 12.

2016).[306] According to Lucchi, the early history of preventive conservation deals with the national laws for the protection of cultural heritage and the interest in the questions related to the climatology of the museum building. Lucchi considers Cesare Brandi's theory on preventive restoration[307] and Giovanni Urbani's concept of planned conservation[308] as pioneering representatives of preventive conservation theory. Lucchi calls this the first era of preventive conservation (pioneer theories, 1965–1975). The second era of preventive conservation (debate on preventive conservation, 1976–1985) started with a discussion on the standard conditions of the preservation of cultural heritage. The International Centre for the Study of the Preservation and Restoration of Cultural Property (ICCROM) had a prominent role in defining standards for the ideal environmental conditions for preserving cultural heritage. The importance of preventive conservation was recognized during this era.[309]

Preventive conservation strategies and guidelines for the environmental management of cultural heritage were first defined in the beginning of the third era of preventive conservation (strategic design, 1986–1995). Dario Camuffo's work on the microclimates of cultural heritage influenced the European standards on the preventive conservation of cultural heritage collections. These standards defined the processes and methods of the environmental control of cultural heritage. During this era, many memory institutions started to set up guidelines and policies for preventive conservation and risk management.[310]

According to Joel Taylor (2005), the integration of the condition and risk assessment research in the 1990s made it possible to establish the probable cause and type of damage inflicted on collections. The 1990s saw an increase in research on the disaster management of cultural heritage.[311] Publications included research on first aid in cases of fire, water damage, and natural disasters. During the 1990s and early 2000s, a strong interest was shown in developing risk assessment models for preserving heritage. These models improved the effectiveness of preventive conservation on the long-term preservation of cultural heritage.[312]

During the 1990s, preventive conservation had become the central strategy for maintaining heritage in many memory institutions. Environmental control aimed at creating conditions that would prevent or mitigate the deteriorative impact of microbiological growth and gaseous pollutants on cultural heritage.[313] The fourth era of preventive conservation (research and operative tools, 1996–2006) was dominated by research projects focusing on case studies, measures,

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306 Lucchi 2018, 182–184.
307 Brandi's theory recognized the physical and aesthetic value of cultural heritage and therefore changed the idea of its restoration and maintenance by limiting the degradation and restoration processes. Lucchi 2018, 182.
308 Giovanni Urbani's concept of planned conservation approached long–term preservation through periodic conservation treatments that were done to reduce the deterioration of cultural heritage and to improve its preservation process. Lucchi 2018, 182.
309 Lucchi 2018, 183.
310 Lucchi 2018, 183.
311 Taylor 2005, 128.
312 Waller 2002, 102.
313 Dardes & Druzik 2000, 7.

and actions for controlling and preventing the damaging of cultural heritage. Projects related to the impact of global climate change on cultural heritage started in the 2000s. During this period, the policies of museums in many countries were developed and risk-based assessment became an important part of cultural heritage management. Conservation manuals with risk assessment surveys were published.[314]

From the early 2000s onwards, preventive conservation theory has been regarded as a concept with a wider scope. It was now included in other areas of heritage management, such as education and even fundraising and political advocacy.[315] During the fifth era of preventive conservation (sustainability and energy efficiency, 2006–2016), climate change and the need to save energy gave the impulse to develop new applications and strategies for preserving cultural heritage. Guidelines for the energy management of heritage sites were created and the microclimates of museums became a topic in the discussions on preventive conservation.[316] Since the 2000s, risk assessment and risk-based applications in preventive conservation have also enabled the mathematical modeling of the environmental conditions of historical buildings. Computer modeling has not been used to just simulate environmental conditions, but also to predict the effects a single change in the building's microclimate may have on preserving the collection.[317]

The changes in preventive conservation also changed the professional role of the conservator. The increased interaction with other heritage professionals resulted in conservators developing from conducting "private practice" to being members of a specialist team of heritage professionals.[318] Education and training in the field of preventive conservation were the most effective way to promote the long-term preservation of cultural heritage in memory institutions. This resulted in the creation of preventive conservation publications, which tried to raise the overall awareness of the preservation of cultural heritage among heritage professionals.[319]

3.5 Disaster preparedness

Disaster preparedness and emergency planning were developed together with preventive conservation, risk management, and risk assessment theories. According to Jukka Jokilehto (2000), ICCROM[320] was set up by UNESCO in 1956 for a leading role in heritage risk preparedness.[321] The first larger disaster

[314] Lucchi 2018, 184.
[315] Dardes & Druzik 2000, 4–5.
[316] Lucchi 2018, 184.
[317] Watts & Colston & Bülow 2001, 8.
[318] Dardes & Druzik 2000, 9.
[319] Dardes & Druzik 2000, 5.
[320] The International Center for the Study of the Preservation and Restoration of Cultural Property.
[321] Jokilehto 2000, 173.

response involvement by ICCROM took place in 1966 when the Arno River flooded in the center of historic Florence. The water reached the basement levels of historic building and storage facilities of museums and archives causing severe damage to paintings, museum objects, and archival documents. ICCROM organized a group of preservation experts to execute the first-stage disaster response and heritage recovery. The preservation achievements after the Florence floods led UNESCO to create, in close cooperation with ICCROM, policies and guidelines for recovering and restoring historic sites in post-flood situations.[322]

In the late 1970s, a strong earthquake shook the province of Friuli in Northern Italy. The disaster response and damage evaluation of heritage sites were conducted by an international coordination committee of heritage professionals. This project increased the overall knowledge of earthquake-based heritage disasters, but it was the 1979 earthquake in Montenegro that really started the more strategic disaster response planning in association with earthquakes. ICCROM started to develop its disaster management program further after the Montenegro earthquake, and it organized a series of short heritage recovery workshops for Montenegrin heritage specialists.[323] The first international course on the preventive measures of heritage protection in earthquake situations was organized in 1985 in Skopje.

In the 1990s, several projects related to risk and emergency preparations were linked to the development of the Blue Shield[324] movement. The Blue Shield movement is related to the review process of The Hague Convention for the Protection of Cultural Property in the Event of Armed Conflict of 1954 and its second protocol that was adopted in 1999.[325]

The International Committee of the Blue Shield (ICBS) was founded in 1996 to work for the protection of cultural heritage under threat by wars and natural disasters. Declarations, such as the Assisi declaration (January 1998), underlined the importance of preventive measures and risk preparedness policies in relation to heritage disasters. The Radenci declaration on the protection of cultural heritage in emergencies and exceptional situations (November 1998) promoted the development of heritage disaster preparedness in different parts of the world on both national and international levels.[326]

The emergency preparation development led to ICCROM's international training program in risk preparedness and emergency actions. This training has from the very beginning aimed to improve the disaster response and heritage recovery skills of heritage specialists in relation to both natural disasters and armed conflicts.[327]

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322 Jokilehto 2000, 174.
323 Jokilehto 2000, 174.
324 The Blue Shield is the symbol used to identify cultural sites that are protected by the Hague Convention. This name is also linked to the International Committee of the Blue Shield (ICBS) that protects world cultural heritage endangered by disasters. ICBS 10.3.2017, About Us. http://www.ancbs.org/cms/en/about-us/about-icbs
325 Jokilehto 2000, 177.
326 Wang 2015, 212.
327 Jokilehto 2000, 177.

3.6 Preservation theory in my research

The preservation approach used in my research is based on the preventive conservation and risk assessment theories. I use Robert Waller's risk assessment models to analyze the disaster prevention, disaster response, and heritage recovery work of my 19 disaster cases from the viewpoint of preservation and damage prevention.

The preservation and conservation theory I have adopted is related to Salvador Muñoz Viñas' contemporary conservation theory. My research approaches the maintenance and preservation of heritage in disaster situations with a conceptual method that seeks means to prevent heritage disasters and deterioration of cultural heritage during the disasters and disaster response and heritage recovery processes. I also approach heritage preservation through the perspective that was defined by Michéle Cloonan.[328] In this approach heritage preservation requires increasing cooperation between heritage stakeholders.[329]

I use preventive conservation and risk assessment theories to evaluate the efficiency of the emergency planning of the heritage site, disaster response, and heritage recovery from the viewpoint of damage prevention and mitigation. Theories on cultural heritage and preservation support the idea of minimal intervention in treatments. Likewise, the contemporary ethical principles of conservation emphasize approaches based on minimal intervention. My research endorses the idea of minimal intervention in disaster response and heritage recovery processes.

I have used Jonathan Ashley-Smith's decision tree model to analyze the emergency planning, disaster response, and heritage recovery processes in my research. Figure 3 illustrates Ashley-Smith's decision tree for the game of tossing a coin. The expected value and the risk of the game are both 50%.[330] I have used this decision tree model in creating the decision tree model of my 19 disaster cases (Figure 4).

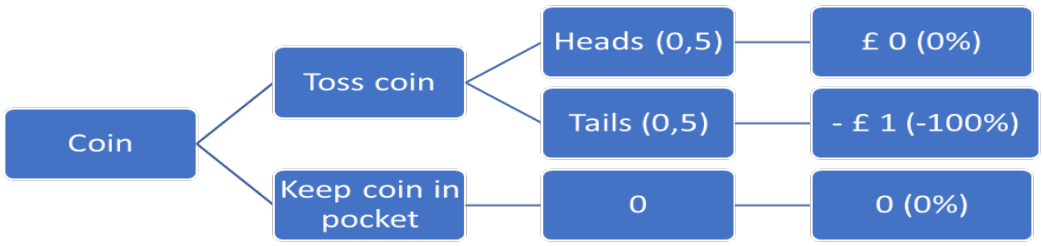

FIGURE 3 Decision tree for the game of tossing a coin, after Jonathan Ashley-Smith (1999)

328 Cloonan 2018, 184.
329 Cloonan 2018, 184.
330 Ashley-Smith 1999, 122.

4 RESEARCH DATA ANALYSIS

Both the primary and the secondary research data was coded using the Atlas.ti 6.1 software. The primary data comprised themed interviews with disaster site owners (18 interviews of 19 disaster cases) and subject matter specialists (nine interviews). The secondary data consists of the trial verdicts of six disaster cases and Finnish crime statistics on cases of criminal damage, attempted serious sabotage, and serious sabotage.

I used Atlas.ti 6.1 software to systematize the research data, which made it more manageable and allowed for easier comparison of different sets and types of data. Coding and categorizing made observing similarities and differences in the research data easier.

4.1 Qualitative data and its analysis

Observations were made from both the primary and the secondary data and these were coded with contextualized information about how the coded data reflects heritage disasters and the response and recovery work. Contextualized coding yielded 2420 individual codes that were grouped into 20 thematic code families. The largest number of codes was grouped into disaster effect (380 codes), disaster background (309 codes), disaster actualization (284 codes), and disaster response (276 codes) families. The disaster effect codes clarified the effects of the disasters on cultural heritage or its surroundings. Disaster background codes clarified the background factors of the disaster. Disaster actualization codes described or clarified the events of the disasters. Disaster response codes clarified the disaster response processes.

All 20 code families were categorized into three thematic groups that affected the disaster prevention, disaster response, and heritage recovery work. The categories are: 1. the disaster prevention impact area; 2. the emergency plan impact area; and 3. the disaster response impact area. Figure 4 illustrates the outcome of the Atlas.ti analysis.

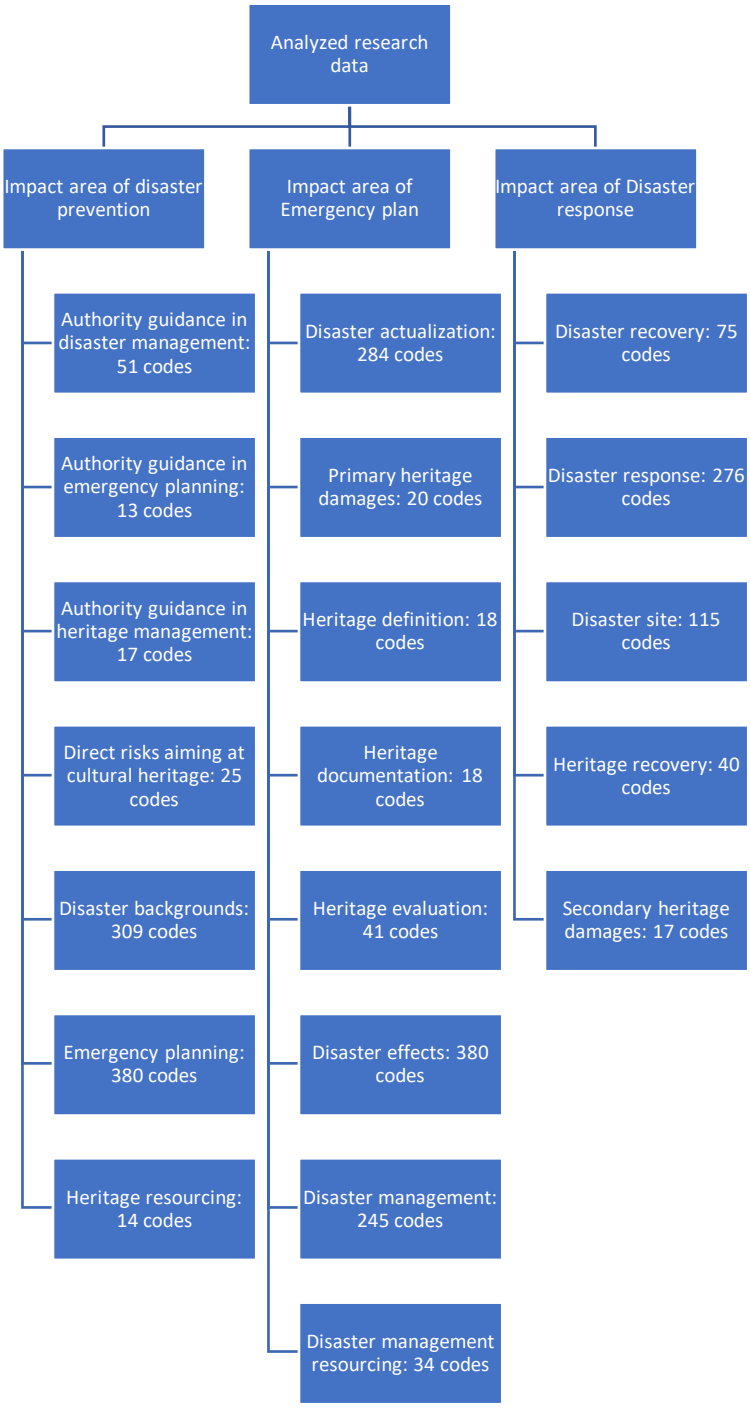

FIGURE 4 Analysis of the research data with Atlas.ti 6.1 software

The research results were derived from the coded and categorized research data by analyzing it from the perspective of the research questions. The coded and categorized research data was compared with each other and related to the research literature. Through these comparisons, central observations were made that led to the research results that are presented in the chapter *Integrated results*.

The risk management processes of the analyzed disaster cases supported Jonathan Ashley-Smith's observations concerning the role first-stage decisions have on the outcome of second-stage decisions. Ashely-Smith's decision tree model was used in analyzing the research data.[331] The analysis of the research data is illustrated in figure 5. In this figure, I describe the observations made from the research data concerning heritage disasters and how the response and recovery work influenced the primary and secondary damaging of heritage sites and objects. Using the research data, I identified factors that either prevented or promoted successful disaster response and heritage recovery work. I observed that the difficulties in disaster response and heritage recovery work often led to secondary damage in cultural heritage. Also, factors that supported successful and effective disaster responses led to less severe secondary damage on the heritage. Figure 5 is inspired by Jonathan Ashley-Smith's decision tree model.

[331] Ashley-Smith 1999, 122.

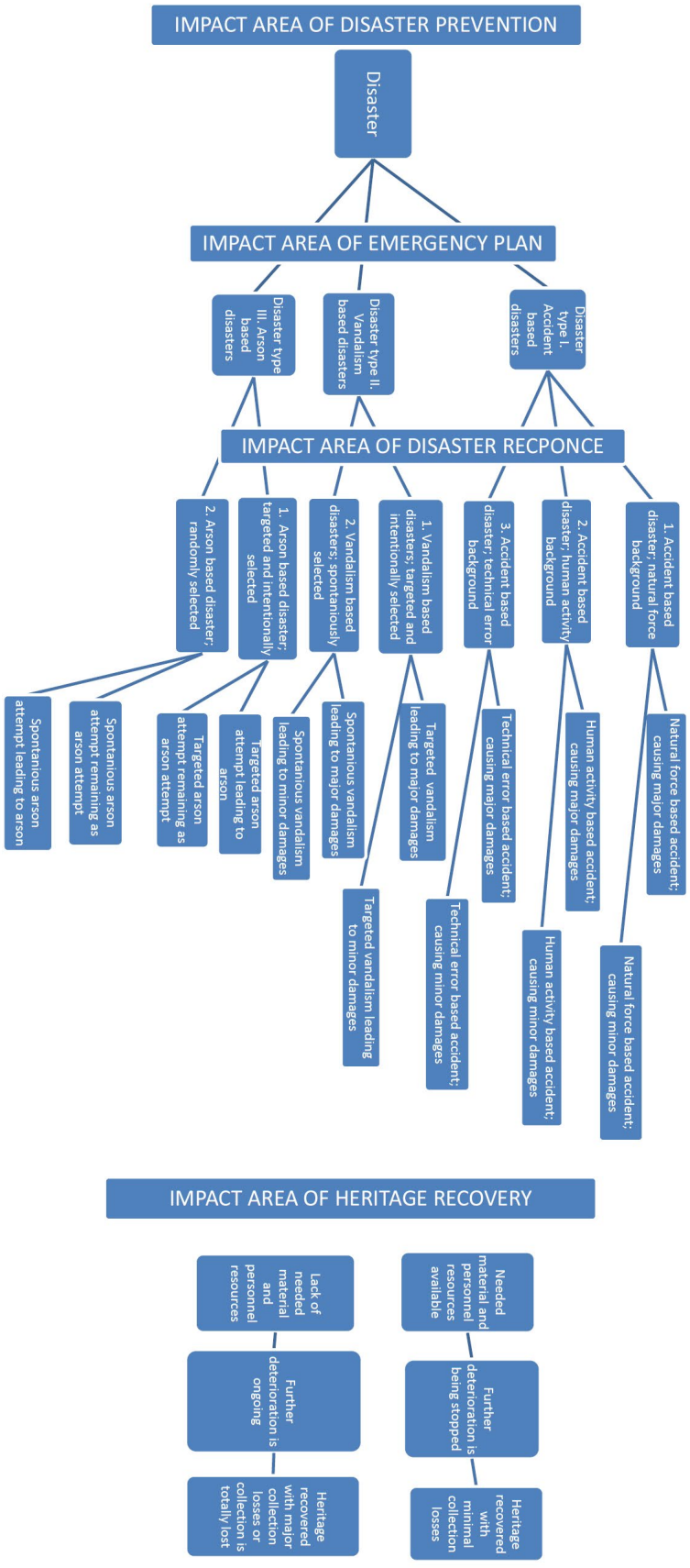

FIGURE 5 Observations made from the research data in qualitative content analysis

In the analysis of individual disaster cases, script analysis was used to clarify the disaster prevention, disaster management, and heritage recovery work of the organizations. Through the script analysis it was easier to observe different phases of my cases' disaster prevention, disaster management, and heritage recovery processes and to compare my cases with each other. Reconstructions of the disaster cases are based on the interviews with the owner organizations of the disaster sites as well as on available trial verdicts and archival documents. In figure 6 I clarify how the scripts of the disaster cases are analyzed with the help of the script analysis method. The script analysis that I used is based on the crime script analysis method presented by Derek Cornish.[332]

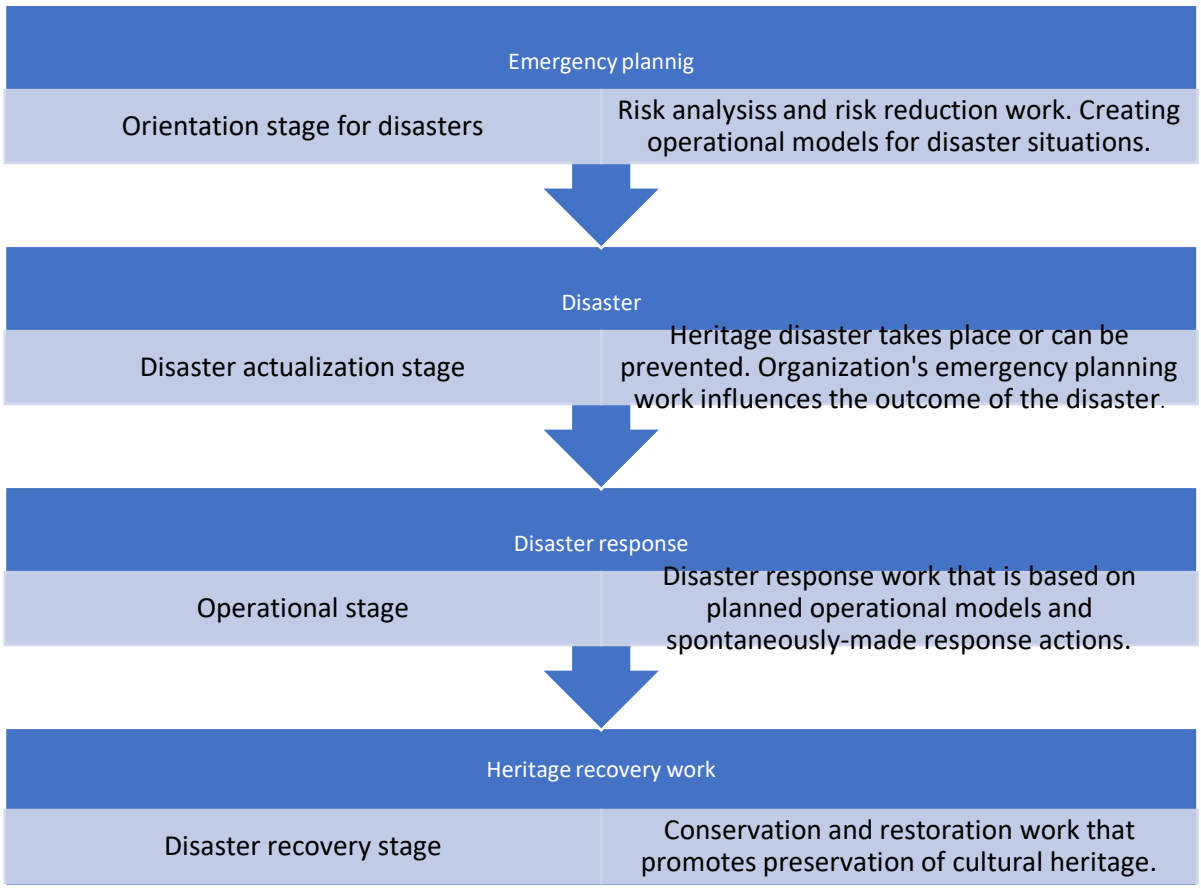

FIGURE 6 Illustration of analysis of heritage disaster scripts that are based on crime script analysis

In the script analysis of the disaster cases I first concentrated on the heritage owners' emergency planning that clarifies heritage owners' attitudes toward heritage disasters with the help of risk analysis and risk reduction work. At this stage, heritage owners might also have created operational models for disaster and disaster response situations. In the analysis of the disaster situation script I concentrated on the factors that influenced the heritage disaster and the outcome of the disaster. In my analysis, disaster response work represented an operational

[332] Cornish 1994, 161.

stage that aims at damage mitigation and prevention of deterioration. Disaster response work is based either on planned operational models or spontaneous response actions that followed the disaster. In the script analysis of heritage recovery work I concentrated on the disaster recovery stage that contained conservation and restoration work that promoted the preservation of cultural heritage. At the disaster recovery stage, actions were also taken to prevent further disasters.

4.2 Quantitative data

Finnish crime statistics between 1990 and 2010 were evaluated using paired comparison. The figures were derived from the statistics using R Statistical software. I created the tables (attachments 6–17) using the Statistics Finland database and the figures were created by a professional statistician, Licentiate of Philosophy Aki Niemi (figures 7–9 and attachments 18–23). My analysis focuses on describing and comparing the statistical data on cases of criminal damage, attempted serious sabotage, and serious sabotage between 1990 and 2010. The figures used in the comparative and descriptive evaluation show cases per 1000 or 10000 inhabitants in the given region. Central figures of the statistical data can be found in figures 6–8 and attachments 18–23.

Six of the regions with cases of serious sabotage, attempted serious sabotage, and criminal damage were compared with six reference regions that were of the same size and located near the original disaster case areas. Reference regions were chosen that were socio-economically as similar to the disaster areas as possible. The comparative statistical evaluation provided more information on the crime statistics of the disaster site regions. The aim was to evaluate the statistical differences of these crime types between the disaster site regions and the reference regions (attachments 18–23). Figure 7 shows the six chosen disaster site regions and their reference regions.

FIGURE 7 The six disaster site regions and their reference regions

In Finland statistical data over accidents and crimes associated with cultural heritage are not collected. Therefore, I could not compare my vandalism and church arson cases with existing data on other heritage disaster cases that may have taken place in Finland during the researched time period (1990–2010). It was not possible to compare my six church arson cases and the attempted church arson cases with other arsons and fires that may have happened in heritage sites in Finland between 1990 and 2010. Statistics over fires in heritage sites in Finland is not available.

As secondary research data, the used statistics provided no clues as to why cultural heritage sites get vandalized or churches are burned. If later more statistical data is collected and further analyzed the situation may change. The gained results limitations may be caused by the fact that a limited amount of statistical data was evaluated. The number of analyzed vandalism, attempted church arson and church arson cases is also small. There are six vandalism-based (criminal damage), three attempted church arson (attempted serious sabotage) and three church arson (serious sabotage) cases.

Based on the statistical data, heritage sites appear to be just as likely targets of vandalism or arson than any other sites that manage to draw the offender's attention. When the numbers of criminal damage crimes, attempted serious sabotage crimes, and serious sabotage crimes in the case areas were compared to the figures for the reference regions, the rates turned out to be higher.

Data supports the view that criminal damage crimes are more common in urban environments than in smaller conurbation areas. The criminal damage cases researched in my study occurred in regions where the number of criminal damage crimes was significantly higher than the Finnish average the year when the incidents occurred. In the cases where the crimes occurred during the entire period between 1990 and 2010, there were annual differences in the number of crimes. Three out of five of the criminal damage incidents I studied occurred during a period when the overall number of criminal damage crimes in the

region was declining. Two of the incidents occurred during a period when the number of criminal damage crimes in the region was increasing.

Figure 8 shows the number of criminal damage crimes in the cities or towns where the discussed criminal damage crimes occurred. In Helsinki, Turku, and Kotka, the number of criminal damage crimes was above the national average for the entire period between 1990–2010. In Helsinki, two cases occurred when the number of criminal damage crimes was decreasing and one when it was increasing in the region. In Turku, the incident took place when the number of criminal damage crimes were decreasing in the region. In Jyväskylä, the number of criminal damage crimes were close to the national average between 1990 and 2010. The vandalism case in Jyväskylä case took place when the number of criminal damage crimes was on the increase, having earlier decreased in the region.

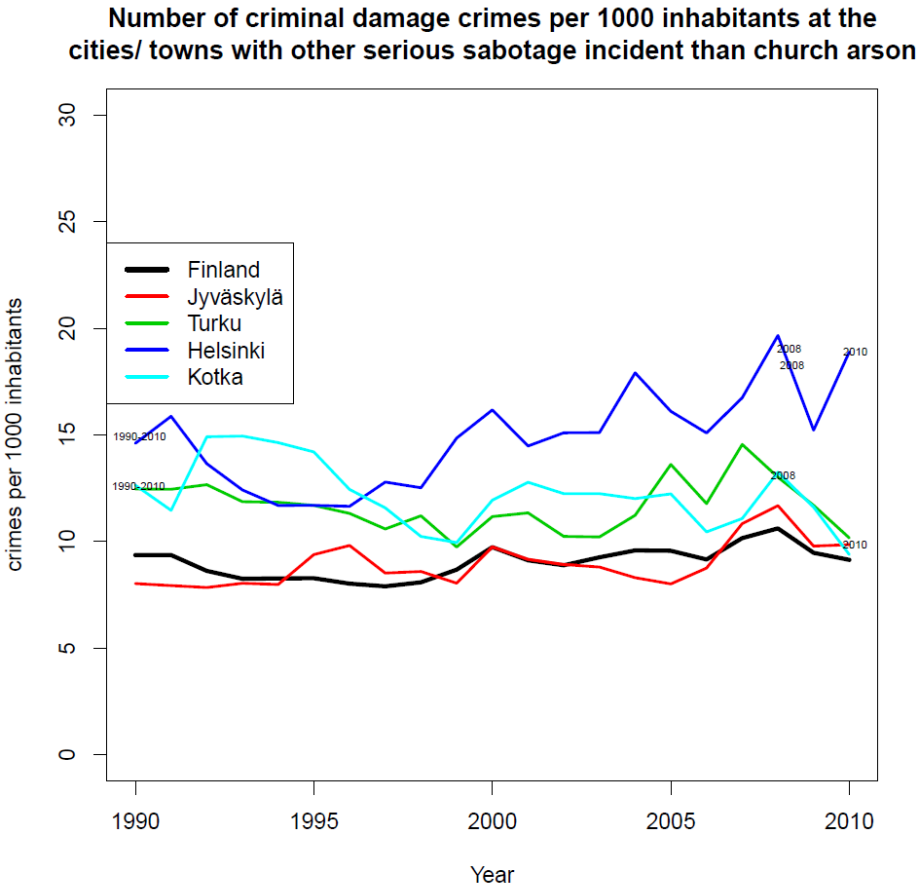

FIGURE 8 The number of criminal damage crimes per 1000 inhabitants.[333] Figure: Aki Niemi 2017.

In the cases of arson and attempted arson, statistical research data supported the view that there is no significant difference between the number of attempted serious sabotage and serious sabotage crimes and the size of the

[333] Statistics Finland 2015, database. http://tilastokeskus.fi/til/oik.html

conurbation area they occurred in. There are significant annual differences in the number of attempted serious sabotage and serious sabotage crimes in the regions. Figure 9 shows the number of attempted serious sabotage crimes in the cities or towns where the discussed church arson or attempted church arson cases occurred.

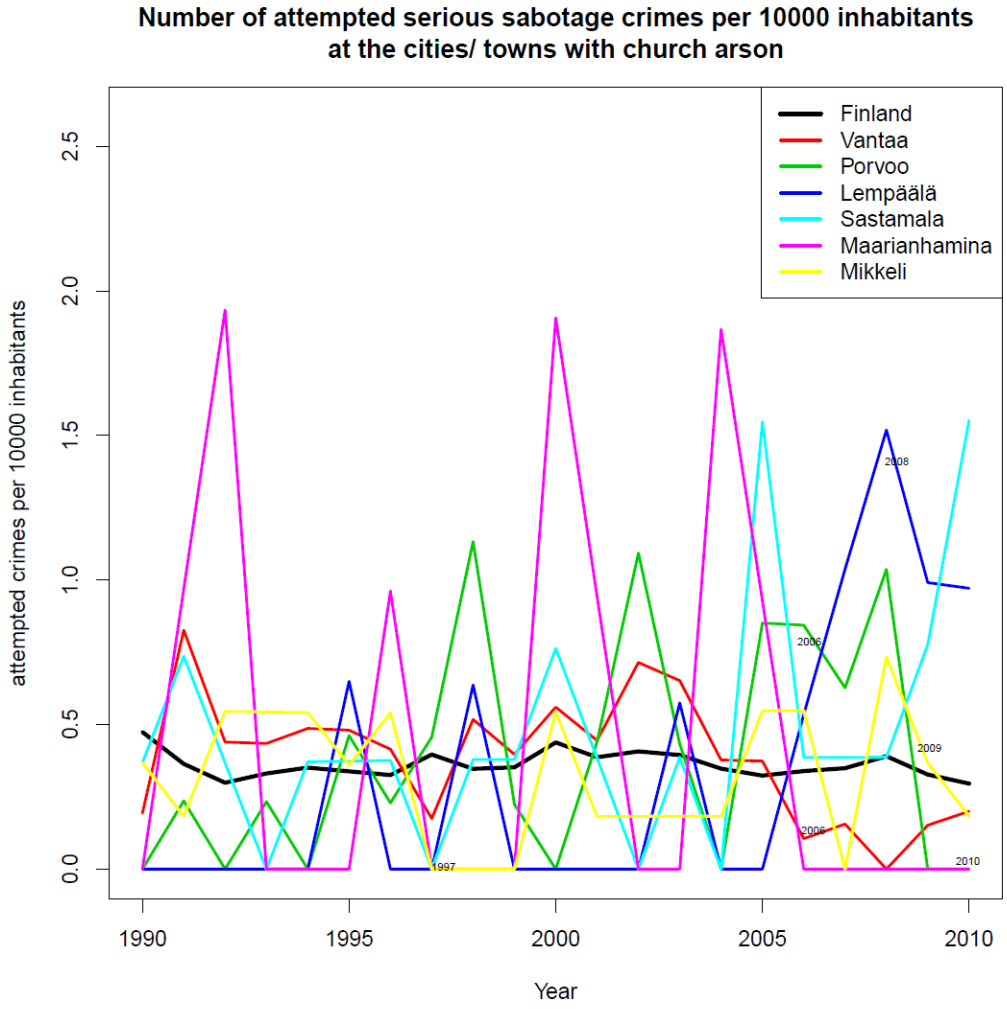

FIGURE 9 The number of attempted serious sabotage crimes per 10000 inhabitants.[334] Figure: Aki Niemi 2017.

It seems that church arson and attempted church arson cases have occurred in regions where the number of attempted serious sabotage crimes were decreasing. In three of the church arson and attempted church arson cases, the number of attempted serious sabotage crimes was lower in the disaster regions than anywhere else in Finland. In three of the church arson and attempted church arson cases the number of attempted serious sabotage crimes was higher in the disaster site region than it was elsewhere in Finland. Figure 10 shows the number

[334] Statistics Finland 2015, database. http://tilastokeskus.fi/til/oik.html

of serious sabotage crimes in the cities or towns where the discussed church arson or attempted church arson cases occurred.

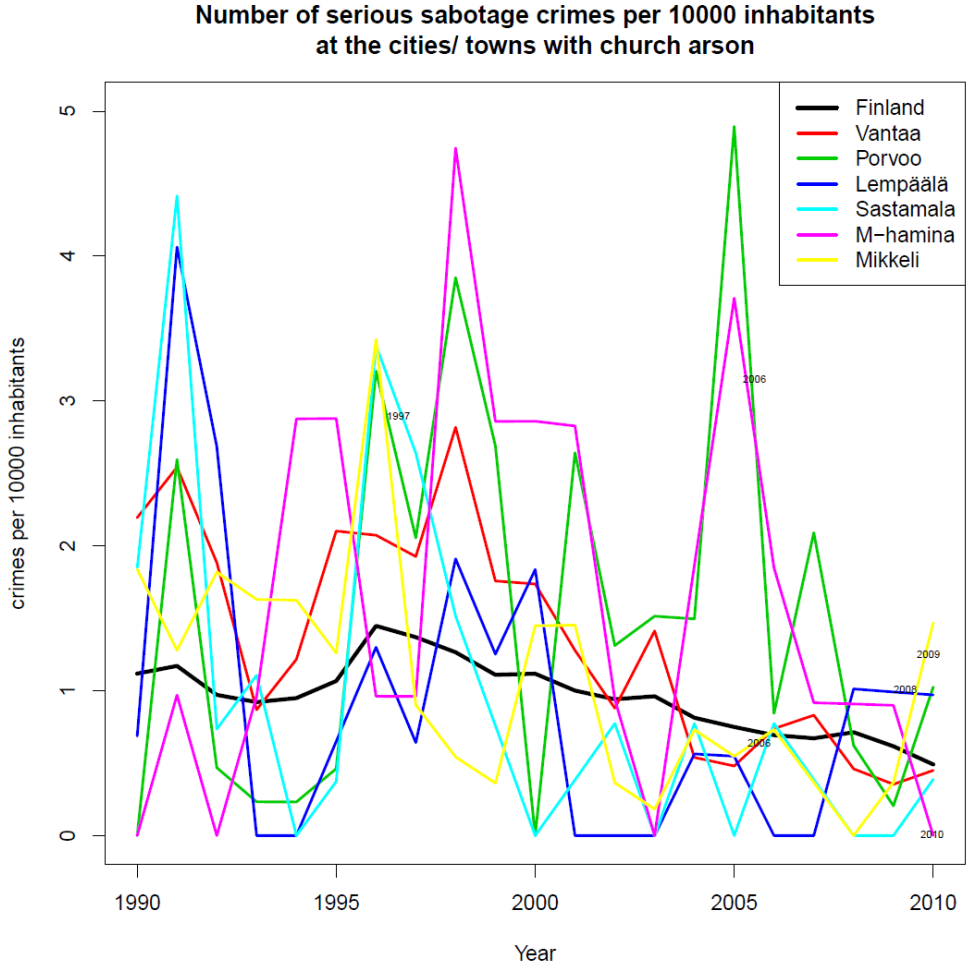

FIGURE 10 The number of serious sabotage crimes per 10000 inhabitants.[335] Figure: Aki Niemi 2017.

It seems that many of the church arson or attempted church arson cases have occurred in the regions at times when the number of serious sabotage crimes were decreasing. The only exception to this is Mikkeli where the number of serious sabotage crimes was increasing when the church arson occurred in Suomenniemi (Mikkeli). In two of the church arson and attempted church arson cases, the number of serious sabotage crimes was lower in the disaster regions than anywhere else in Finland. In four of the church arson and attempted church arson cases, the number of serious sabotage crimes was higher in the disaster site region than it was elsewhere in Finland.

The evaluation of the crime statistics in the six disaster regions and the six reference regions did not provide any clear answers as to why cultural heritage has been the target of deliberate destruction. However, the comparative

[335] Statistics Finland 2015, database. http://tilastokeskus.fi/til/oik.html

statistical analysis provided in general more information on the crime statistics of the disaster site regions. In Jyväskylä, the criminal damage case occurred during a period of slight increase in criminal damage crimes. In the reference region of Kuopio, the number of criminal damage crimes was decreasing. Both in Jyväskylä and in Kuopio, the number of criminal damage crimes was above the national average (see attachment 18).

In Turku, the criminal damage crime occurred during a period of decrease in criminal damage crimes. In the reference region of Tampere, the number of criminal damage crimes was on the rise. Both in Turku and Tampere, the number of criminal damage crimes was above the national average (see attachment 19).

In Lempäälä, the attempted church arson case occurred during a period of decrease in the number of attempted serious sabotage crimes. In the reference region of Akaa, the number of attempted serious sabotage crimes was increasing. Both in Lempäälä and in Akaa, the number of attempted serious sabotage crimes was above the national average (see attachment 20).

In Sastamala, the church arson case occurred during a period of decrease in the number of serious sabotage crimes. In the reference region of Hämeenkyrö, no serious sabotage crimes were committed at the time. In Sastamala, the number of serious sabotage crimes was higher than the national average. In Hämeenkyrö, the number of serious sabotage crimes was lower than the national average (see attachment 21).

In Porvoo, the church arson case occurred during a period of decreasing numbers of serious sabotage crimes. In the reference region of Loviisa, there were fewer serious sabotage crimes than in Porvoo. In Loviisa, serious sabotage crimes were also on the decrease. Both in Porvoo and Loviisa, the number of serious sabotage crimes was higher than the national average (see attachment 22).

In Vantaa, the church arson case occurred during a period of increase in serious sabotage crimes. In Espoo, there were fewer serious sabotage crimes than in Vantaa at the same time. In Espoo, the number of serious sabotage crimes was on the increase. In Vantaa, the number of serious sabotage crimes was higher than the national average. In Espoo, the number of serious sabotage crimes was lower than the national average (see attachment 23).

5 DISASTERS CAUSED BY ACCIDENTS

This chapter focuses on accident-based disasters. Theoretical backgrounds of water damage are clarified. Water-based damage may be caused by disaster situation or disaster response and the heritage recovery processes that follow the water damage. Water damage may also occur in relation to fire disasters and how they were extinguished. I will also describe the theoretical backgrounds of fire and explosion-based disasters because I have analyzed such cases among my accident-based disasters. At the end of this chapter, I will discuss the seven accident-based disasters and the related heritage recovery processes.

The accident-based disasters in my research were: 1. water damage to the National Land Survey of Finland archives in 1994; 2. the roof fire of the National Land Survey of Finland archives building in 2004; 3. the safety precautions at the Kiasma Museum of Contemporary art during the VR warehouses fire in 2006; 4. the Valvilla Wool Mill Museum archives fire in 2003; and 5. the gas explosion at the National Museum of Finland silver exhibition in 2006. The accident-based disasters included three fires. The cause of two of these remains unknown.[336] It is possible that they were arson attacks. According to Teppo Jokinen (1994) between 20% to 40% of all fires caused by an unknown reason are arson attacks.[337]

Two of the seven accident-based disasters discussed in this study were caused by natural forces. The remaining five followed accidents near a heritage site or a place where cultural heritage was stored. The natural disasters were caused by flooding that resulted from heavy rain. These floods caused damage in the depositories of two libraries in Helsinki city center. These were the water damage in the Finnish Literature Society Library in 2003 and the water damage and humidity issues in the storage facilities of the National Library of Finland in the Porthania building in the 1990s and 2000s. Some of the water damage at the National Library of Finland's depository was caused by a leaking water or sewer

[336] The causes of the VR warehouses fire in 2006 and the National Land Survey of Finland fire in 2004 are unknown. Themed interviews with disaster site owners conducted by Heidi Wirilander.
[337] Jokinen 1994, 9.

pipes. Both cases occurred in Helsinki city center where the construction of buildings and infrastructure have changed the areas surrounding heritage sites. Both depositories were located underground. The water damage cases required instant disaster response and heritage recovery.

5.1 Water damage

Water damage that deteriorates cultural heritage can be caused by technical errors, such as pipe leaks, or natural forces, such as heavy rains or floods in a heritage site's surroundings or its place of storage. Also, high relative humidity may cause water-based damages in cultural heritage materials. Technical error-based water damage can also be caused by construction work going on nearby the heritage site or even in the same building where a cultural heritage collection is stored.[338]

Water damage often has to do with the mechanical, physical, and even chemical changes as well as the impact that water and high humidity have on both organic and inorganic materials. Water-based primary deterioration is related to the immediate interaction of materials with water and high humidity, which may cause mechanical damage as well as chemical changes, such as the dissolution of cellulose and color pigments. The most significant types of secondary damage in moist and water-damage materials are caused by biological deterioration such as molding and bacteria growth.

Microbiological attacks in indoor environments are related to ambient temperature and relative humidity.[339] Fungal filaments absorb water from the materials they use as a breeding ground. The best parameter for evaluating the risk of fungal damage is the water content in the materials. The relative humidity (RH) and the physical and chemical characteristics of the material influence this. The relative humidity does not control the growth of fungal filaments, but rather the moisture in the materials themselves.[340]

According to Lars Christoffersen (1995), different room temperatures and air pressures affect the ability of air to bind moisture. Reducing the absolute amount of humidity can minimize the risk of mold damage. High relative humidity is the most important factor nourishing the mold growth. When the relative humidity is between 75% and 100%, the conditions are ideal for intense and rapid mold growth. When the relative humidity is between 65% and 75%, mold may start to grow. Active mold growth usually does not exist when the relative humidity is under 65%. High humidity in objects also promotes chemical degradation processes.[341]

Regarding deterioration, speed is the most important factor in changes in temperature and relative humidity. When the relative humidity of the room air

338 Ellis 2000, 3.
339 Dahlin 2002, 57–58.
340 Florian 2000, 5–6, 9.
341 Christoffersen 1995, 27, 29–30; Wirilander 2013, 117.

increases dramatically, it becomes particularly challenging to balance the climate. If the temperature raises rapidly, it influences objects both chemically and mechanically. Changes intensify the chemical degradation process and cause tensions in the objects' mechanical construction. The elevated temperature also activates the growth of fungal filaments.[342]

In water damage situations, heritage recovery is often planned with the prevention of secondary heritage damage in mind. In the first stage of heritage recovery, the question of disposing less valuable objects is usually raised.[343] The recovery process of most water-damaged materials includes the initial storage and treatment of wet items and cleaning dried items.

Initial storage may be done at the accident site or somewhere with cold storage or freezing facilities. To prevent secondary damage to water-exposed collections, it is important to use cold storage and freezing facilities in the initial phase of the recovery process.

In air-drying water-damaged objects, it is important to remove humidity from the wet materials and the air of the room through a dehumidifying process and air flow. Drying the air diminishes the possibility of the most common species of mold to actively grow.[344] To prevent mechanical damage in cultural heritage, fast and dramatic climatic changes should be avoided. Adjustments of both room temperature and relative humidity should take place smoothly and gradually.[345] The drying methods may involve air flow, dehumidification, heating below 37 °C, and freeze drying.[346] Recovering water-damaged collections should take place in an isolated environment where the dehumidifiers can reduce the relative humidity.[347]

Molding is considered the most important heritage risk that water damage causes.[348] Mold can be deactivated using high or low temperatures, exposure to UV light or sunlight, or with radiation treatments.[349] Physical and chemical methods have also been used to disinfect microbes.[350]

Freeze drying has been used as a mass-rescue process in large-scale water damage situations, such as floods. Michalsen et al. (2013) note that an important part of the freeze-drying process is to adjust the freeze-drying temperature to the level at which no fungal growth occurs. They state that most fungi species die at subzero temperatures.[351] However, Guild and MacDonald suggest that although freezing will stop active mold growth, the existent spores can survive extended

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[342] Christoffersen 1995, 27, 29–30.
[343] Rusch & Herro 2000, 130–132.
[344] Florian 2000, 5–6, 9.
[345] National Archives and Records Administration 1993, 2.
https://www.archives.gov/preservation/conservation/flood-damage.html
[346] Florian 2000, 5–6, 9.
[347] National Park Services 2007, Conserve O Gram 3/4, 3–4.
https://www.nps.gov/museum/publications/conserveogram/03-04.pdf
[348] National Archives and Records Administration 1993, 1.
https://www.archives.gov/preservation/conservation/flood-damage.html
[349] Sterflinger & Piñar 2013, 9641.
[350] Sterflinger & Piñar 2013, 9641.
[351] Michalsen & al. 2013, 337.

periods of time in very cold and very hot temperatures. Nevertheless, both extremely high and low temperatures diminish the viability of mold spores.[352]

Gamma irradiation has been used in to disinfect archival materials since the 1960s without significant changes in the tensile strength or paper color.[353] Using gamma irradiation treatments have since expanded to cover other cultural heritage materials such as murals and sculptures.[354] Michaelsen et al. (2013) suggest that gamma irradiation treatments are particularly suitable when a large collection of paper items needs to be disinfected. In these treatments, the aim may be either to reduce the growth of mold or to disinfect mold-contaminated paper.[355]

Chemical treatments used in disinfection include both biocides and fumigation with oxidizing gases[356]. Although a range of biocides can be used on microbes, only a small number of them have been tested and found suitable for disinfecting historic materials.[357] Even if deactivation methods can stop mold growth in cultural heritage materials, they cannot prevent the reactivation of fungal growth if the temperature and relative humidity rise.[358]

It is possible that none of the current antimicrobial treatments eliminate fungal filaments. The chemical and physical treatments, which often have harmful side effects on cultural heritage, are still used because safer applications for microbe disinfection are not known. Developing more effective and safe microbial disinfection treatments would require a deeper understanding of heritage objects' biodeterioration processes and precise monitoring of the effects of antimicrobial treatments. Sterflinger and Piñar (2013) suggest that an alternative non-toxic and less harmful approach to managing microbe attacks in cultural heritage materials and objects could be based on special climatization that could stop or slow down the fungal growth.[359]

5.2 Damages caused by fire and fire extinguishing

Fire occurs in an environment that contains oxygen, a heat source and flammable material that reaches ignition temperature. Extinguishing often aims to remove one of these three elements since fire will continue to burn for as long as there are enough heat, oxygen, and fuel.[360] Fire spreads through materials that are able to

352 Guild & MacDonald 2004, 3.
353 Sakr & Ghaly & Ali 2013, 283.
354 IAEA 2015, working material, 2. http://www-naweb.iaea.org/napc/iachem/working_materials/Revised%201st_crp%20F23032%20b.pdf
355 Michaelsen & al. 2013, 340.
356 For example ozone and peroxide.
357 Sterflinger & Piñar 2013, 9641.
358 National Park Services 2007, Conserve O Gram 3/4, 3–4. https://www.nps.gov/museum/publications/conserveogram/03-04.pdf
359 Sterflinger & Piñar 2013, 9642.
360 Kidd 1995, 14.

conduct heat and ignite material. Fire can also spread through burning materials that fire and smoke move away from the source of fire.[361]

The damaging mechanism of smoke and fire gases is based on the movement of smoke during the fire. When fire takes place inside a building, smoke and fire gases move straight up until they reach a horizontal layer such as the ceiling of a room. After this, they will move in the room towards vertical layers, such as walls, and the layer of smoke starts to get thicker. Fire produces smoke and hot gases which result in the further progression of the fire. The thickening of smoke will continue until there is an open window or a door through which the smoke can escape.[362]

The central means of preventing or minimizing the damage based on fire and fire extinguishing are the structural fire protection of the building and the technical equipment that facilitates rapid fire extinguishing and rescue work at the disaster site.[363] In buildings that were built according to the structural fire protection regulations, fire-resistance was a key factor in reducing the damage that fire and its extinguishing could have caused. Fire-based damage is much smaller in buildings with higher fire-technical classification. The technical equipment used to promote disaster response and fire extinguishing are automatic fire alarms, smoke evacuation systems, and automatic fire extinguishing systems.[364]

The damage caused by fire and fire extinguishing on cultural heritage is often significant. Fire may cause smoke, soot, and burning damage directly on the sites and the objects. It may also cause mechanical damage through the collapsing and burning remains of the building that housed the cultural heritage objects.[365]

Both fire and fire extinguishing may either damage cultural heritage or destroy it totally. Destruction by fire may happen in a couple of hours. While fire only directly damages the burning areas, heat and soot will affect the site and the collections beyond the burn site.[366] In fire-based disaster cases, the damage is often caused by smoke, soot, heat, and humidity. If water is used to extinguish the fire, damage caused by direct contact with water can be seen on a heritage object that has survived a fire.[367]

The recovery of fire-based damage has many similarities with the recovery of water-based damage. When extinguishing a fire has also caused humidity-based damage, heritage recovery often follows the pattern of water-damage recovery. The collection is dried and cleaned of soot and smoke damage.

Acquiring salvage space for a damaged heritage collection represents a significant part of the initial heritage recovery measures that take place after a fire and fire extinguishing situation. The safe transportation of heritage objects

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361 Kidd 1995, 15.
362 Kidd 1995, 14.
363 Jokinen 1994, 40.
364 Jokinen 1994, 41.
365 Severson & al. 2000, 5.
366 Kidd 1995, 12.
367 Mohr 2000, 61.

from the disaster site to the salvage space is another important part of the response process that seeks to counteract the further deterioration of the heritage.[368] At heritage sites, the basic cleaning of the disaster site can be understood as a means to prevent further damage after the disaster.[369]

5.3 Explosion-based damage

Explosion-based heritage disasters are usually related to armed conflicts or acts of terrorism. The damage explosions cause on heritage objects and sites resembles the damage caused by natural hazards such as earthquakes. Explosions can cause mechanical damage, such as smashing, cracks, scratches, and tears, that either destroys or damages cultural heritage materials and constructions. An explosion may damage or deteriorate cultural heritage objects directly or indirectly. In the latter case, the object is damaged by debris being blown against it or its immediate storage facility, such as a display case.

Sometimes explosions are accidental. This was the case in the explosion at the silver exhibition of the National Museum of Finland in 2006. Explosion-based disaster recovery often resembles the approach used in natural hazards recovery. A careful documentation of the objects and their damage represents a significant part of the recovery process. Explosion-based damage often requires actions of remedial conservation. Heritage recovery actions may contain restoration that aims to remove visible marks of the explosion. If the number of damaged objects is relatively small, all the objects can be conserved. In cases where a large number of objects have deteriorated, for example during armed conflicts, it is possible that only the most important objects are conserved while others are left in a deteriorated state.

5.4 Natural-disaster-based accidents

Two of the cases discussed in my research are natural disasters. Both occurred in Helsinki city center because of flooding brought on by heavy rain. Both affected underground heritage depositories, which at the time of building were classed as suitable for long-term storing of heritage collections. The natural-disaster-based cases are: 1. water damage to the Finnish Literature Society library depository in 2003; and 2. water damage to and humidity problems of the National Library of Finland depository under the Porthania building in the 1990s and 2000s.

[368] Mohr 2000, 60.
[369] Mohr 2000, 61.

5.4.1 Water damage to the depository of the Finnish Literature Society library

The depository where the water damage occurred is located in the basement floor of an apartment building in Kruununhaka, Helsinki. The collections deposited there contained items from both the Finnish Literature Society Library and Archives. Also included was the old Fennica collection, relocated from the main building as the new depository was believed to be able to provide improved conditions for its long-term preservation.[370] The Fennica collection comprises Finnish literature published before 1810. Included are rare publications by the Finnish Reformist Mikael Agricola (1510–1557); Finland's oldest doctoral dissertations from Turku Academy (1640–1827); and bibliographies from the 17th and 18th centuries.[371]

The Finnish Literature Society had renovated a new depository for the long-term preservation of library and archives collections. The depository had no technical alarm for water damage. The collections were moved to the depository in spring 2003. The following summer was exceptionally rainy in Helsinki and because of the summer holiday season, the disaster response was delayed for at least days if not weeks.[372]

The first-stage disaster response was to pump the water out of the depository. This was done by the Helsinki City Rescue Department. Only the library collections on the bottom shelves of the depository had gotten wet. Because of high humidity and capillarity, collections on the upper shelves had also suffered from water damage and showed active mold growth.[373]

The recovery was conducted as a collaboration between employees from the Finnish Literature Society and conservators from EVTEK University for Applied Sciences[374]. The paper conservation program at EVTEK had helped the library move the collections to the new storage facilities, and lecturer István Kecskeméti also helped the library to plan the recovery of the collection after the water damage. The damaged collection was moved to the cold storage of the conservation department. Items with minor damage was dried and conserved by paper conservation students. The more deteriorated objects were conserved by professional conservators in Estonia, and the work was supported financially by a Finnish foundation. In the recovery of this water-damaged heritage, remedial conservation played a significant role.[375]

In figure 11 I illustrate the script analysis of the water damage of the Finnish Literature Society library depository.

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[370] Finnish Literature Society Library 10.2.2011, themed interview.
[371] Suomalaisen Kirjallisuuden Seura 2016, Kokoelmat ja tiedon lähteet. https://www.finlit.fi/fi/kirjasto/kokoelmat-ja-tiedonlahteet#.YDS52tVxdPY
[372] Finnish Literature Society Library 10.2.2011, themed interview.
[373] Finnish Literature Society Library 10.2.2011, themed interview.
[374] EVTEK University for Applied Sciences became part of Metropolia University for Applied Sciences in August 2008.
[375] Finnish Literature Society Library 10.2.2011, themed interview.

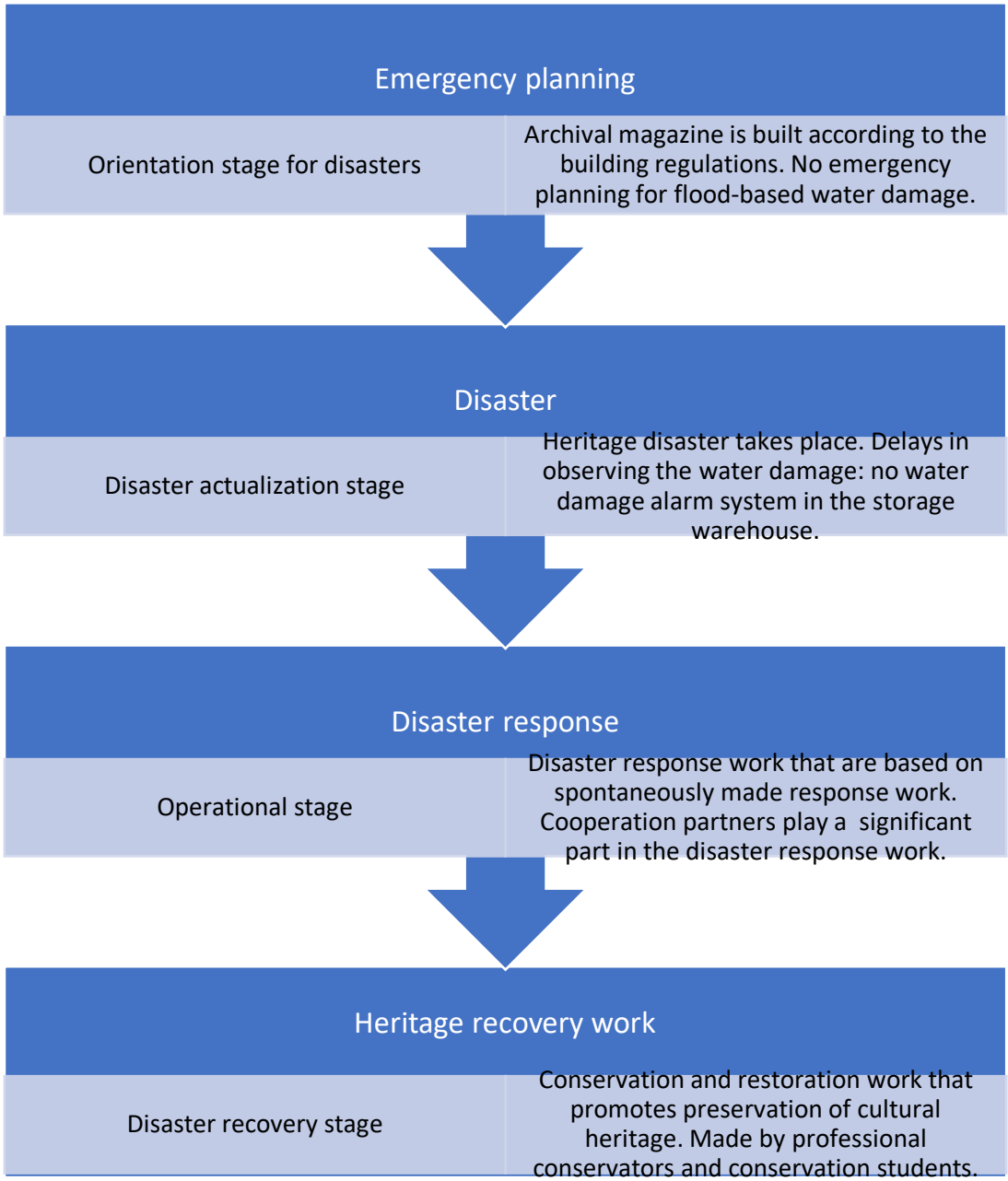

FIGURE 11 Script analysis of the water damage at the Finnish Literature Society library depository

The orientation stage for heritage disasters shows that the library depository was built according to the building regulations for permanently stored archival documents. However, no clear emergency plans were made for flood-based water damage in the depository. At the disaster actualization stage the water damage took place, there was a significant delay in observing the water damage because there was no water damage alarm system in the depository. In the operational stage, when the disaster response took place, the library's cooperation partners such as the Helsinki City Rescue Department and EVTEK University for Applied Sciences' paper conservation program played a

significant role in the disaster recovery work. The actual conservation of damaged library collections were performed by professional paper conservators and students from paper conservation program.

5.4.2 Water damage in the depository of the National Library of Finland

The depository situated below the Porthania building has suffered from water damage since the late 1980s. The number of water-related incidents stayed at a high level during the 1990s and early 2000s, before the National Library of Finland received its new depository, the "book cave", and Porthania was renovated in the early 2000s.[376]

The water damage in the depository was sometimes caused by technical issues, such as leaks in water or waste pipes. Natural forces such as heavy rains and floods also caused water damage in Porthania. Because it is built on a slope and surrounded by stone buildings and asphalt streets, Porthania has been vulnerable to heavy rains. The drainage system has not been sufficient for removing all the water from surrounding areas during heavy rains.[377]

No water-damage alarm system existed in the underground depository in Porthania. In some cases, there was a delay lasting from several hours to a couple of days between the incident and the disaster response. Both types of water damage were most often discovered by members of either National Library or University of Helsinki staff, such as the caretakers of the Porthania building.[378]

The disaster response and heritage recovery work was conducted by the librarians and paper conservators of the National Library. Sometimes the caretakers would help the library personnel in removing water from the depository. The personnel handling the disaster response were well-trained professionals and the response work was effective.[379]

The first stage of disaster response comprised both the removal of water from the depository and the evacuation of collections that were in direct contact with water. The National Library had bought water vacuum cleaners that were used in water removal. In some cases, the water removal would take a long time because the purchased water pumping services were not used at that time.[380]

The water-damaged items were air-dried using both fans and dehumidifiers, which made the process more effective. It is possible that the repeated water damage also led to the destruction of some of the objects, but on the whole, the well-trained employees were able to save the collections through effective disaster response and heritage recovery work. After the drying, only the most important parts of the collections were fully conserved by the conservation department of the library.[381]

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376 The National Library of Finland 4.2.2011, themed interview.
377 The National Library of Finland 4.2.2011, themed interview.
378 The National Library of Finland 4.2.2011, themed interview.
379 The National Library of Finland 4.2.2011, themed interview.
380 The National Library of Finland 4.2.2011, themed interview.
381 The National Library of Finland 4.2.2011, themed interview.

In these water damage cases, the dominant preservation approach in heritage recovery was based on preventive conservation. Indirect means, such as fans and dehumidifiers, were used to dry the wet material. Remedial conservation means were only used in preserving the most valuable documents.[382]

In figure 12 I have illustrated the script analysis of the water damage in the National Library of Finland.

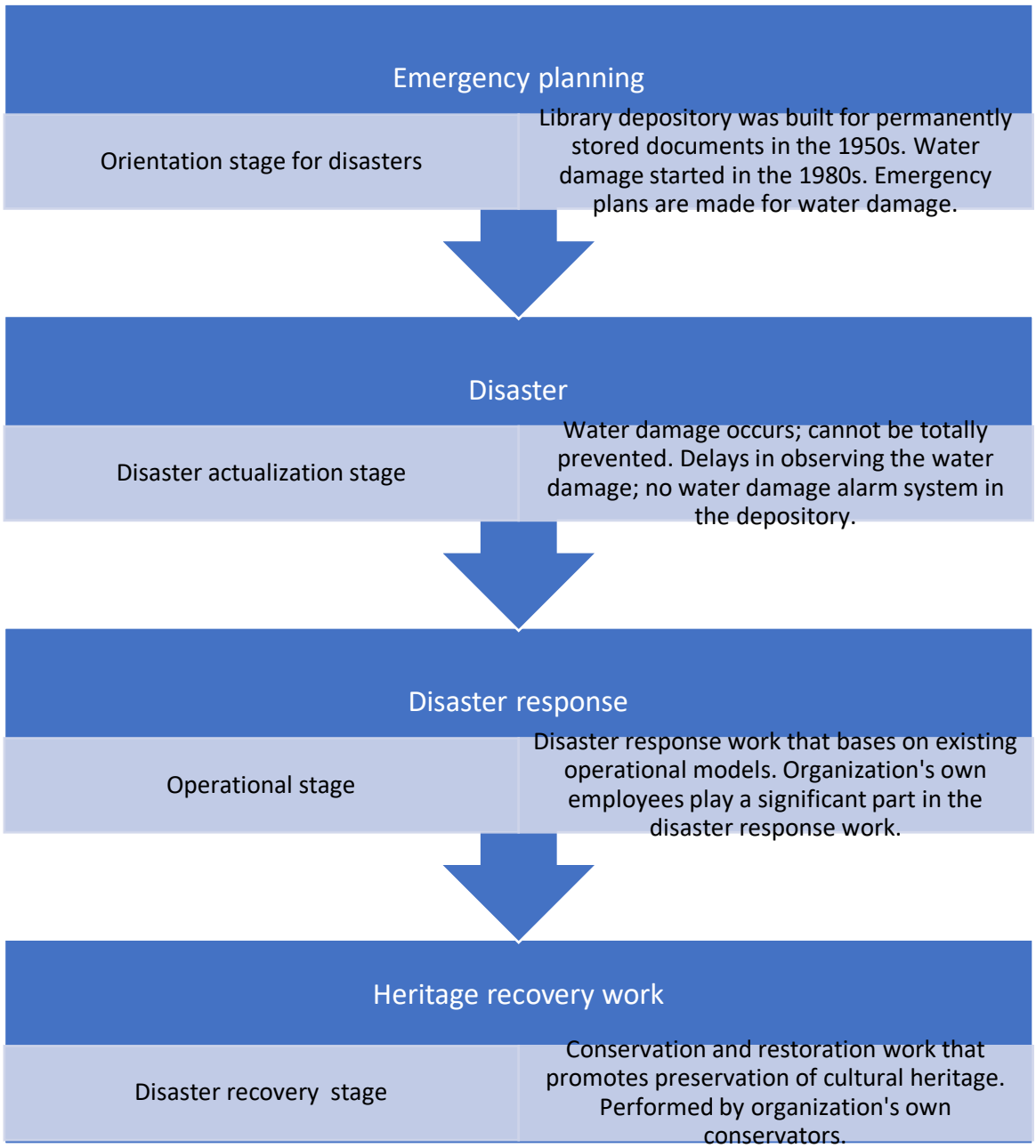

FIGURE 12 Script analysis of the water damage in the National Library of Finland depository

[382] The National Library of Finland 4.2.2011, themed interview.

The orientation stage for heritage disasters shows that the library depository was built as depository for the library collections in 1950s. When the water damage started to occur at the library depository in the 1980s, emergency plans were made for water damage. At the disaster actualization stage, the water damage took place because they cannot be totally prevented. Sometimes there is a delay in observing the water damage because there was no water damage alarm system in the depository. During the operational stage when the disaster response took place, the library worked according to the emergency plan. The actual drying of the collection and remedial conservation of damaged library collections were performed by the organization's own paper conservators.

5.5 Human-activity-based accidents

Five of the accident cases resulted from human activities that took place in the vicinity of cultural heritage. Each one happened in an urban environment and was influenced by human activity. The cases show that both unexpected activity and environmental conditions near storage facilities may lead to disasters that threaten the long-term preservation and even the existence of heritage. Disasters based on technical failure show the weaknesses of the buildings hosting cultural heritage and it also shows that users of the building who are unaffiliated with the memory institution may present unmanageable risks. The cases are: 1. water damage at the National Land Survey of Finland archives in 1994; 2. roof fire at the National Land Survey of Finland archives building in 2004; 3. safety precautions at the Kiasma Museum of Contemporary Art during the VR warehouses fire in 2006; 4. the Valvilla Wool Mill Museum archives fire in 2003; and 5. the natural gas explosion in the National Museum of Finland silver exhibition in 2006.

5.5.1 Water damage to the archives of the National Land Survey of Finland

The office and archives of the Uusimaa branch of the National Land Survey of Finland are located in Pasila, Helsinki. The water damage occurred in 1994 in the depository of permanently preserved documents. The depository was built according to the building regulations for permanent archive premises. The building with the depository was not used by the National Land Survey alone.[383] Above the archives was a hairdresser's salon. One weekend the salon was burgled and the sanitary fittings were broken, causing water damage. The water leaked into the depository below, soaking the surveying documents and maps on one archive shelf, but did not cause any other damage. There was no water alarm system in the archives.[384]

[383] Archives of the National Land Survey of Finland 22.5.2009, themed interview.
[384] Archives of the National Land Survey of Finland 22.5.2009, themed interview.

Because the damage occurred during a weekend, the disaster response and recovery were delayed until the following Monday. During the response and recovery process, the archival collections were not evacuated from the archives. Only the damaged documents were moved to another part of the depository for recovery.[385]

The primary task in the disaster response process was to remove the water from the archives, which was done by the Helsinki City Rescue Department. Drying the water-damaged archival documents was the initial treatment in the heritage recovery process, which was conducted by the employees of the National Land Survey, led by their own paper conservator. The condition of the damaged documents was evaluated and the conservation treatments were documented.[386]

Before the incident, the archival documents were heavily used. This made it hard to evaluate whether some of the mechanical damage was caused before or after the water damage. Because the disaster response started quickly and only a limited number of the documents were damaged, allowing for fast enough air-drying, secondary damage such as molding was successfully prevented. The color leaks could not be entirely removed during the recovery process and the remedial conservation that followed.[387]

The water damage at the archives affected only a small part of the material. Both the air-drying and the conservation were done by the paper conservator and archivists of the National Land Survey.[388]

Typical damage caused by humidity and water were the leaking of colors and papers sticking together. Although the documents were believed to have been made using archive-resistant colors on archivable paper, the colors leaked when the documents got wet. The use of a professional paper conservator and archivists in the heritage recovery process ensured that secondary collection damage, like mechanical tears and molding, could be avoided.[389]

The water-damaged documents and maps were air-dried. The badly damaged documents and maps with color leaks had to be copied to ensure the preservation of their information content. The employees selected the documents for immediate conservation, while other documents were left to wait for remedial conservation.[390]

In figure 13 I have illustrated the script analysis of the water damage at the Archives of the National Land Survey of Finland.

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385 Archives of the National Land Survey of Finland 22.5.2009, themed interview.
386 Archives of the National Land Survey of Finland 22.5.2009, themed interview.
387 Archives of the National Land Survey of Finland 22.5.2009, themed interview.
388 Archives of the National Land Survey of Finland 22.5.2009, themed interview.
389 Archives of the National Land Survey of Finland 22.5.2009, themed interview.
390 Archives of the National Land Survey of Finland 22.5.2009, themed interview.

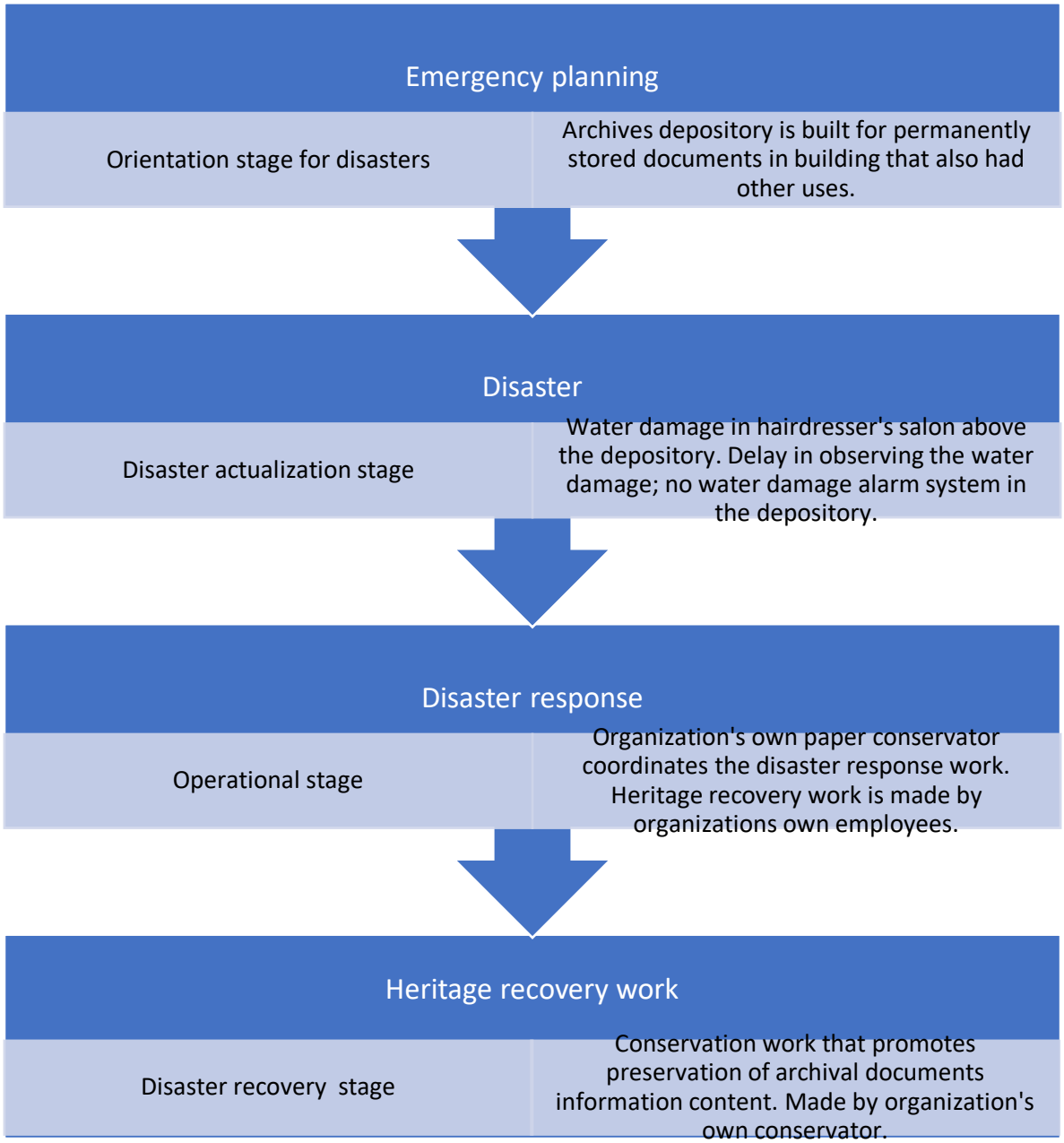

FIGURE 13 Script analysis of the water damage at the Archives of the National Land Survey of Finland

The orientation stage for heritage disasters shows that the archives depository was built as a permanently stored archival documents depository. During the disaster actualization stage, the water damage occurred one weekend in the hairdresser's salon that was located above the depository. There was a delay of a few days in observing the water damage because there was no water damage alarm system in the depository. During the operational stage when the disaster response took place, the work of the organization's own employees was coordinated by the organization's own paper conservator. The heritage recovery work and the remedial conservation of damaged archival documents was performed by the organization's own paper conservator.

5.5.2 Roof fire at the Archives of the National Land Survey of Finland

In the early 2000s, the Finnish state-owned real estate company Senate Properties was building central archives in Jyväskylä for the National Land Survey of Finland. The new archives were built next to the Provincial Archives of Jyväskylä. The construction work of the building was nearly completed when an unexpected roof fire occurred.[391]

During the construction work, a thorough risk analysis had been carried out for the archives and its security. The plan for the safety equipment was based on risk analysis. The archives building was inspected by the National Archives of Finland and it was confirmed that the building was built according to the Finnish regulations for permanent archive premises.[392]

When the roof fire occurred, the building equipment was ready and the furniture and equipment of the archives had already been moved into the building. The archival collections had not been relocated into the building and it had not yet been handed over to the user. The fire was detected by an employee of the Provincial Archives of Jyväskylä, who arrived at work at 6 a.m. and reported the fire to the Central Finland Fire and Rescue Services. The cause of the fire was not established, but the construction work is a probable source of the fire.[393]

The fire and rescue services arrived at the accident site quickly and the director of the archives was contacted. The building consultant, a representative of the construction company, and the head of the construction works arrived at the scene and together with the director cooperated in putting out the fire. The aim of the cooperation was to minimize damage to the building. The director of the Archives of the National Land Survey of Finland was on her way to Helsinki when she was informed about the fire, and she was kept up to date about the events throughout the day. The fire was extinguished using controlled burning tactics. This meant that the fire department let the roof burn down controllably to minimize the use of water.[394]

By choosing controlled burning tactics, the fire department and the builders had to accept that the entire roof and its construction would be destroyed, but the building equipment could be saved from damage caused by fire and its extinguishing. The process was so successful that electricity was still working in the entire building after the fire had been extinguished and virtually no smoke got inside the building.[395]

The depository was undamaged and only the northern end of the top floor suffered from damage from the water used to extinguish the fire. Controlled burning tactics would also have been used if the archival collections had already been in the building. Controlled burning and the minimal use of water proved to

[391] Archives of the National Land Survey of Finland 22.5.2009, themed interview.
[392] Archives of the National Land Survey of Finland 22.5.2009, themed interview.
[393] Archives of the National Land Survey of Finland 22.5.2009, themed interview.
[394] Archives of the National Land Survey of Finland 22.5.2009, themed interview.
[395] Archives of the National Land Survey of Finland 22.5.2009, themed interview.

be the best method to extinguish a roof fire in the archival building. The chosen method minimized the damage to the building and furniture.[396]

The damage was evaluated and the reconstruction carried out under the supervision of the insurance company. Before the reconstruction commenced, the structural strength of the building was evaluated and its construction was examined. The construction turned out to have strengthened during the fire. The air conditioning was examined and it was determined that no large-scale cleaning operations were needed in all parts of the building. The rebuilding focused on the reconstruction of the roof and the air conditioning and cooling systems. Some of the top-floor archival furniture had to be dismantled for cleaning because of smoke and soot damage caused by fire extinguishing.[397]

After the fire, the National Land Survey of Finland checked and updated their archives disaster and security plans. The crisis communication part of the disaster plan was rewritten to include a more thorough description. Because the cause of the fire could not be established, the number of security devices on the roof was increased. The personnel were also trained in first-stage fire extinguishing.[398]

After the disaster, the archives of the National Land Survey of Finland hired a safety manager, but every level of the building now also has a person responsible for safety in disaster situations. Regular rescue exercises focusing on the safety of both people and the collections have been organized. All employees are encouraged to inform the safety manager of problems related to security. The safety manager analyses all safety notifications and decides whether something needs to be done about the perceived risks.[399]

The archives are supported by the security manager of the National Land Survey of Finland. The director and the security manager have the responsibility to prepare security and emergency planning for the archives. Part of this is to ensure that the documents databases of the archives of the National Land Survey of Finland are duplicated. The duplicates exist either on microfilms or as digital documents. The collections of the National Land Survey of Finland have significant national importance and therefore it has recourse to exceptional disaster management resources, such as the duplication of archival documents. The duplicated documents are stored in separate places around Finland.[400]

In figure 14 I have illustrated the script analysis of the roof fire at the Archives of the National Land Survey of Finland.

[396] Archives of the National Land Survey of Finland 22.5.2009, themed interview.
[397] Archives of the National Land Survey of Finland 22.5.2009, themed interview.
[398] Archives of the National Land Survey of Finland 22.5.2009, themed interview.
[399] Archives of the National Land Survey of Finland 22.5.2009, themed interview.
[400] Archives of the National Land Survey of Finland 22.5.2009, themed interview.

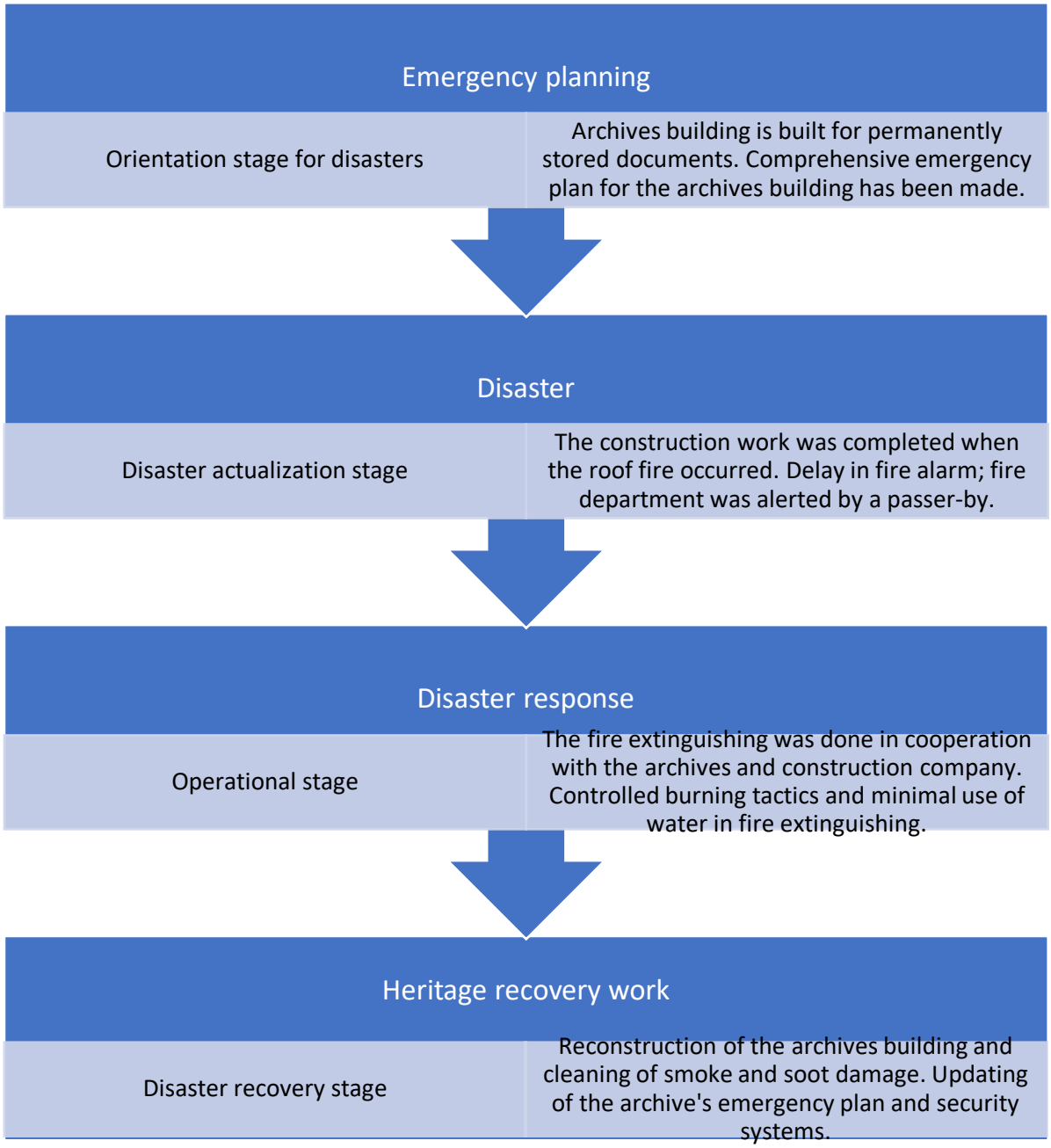

FIGURE 14 The script analysis of the roof fire at the Archives of the National Land Survey of Finland

The orientation stage for heritage disasters shows that the archives were built as a permanently stored archival documents depository. The archives also had a comprehensive emergency plan. In the disaster actualization stage the unexpected roof fire occurred when the construction work of the building was nearly completed. There was some delay in observing the fire, and the fire alarm system failed to observe the roof fire. The fire was alerted to the Central Finland Fire and Rescue Services by a passer-by early in the morning. During the operational stage when the disaster response took place, the fire department put out the fire in cooperation with the director of the archives, the construction

company and the construction consultant. In terms of heritage recovery work, the rebuilding of the archival building was made by the construction company. The cleaning of the soot damage inside the building was performed by a cleaning company. The archives updated its emergency plan and technical alarm systems in the roof of the building after the fire.

5.5.3 Safety of Kiasma during the VR warehouses fire

The fire at the VR warehouses in Helsinki city center took place only a couple of days after violent May Day Eve riots and a couple of days before the demolition of the warehouses was intended to take place. The fire at the warehouses started between 7 and 8 p.m. in May 2006. The fire progressed extremely quickly and by 8 p.m. had produced a massive cloud of smoke. This drew large groups of people near the VR warehouses and Kiasma to watch the fire and its extinguishing.[401]

The massive fire in Helsinki city center caused people to behave in a disorderly manner, which was most obvious in the area near the disaster site. The fire caused heat, a massive amount of smoke, soot, and toxic burning gases. The fire extinguishing took hours. Heat, smoke, soot, and burning gases put both people and heritage sites such as Kiasma, Hakasalmi Villa, the National Museum of Finland, and the Parliament House of Finland at risk. I focus on the disaster response and safety precautions in Kiasma during the VR warehouse fire.[402]

The massive fire at the VR warehouses near Kiasma led the museum to begin security precautions following the emergency plan. The first steps in disaster prevention were to close the museum from the public and call in the museum employees named in the emergency plan. It took a couple of hours for all the key people to arrive at the museum.[403]

The heat, smoke, soot, and toxic burning gases resulted in safety preparations in Kiasma to prevent damage from the fire and its extinguishing as well as against possible security threats. To prevent smoke, soot, and burning gases from spreading into the entire museum, Kiasma's air conditioning was deactivated. Luckily, the wind blew the smoke away from the museum. As a result, heat did not pose a threat to the museum building. There was no significant risk of the fire spreading to the museum.[404]

The public disorder caused the museum to be closed to the public. Some signs of malicious damage were seen outside the building after the fire. The fire at the VR warehouses led Kiasma to develop its emergency plan and risk assessment work further.[405]

In figure 15 I have illustrated the script analysis of the safety precautions of Kiasma during VR warehouses fire.

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401 Finnish National Gallery 5.4.2011, themed interview.
402 Finnish National Gallery 5.4.2011, themed interview.
403 Finnish National Gallery 5.4.2011, themed interview.
404 Finnish National Gallery 5.4.2011, themed interview.
405 Finnish National Gallery 5.4.2011, themed interview.

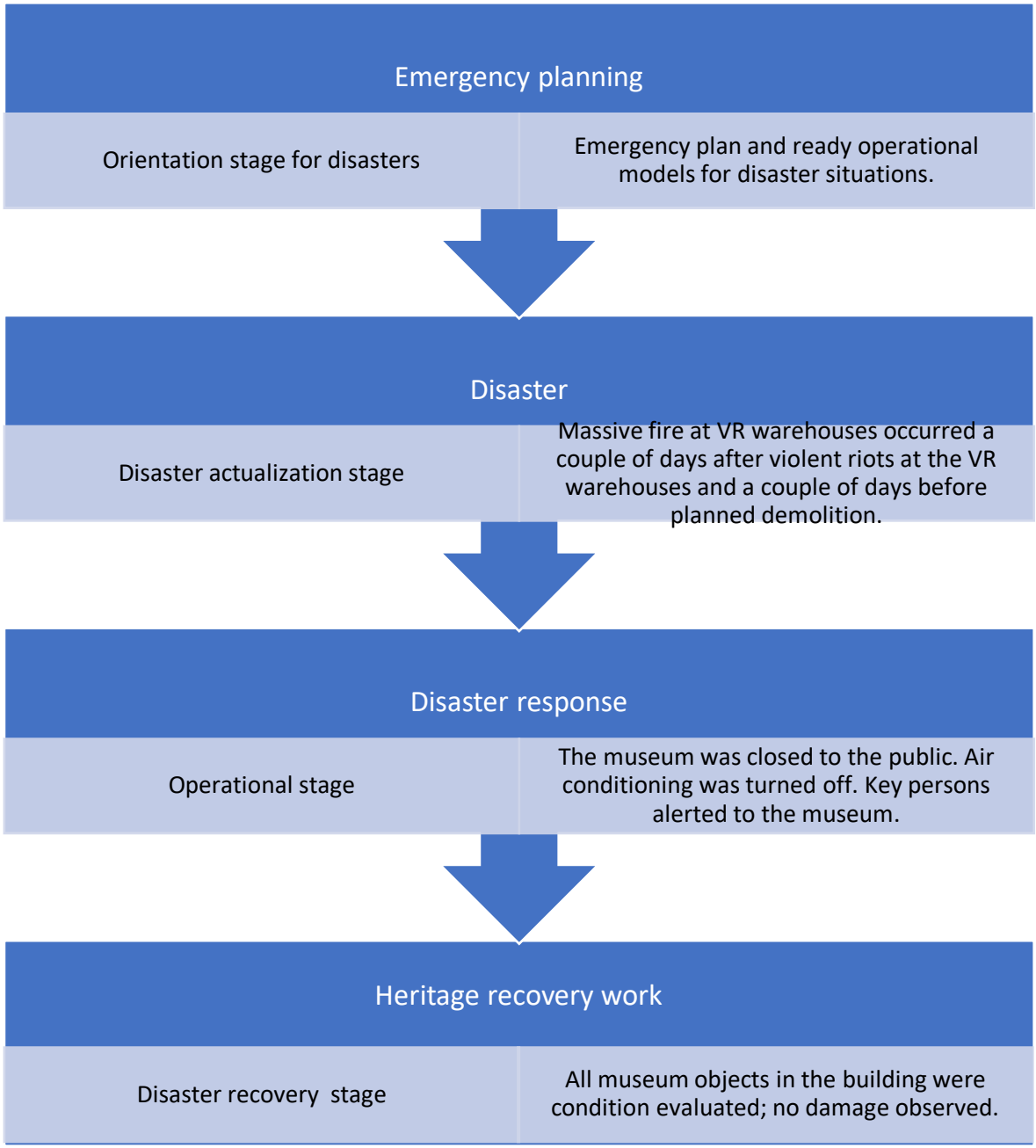

FIGURE 15 The script analysis of the safety precautions at Kiasma during VR warehouse's fire

The orientation stage for heritage disasters shows that the museum had an emergency plan and they had clear operational models for disaster situations. The operational stage in disaster response was when the museum was closed for the public and precautions based on the emergency plan were started. The museum's air condition was turned off in order to prevent smoke and soot from entering the building. Key persons named in the emergency plan were alerted and called to the museum. During the disaster recovery stage, all museum objects in the building were condition evaluated and fortunately no damage to museum objects was observed.

5.5.4 The Valvilla Wool Mill Museum archives fire

In 2003, the factory hall below the archives of the Valvilla Wool Mill Museum was rented to a small company that manufactured components for Finnish industry.[406] In September 2003, the company carried out metal demolition work. An employee used a flame cutter, contrary to safety regulations, on a stand near the wood-paneled ceiling of the old factory hall. A fire broke out and soon spread to the archival storeroom.[407] When the employee noticed a glow on the wood panels, he stopped working and picked up a fire extinguisher which turned out to be broken.[408]

The building's sprinklers alerted the fire department and started to extinguish the fire with water. The firefighters arrived at the site in about five minutes. When the fire source had been located in the second-floor archival storeroom, the fire department opened the roof of the building to stop the fire with water. The firefighters moved what the museum curator advised them to move as the most valuable part of the collection from the archival storeroom to the roof of the building.[409] Figure 16 shows archival documents that had been rescued from the fire to the roof of the old wool mill building.

FIGURE 16 Archival documents that had been rescued from the fire to the roof of the wool mill building. Photo: Hyvinkää City Museum 2003.

The old sprinklers slowed down the progression of the fire and saved the museum's collection from total destruction. Nevertheless, sprinklers and the use of water in extinguishing the fire meant that the archival collection was soaked

406 Hyvinkää City Museum 20.5.2009, themed interview.
407 Hyvinkää District Court Decision no: 05/1077 23.12.2005.
408 Hyvinkää District Court Decision no: 05/1077 23.12.2005.
409 Hyvinkää City Museum 20.5.2009, themed interview.

after the fire. Fortunately, some important parts of the collection had been temporarily moved into the office and were spared from damage.[410]

After the fire was extinguished, a private logistics company packed and moved the damaged archival material into an undamaged production hall in the wool mill building. Unfortunately, the standard boxes used to move the items were made of plastic and were unventilated, which prevented water from draining out of them.[411]

The disaster response and the archival recovery were very challenging, with the process continuing for two weeks. The amount of wet archival material was large (110 shelf-meters) and it was known that if the damaged items were not dried or frozen in two days, mold would start to develop. All the documents suffered from both fire and water damage, but the archives section where the fire had started was most severely burned.[412]

The Valvilla Wool Mill Museum and its employees were well connected with local non-governmental organizations and museum professionals who were willing to help. The museum employees managed to get help from some paper conservators who voluntarily planned aftercare methods utilizing resources that could be supplied rapidly and at minimum cost. The decision-making organization of the City of Hyvinkää was ill-prepared for this type of disaster or to supply large investments for collection rescue work at such a fast rate.[413]

The two professionals employed by the museum worked long hours for several weeks to dry the material and prevent the total loss of the collection.[414] There were also several local voluntary organizations in Hyvinkää that participated in drying the wet material. Some organizations worked over a weekend and others for several days. The City of Hyvinkää also funded a group of local unemployed people to work on the drying process.[415] Figure 17 shows air-drying of the water damaged archival documents during the first weeks of the disaster response. The picture shows that the archival documents had also suffered from smoke, burning and soot damage.

[410] Hyvinkää City Museum 20.5.2009, themed interview.
[411] Hyvinkää City Museum 20.5.2009, themed interview.
[412] Kasnio & Lindberg 2004, condition report and conservation plan of the Valvilla Wool Mill Museum collection after fire.
[413] Hyvinkää City Museum 20.5.2009, themed interview.
[414] Kasnio & Lindberg 2004, condition report and conservation plan of the Valvilla Wool Mill Museum collection after fire.
[415] Hyvinkää City Museum 20.5.2009, themed interview.

FIGURE 17 Air drying of the water damaged archival documents. Photo: Hyvinkää City Museum 2003.

The lack of documentation made it impossible to prioritize the rescue work at the level of individual documents or even parts of the collection cultural historical value. After the accident, the objects had to be spontaneously prioritized based on their overall condition.[416] The prioritization was done with a preliminary view of the most significant parts of the collection. The textile sample notebooks were given top priority in the aftercare, with the main goal being the preservation of their information content. Because the air-drying used in the aftercare was ineffective and the notebooks were very thick, the original leather covers were removed to speed up the drying process of the textile samples and the paper material. The aim was to prevent secondary damage, such as molding, but the drying method was not effective enough.[417]

During the air-drying, the textile sample notebooks were placed open on large tables and vertically on the floor.[418] This type of air-drying was not optimal for the notebooks. The samples were fastened to the book pages with water-soluble glue, leading in some cases for the fans to blow the textiles from their original places in the books.[419] This was particularly unfortunate since it meant that these textile samples lost the link to their context information, which only

[416] Kasnio & Lindberg 2004, condition report and conservation plan of Valvilla Wool Mill Museum collection after fire.
[417] Hyvinkää City Museum 20.5.2009, themed interview.
[418] Hyvinkää City Museum 20.5.2009, themed interview.
[419] Hyvinkää City Museum 20.5.2009, themed interview.

existed in the original notebook pages and in the badly damaged book covers that were already cut off in order to hasten the air-drying process.[420]

Since there were not enough museum professionals working on the heritage recovery process during the first weeks after the disaster, some archival material remained wet and could not be saved. This material was destroyed by mold and water that caused the pages to stick tightly together. Most parts of the collection were saved but these objects suffered from a significant amount of secondary damage. The fire had also caused soot and burn damage. The water had caused the color of both the writing ink and the textile samples to bleed onto the notebook pages. Also, the logistics during the rescue and the aftercare caused mechanical damage such as tears in archival documents. A large part of the collection was damaged by mold. The only archival documents that survived undamaged were the ones that had been placed temporarily in the museum office before the fire.[421] Figure 18 shows textile sample notebooks that had suffered from bunging, soot and smoke damage during the fire.

FIGURE 18 Textile sample notebooks that had suffered from burning, soot and smoke damage during the fire. Photo: Hyvinkää City Museum 2003.

In figure 19 I have illustrated the script analysis of the Valvilla Wool Mill Museum archives fire.

[420] Kasnio & Lindberg 2004, condition report and conservation plan of the Valvilla Wool Mill Museum collection after fire.
[421] Hyvinkää City Museum 20.5.2009, themed interview.

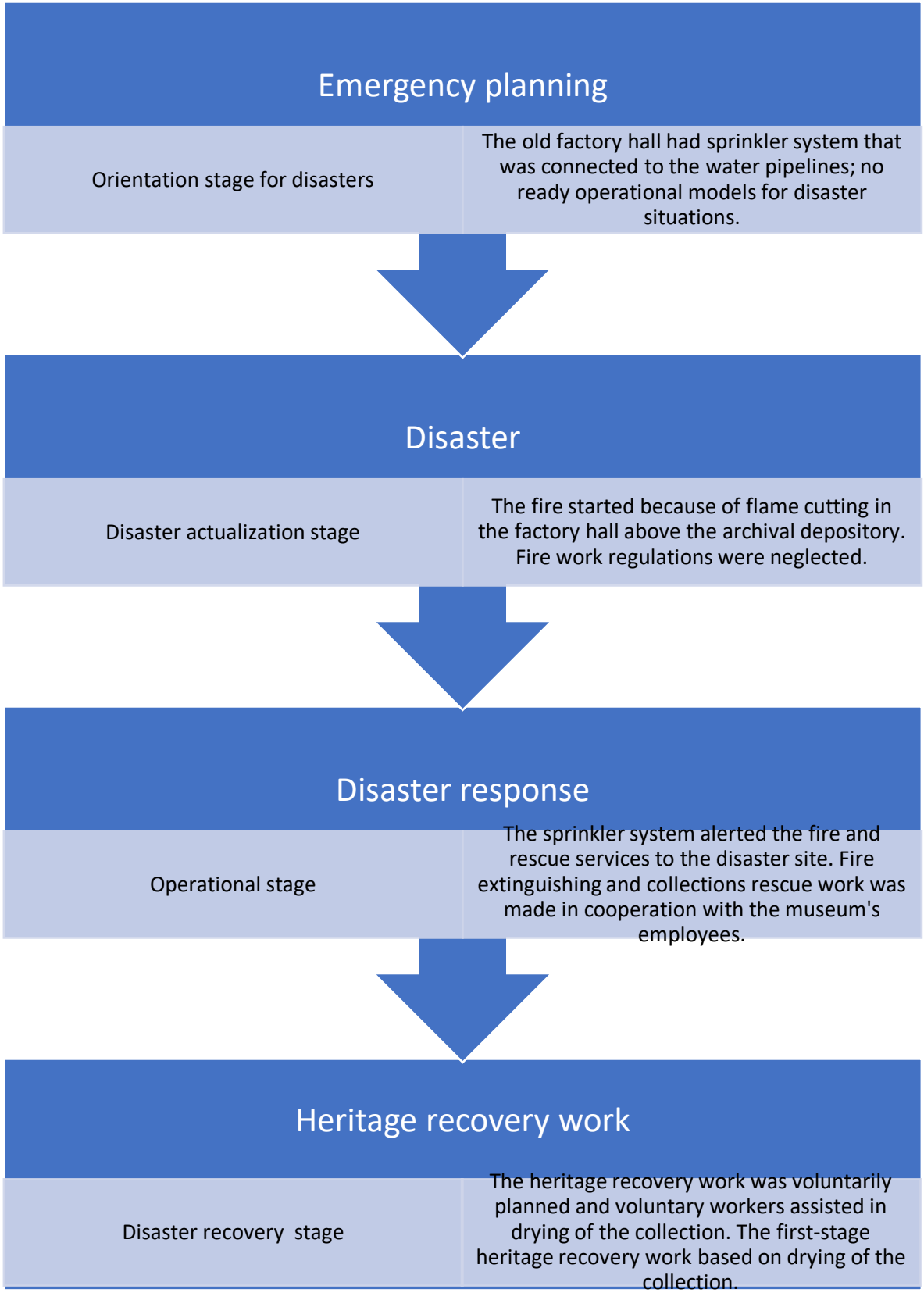

FIGURE 19 The script analysis of the fire at the Valvilla Wool Mill Museum archives

The orientation stage for heritage disasters shows that the museum archives were placed in an old factory building that had water-pipeline-connected sprinklers. There was no emergency plan for archival collection's rescue work. The disaster was caused by fire work that neglected fire work regulations in the factory hall above the archival depository. The operational stage for disaster response can be understood as the water-based sprinklers performing the fire extinguishing. The fire extinguishing performed by the fire and rescue services was done in cooperation with the museum employees. The heritage recovery stage can be understood as air drying of the archival collection, planned by a voluntary paper conservator. Voluntary workers assisted in the drying of the collections.

5.5.5 Explosion at the National Museum of Finland

An explosion at the National Museum of Finland on a Monday in January 2006 occurred during a long and very cold period. A natural gas pipeline had cracked near the National Museum of Finland, possibly because of the freezing and shifting of the ground. The movement of the ground is presumed to have been caused by construction work near the pipeline. The gas that leaked from the broken pipe could not evaporate through the frozen ground, and started instead to move sideways towards the main sewer pipeline. The sewer pipeline was also fractured, causing the gas to enter the sewer pipeline that was connected to the main building of the National Museum of Finland. The ground floor of the museum had a storage room used for cleaning equipment. It had a floor drain that had dried. The room was built air-tight because it contained an electrical cabinet.[422]

It is believed that the gas was ignited by a current change in the electrical cabinet. A large amount of natural gas had filled the storage room and in nearby parts of the museum. The explosion was powerful. The explosion caused all the fire and burglar alarms to go off, and everybody in the building noticed the blast. The explosion broke the plasterboard walls of the storage room and blew open its wooden door. The pressure broke all the windows of the Silver exhibition. All nearby walls and ceilings that were not made of stone suffered considerable damage. The blast wave toppled the burglar-proof display cabinets nearest to the storage room. The cabinets furthest away remained standing but were heavily damaged. The display cabinet's windows were made of laminated glass.[423] Figure 20 shows the silver objects inside a deteriorated display cabinet after the gas explosion.

[422] The National Museum of Finland 9.2.2011, themed interview.
[423] The National Museum of Finland 9.2.2011, themed interview.

FIGURE 20 The silver objects in a deteriorated display cabinet after the explosion in 2006. Photo: Liisa Tuomikoski/Finnish Heritage Agency 2006.

The first disaster response sought to prevent further damage. In this case, it meant minimizing the risk of larceny. Because the explosion had shattered the windows of the silver exhibition room, the museum employees had to check if any objects or parts of objects had flown out of the room. No objects had ended up outside the building.[424]

The broken windows had to be covered to prevent burglary. Before the windows were replaced, other material had to be used to keep the exhibition room warmer than the outside air, as it was a freezing winter when the disaster occurred.[425]

The police requested that nothing inside the Silver exhibition room be touched. Objects could not be moved from the collapsed display cabinets before the police had completed their examinations. None of the cabinets broke down completely during the technical investigation.[426] Figure 21 shows the silver objects inside a display cabinet after the gas explosion.

[424] The National Museum of Finland 9.2.2011, themed interview.
[425] The National Museum of Finland 9.2.2011, themed interview.
[426] The National Museum of Finland 9.2.2011, themed interview.

FIGURE 21 The silver objects in a display cabinet after the explosion in 2006. Photo: Liisa Tuomikoski/Finnish Heritage Agency 2006.

When the police had completed their examination, the museum staff were able to move the silver objects from the damaged display cabinets. The overall condition of and damage to the silver objects were documented and evaluated.[427] Only a small part of the collection was damaged in the explosion. The primary damage visible in the objects was mechanical, comprising scratches, dents, and twisting. The building, itself a part of built cultural heritage, was damaged mechanically by the explosion and the shock wave. There was damage to the storage and the exhibition rooms' walls, ceilings, windows, and doors, which were made of plasterboard, wood, or glass.[428]

The silver objects shown in the museum represented the most valuable part of the silver collection of the National Museum of Finland, and a decision was made that all damaged objects should be conserved and restored. The damaged silver exhibition room was restored and repaired after the disaster. The conservation of silver objects was conducted by the own conservators of the National Museum of Finland, apart from some soldering that was done by a silversmith with experience in repairing old silver objects.

In figure 22 I have illustrated the script analysis of the explosion at the National Museum of Finland.

[427] The National Museum of Finland 9.2.2011, themed interview.
[428] The National Museum of Finland 9.2.2011, themed interview.

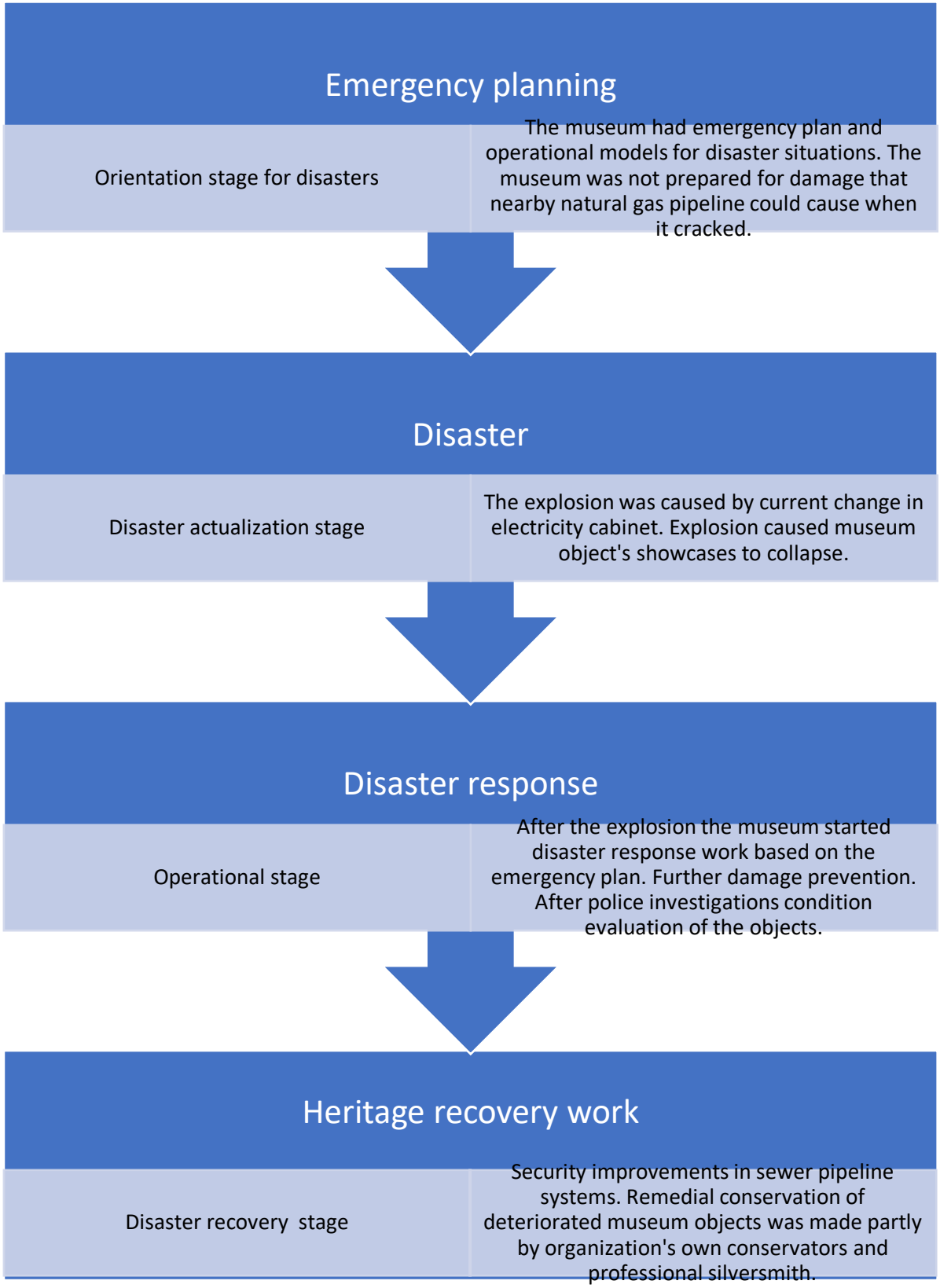

FIGURE 22 The script analysis of the explosion at the National Museum of Finland

The orientation stage for heritage disasters shows that the museum had emergency plan and operational models for heritage disasters. The museum was not prepared for a disaster that could have been caused by a nearby natural gas pipeline. The disaster was caused by many coincidences. The operational stage for disaster response can be understood as the work that was based on the emergency plan of the museum. The objective was to prevent further damage to museum objects. After the police's technical investigations, the condition evaluation of the museum objects began. The heritage recovery stage can be understood as the security improvements that were made in the sewer pipeline system of the museum. A significant part of the heritage recovery was based on the remedial conservation of deteriorated museum objects.

5.6 Discussion

I have provided basic information about water damage, fires and explosions that are connected to cultural heritage in sections 5.1–5.3. I have utilized this information in the analysis of the accident-based heritage disasters emergency planning, disaster response and heritage recovery work.

The researched accident-based disaster and accident cases show that human activity near cultural heritage significantly increases disaster risks. In the 1990s and even in the early 2000s, the risk evaluation and risk management work in public buildings focused in Finland on the security of people, not on the protection of valuable cultural heritage. It is possible that international conventions, such as The Hague Convention for the Protection of Cultural Property in the Event of Armed Conflict with Regulations for the Execution of the Convention 1954 and its second protocol in 1999, have given the impulse for Finland to start making plans for the protection of cultural heritage in disaster and accident situations.

In the water-damage disasters discussed above, there was some delay between the disaster and the response and heritage recovery work, mainly because information about the damage did not reach the organization instantly. This was because the depositories had no water damage alarms. In all three cases, the primary damage caused by water damage was the wetting and mechanical deformation of paper materials either through direct contact with water or extremely high humidity. Documents could be in direct contact with water when it got poured on them or when the water level in the depository reached the material on the shelves. Library collections also got wet in flood-based water damage through capillarity, with the rising of humidity helped by wooden bookshelves, other books, and archival cardboard boxes. High humidity also caused damage.

The secondary damage caused by the delays in acute disaster response work, such as the removal of water from the depository and the drying of wet material, is biological. Also, the first-stage disaster response methods, such as air-

drying with fans, could have increased the mechanical damage and deformation of wet paper materials.

In cases where the disaster response to water damage and the first stage heritage recovery were performed by the employees of the memory institution, the means of preventive conservation were dominant. The use of a preventive conservation approach in recovery work was also dominant when a substantial number of the collection objects had deteriorated due to water damage. In the cases where a preventive conservation approach through environmental control was the central approach in heritage recovery, object-based remedial conservation was only used on the most cultural-historically valuable objects. Remedial conservation took place after the first-stage heritage recovery—the air-drying of water-damaged materials. In one case where heritage recovery in the post-disaster situation was conducted by conservation professionals, the dominant approach of preservation was based on the longer cold storage period of deteriorated documents; the sequential air-drying of wet and frozen documents; and the remedial conservation of individual water-damaged objects.

I have analyzed three fire-based accidental disasters. Accident-based fires can be caused by human error or the malfunction of a technical system. Fires primarily cause toxic gases, smoke, and soot. If a fire occurs by a heritage building or a building where heritage objects are located, primary damage may also include burning. In one disaster case, the fire that threatened cultural heritage objects occurred near a museum building. In this case, there was no significant threat of the fire spreading into the museum.

In disaster cases based on fire and its extinguishing, the protection of cultural heritage and the first-stage disaster response were performed in cooperation with the fire and rescue services by either the consultants of the heritage site owner organization or the heritage professionals. The actual protection of cultural heritage and its recovery in the post-disaster situation was the responsibility of the heritage owner organization. The organizations either had the required professional conservation resources within their organization, or they tried to acquire the knowledge required to plan and carry out the actual heritage recovery. There were differences between the ways the owners of heritage sites were able to acquire the necessary financial, material, and personnel resources needed for the heritage recovery process.

The first-stage approach in the recovery of fire and fire extinguishing damage is based on preventive conservation. The primary task was to prevent any further damage that fire-extinguishing-based water damage, for example, could easily cause if the drying process is delayed. The drying process based on environmental control aimed at the fast air-drying of the objects. In the fire and fire extinguishing case where an entire collection was wet because of sprinklers and the fire extinguishing was performed with water, more hard hand work was required to start the drying process. Also, in this case the first-stage heritage recovery plan was based on the air-drying of a badly water-damaged collection and the environmental control of the drying process.

The decision to save money after a fire and during the first weeks of the disaster response and heritage recovery meant in one case that the damage to the collection continued for several weeks after the disaster. The chosen method of recovery for a soaked collection—air-drying—was one of the main reasons that led to large-scale secondary damage. Ineffective recovery methods were employed due to lack of emergency planning and economical resources. These circumstances resulted in more permanent and serious damage to the collection and expanded the need for further recovery and remedial conservation to save even a part of the collection. In one disaster case, voluntary workers played a significant role in the recovery work of a cultural heritage collection.

Through the script analysis of the accident-based heritage disasters and accidents, I managed to conclude from the cases many factors that influenced the outcome of the heritage disaster. It was obvious that only the largest heritage organizations were well prepared in their emergency plans for accident-based disasters and accidents. These organizations often also had operational models prepared for disaster situations. Through the script analysis it also became clear that human activities near or in the building where cultural heritage is placed is more vulnerable to accident-based disasters that can deteriorate cultural heritage than natural forces. It could be seen in the script analysis that a lack of water damage alarm systems in archival and library depositories led to delays in observing the water damage. It was clear that the delay in observing the water damage often caused more severe water-based damage in cultural heritage. The script analysis revealed that in one case a fire that started outside the building could not cause a fire alarm that was part of an automatic fire alarm system to go off that would have alerted the fire and rescue services. In this case the fire and rescue services received the information about the fire from a passer-by. There was some delay before this information reached the fire and rescue services. It is possible to conclude through the research data that more developed working processes are needed in heritage site's emergency planning and in heritage recovery work following a disaster.

6 DISASTERS CAUSED BY VANDALISM

In this chapter, I analyze vandalism-based heritage disasters and accidents. I concentrate on the background factors of heritage crimes and vandalism. At the end of this chapter I will discuss the six vandalism-based heritage disasters and the related heritage recovery processes. Arson attacks that are aimed at cultural heritage may also have same features as vandalism. However, I concentrate on arson attacks in chapter 7, because there are also differences between the background factors of arson attacks and vandalism.

The contemporary understanding of vandalism is related to the French Revolution. In 1798, vandalism was connected to the use of systematic violence and cultural discrediting motivated by revolutionary ideologies and aimed at art, architecture, and cultural heritage.[429] The deliberate destruction of art and cultural heritage has been related to the strategic means of warfare; actions of terrorist groups; criminal damage by juvenile offenders; and even contemporary art.

I approach the deliberate destruction of heritage objects and sites as contestation over the ownership of public spaces and cultural heritage. Even when destructive acts are not consciously aimed against the official cultural heritage, it is possible that heritage sites get chosen because they symbolize and manifest institutional power and power relations in the public space.[430] As a criminal offence, vandalism has been defined as the willful damaging, destruction, or disfigurement of public or private immovable or movable property. It is linked to the concept of disorder. Because vandalism aims at the intentional damaging of the physical environment, it has been approached in relation to physical and social disorder. Physical disorder represents the visual signs mediating the image of an abandoned, mistreated, or unmaintained environment. Social disorder, on the other hand, represents human behavior that causes the physical destruction of an environment. While physical disorder is a

[429] Merrills 2009, 156.
[430] Sadler 1988, 556.

state, social disorder refers to events that take place at a specific time. According to this view, graffiti is a form of social disorder.[431]

According to Vania Ceccato and Robert Haining (2005), for some young people, vandalism is related to entertainment. It may also represent symbolic action used to mark an area as the territory of a certain group. Vandalism may also express feelings such as frustration and revolt caused by social conditions or cultural conflicts. Vandalism can be motivated by revenge or play, or represent tactical or malicious behavior. These diverse types of vandalism point at the multiple reasons for the willful destruction of environment. Graffiti and the breaking of windows have been considered examples of play-oriented vandalism. The sabotage of a workplace represents tactical vandalism, while malicious vandalism points at the deliberate destruction of environment motivated by frustration or boredom.[432]

The existence of vandalism in an environment has been connected to the concepts of social capital and cohesion; collective efficiency; and local attachments. It has been estimated that strong social relations; trust among people; and a high level of civil engagement in local communities are social resources that may operate as protective factors against vandalism.[433]

Vandalism is more likely to occur in common unclaimed environments than in private homes. The people behind vandalism tend to be young and come from deprived areas with high population densities. These young people commit vandalism near their own homes or in close-by neighborhoods. The areas subject to vandalism do not usually become a target because of the nature of these environments, but because of their proximity to a poor and unstable urban area. Also, the research findings of Bradley et al. (2012) suggest that cultural heritage in deprived areas is at higher risk of criminal damage.[434] Vandalism may represent a form of amusement or an expression of discontent caused by poverty. The use of land and environmental structures play an important role in vandalism. It exists both in the central areas of cities and in poor areas and their vicinity.[435] Vandalism and other crimes have been linked to economic history and the level of political and economic inequality in society.[436] Bradley et al. suggest that a cultural heritage asset located in an area with high crime rates is at a higher risk of becoming a target of crime, just like any other site in the region.[437]

Research on the background factors of vandalism connects communal disorder of a neighborhood with its low economic position, ethnic diversity, and the instability caused by violent subcultures and crime.[438] Social disorders have often led local communities to face difficulties in maintaining effective social control and common values. The lack of social order has also kept people from

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[431] Ceccato & Haining 2005, 1638.
[432] Ceccato & Haining 2005, 1639.
[433] Ceccato & Haining 2005, 1637.
[434] Bradley & al. 2012, 19.
[435] Ceccato & Haining 2005, 1639.
[436] Ceccato & Haining 2005, 1638.
[437] Bradley & al. 2012, 13.
[438] Ceccato & Haining 2005, 1639.

engaging with their own neighborhood because neither formal nor informal public control exists. Social capital is considered a protective factor against vandalism. It manifests a high level of social trust, the collective cooperation of inhabitants towards a common good, and social engagement. Social cohesion, on the other hand, requires the existence of social order, social capital, and social efficacy[439].[440]

Graffiti writers have defined their cultural practice as an attempt to take over abandoned urban areas or to claim ownership of the environment.[441] This suggests that vandalism in urban environments and public spaces is related to a confrontation between public power and individual people over the question of who has the power to modify, take over, and claim ownership of the environment.

The definitions of vandalism and malicious damage can vary depending on who does the analysis and from what perspective they do it from.[442] For those who "make pieces", the graffiti culture often represents art and creativity, while for the majority of society and its officials, these subcultural forms of art or creativity represent an annoying problem that distorts the urban environment. I will analyze graffiti from the approach of conservation that sees graffiti on cultural heritage as vandalism or criminal damage. This approach is based on graffiti reducing the authenticity and integrity of heritage sites and objects by diminishing the possibility to analyze them as sources of information about the past.

The relevant questions about vandalism as a cultural phenomenon are where and when it occurs. Hille Koskela and Riikka Nurminen (2010) suggest that youth who have committed vandalism or malicious damage in their community define malicious damage as trashing, breaking, messing up, and blotting both public and private property.[443] It has been noted that girls are less likely to participate in vandalism than boys.[444] Malicious damage was seen as a form of teasing the majority of people or causing social disruption. Acts of vandalism are either planned and therefore intentional or unintentional and are caused by incidental factors. Malicious damage is often the result of other problems and a lack of wellbeing. One of the background factors behind malicious damage has been other people's disregard. Some young people have thought that vandals may continue to commit malicious damage because they have not been caught. Vandalism and malicious damage are made possible by uncaring and disregarding attitudes among people and toward society. Young people may want attention without giving much thought to vandalism beforehand.

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439 Social efficacy means people's willingness to act for something united with trust and shared expectations. Ceccato & Haining 2005, 1640.
440 Ceccato & Haining 2005, 1640.
441 Brunila & Ranta & Viren 2011, 163.
442 Koskela & Nurminen 2010, 43.
443 Koskela & Nurminen 2010, 43.
444 Smith 2003, 222.

Often young people do not really consider the consequences of their actions. The overarching idea is that public property is not respected. Uncomfortable environments are not regarded as living or livable neighborhoods, which often leads to vandalism and malicious damage. This creates more problems because the inferior quality of the environment causes more criminal damage.[445] The use of alcohol and lack of things to do also often influences decisions to vandalize or cause malicious damage. These actions may later seem ridiculous, including from the perspective of the offender. The unclear motives behind vandalism and causing criminal damage makes it difficult to prevent these types of crimes. Although vandalism can consist of preplanned breaking and destroying of places and objects, the actual aim of these actions often remains unclear or may even lack an achievable goal.[446]

It is possible that vandalism as a way of life in urban environments has reached the stage where nothing is off-limits for people who vandalize, with heritage sites just one object of deliberate destruction and damaging among others. On a general level, the reasons for vandalism have been defined as disregard, lack of control, nausea, and deprivation. Disregard relates to an uncaring attitude and disregard toward their own living environment. The environment is not taken care of because it is not respected or valued.[447] The material and the construction of the environment are widely believed to influence people's willingness to cause criminal damage. The presence of graffiti in the environment often attracts other people who does graffiti. The increase in vandalism and criminal damage follows the same pattern in all Western countries.

The vandalism cases discussed in my research focus on both immovable heritage sites and movable heritage objects. The cases are:

1. St. Nicholas Orthodox Church in Kotka, vandalism in the 1990s and 2000s;
2. Orthodox Church of the Resurrection of Christ in Jyväskylä, vandalism in 2010;
3. St. Jacob's Church in Lauttasaari, Helsinki, vandalism involving sacral design objects and artwork in 2007;
4. Turku Castle, vandalism involving artworks in the museum exhibitions in 2008;
5. Uspenski Orthodox Cathedral, icon larcenies in 2008 and 2010;
6. Vartiokylä Hill Fort in Helsinki, vandalism in the 1990s and 2000s.

6.1 Prevention of criminal damage and vandalism

Different theories have been used in attempts to prevent criminal damage and vandalism. Situational crime prevention approaches are based on either

[445] Koskela & Nurminen 2010, 44.
[446] Koskela & Nurminen 2010, 45.
[447] Koskela & Nurminen 2010, 46.

environmental changes or security systems. Although security systems have improved the security of many cultural heritage sites, they can never make them completely secure. It is known that the prevention of situational crime through security systems has sometimes simply caused criminal behavior to move from one place and time to another.[448] There is also evidence that situational crime prevention has clear advantages in crime prevention.[449]

According to Louise Grove and Ken Pease (2014), crime prevention can be divided into primary, secondary, and tertiary categories. The primary crime prevention category aims at manipulating situations to reduce their chances of being a target of crime. The secondary crime prevention's objective is to prevent people who might become an offender to become such. The tertiary crime prevention category aims at reducing the criminal actions of those who have already become offenders. Grove and Pease define the primary crime prevention category as more effective means to prevent crimes than the secondary and the tertiary categories, since it can be used by individuals and organizations and the other crime prevention approaches requires state involvement to be effective. The primary category is also evaluated to work in the short term.[450]

Situational crime prevention has a long history in criminology and its importance to criminological theory has been recognized. Situational crime prevention contains the development of techniques to prevent, constrain, or disrupt criminal activity. These techniques use varying environmental manipulations to prevent the risks, efforts, and rewards of offending.[451]

The situational prevention of vandalism and criminal damage is based on changes made to the physical environment. These changes aim to reduce the opportunity to commit crime. Crime prevention only rarely pays attention to the criminal propensities of the perpetrators. Theories of crime prevention approach crimes as events that require three factors: a person motivated to commit a crime, a tempting target, and deficiencies in control and security. Crimes take place if all these factors are present at the same time. Situational crime prevention tries to prevent crimes through environmental changes that eradicate the opportunity to commit crimes.[452] The measures target people with the potential to cause malicious damage or commit acts of vandalism; people who have committed vandalism; and active offenders.[453] According to Martha Smith (2003), the previous experiences of the offender affect the process of selecting a target. With graffiti, for example, targets are often selected on the basis of "what has previously been proven to work."[454]

Vandalism and criminal damage prevention have sometimes followed a zero-tolerance policy. This ideology underlines all forms of official control. Established in New York City, zero-tolerance policy was adopted in Finland first

[448] Koskela & Nurminen 2010, 65.
[449] Grove & Pease 2014, 108.
[450] Grove & Pease 2014, 107–108.
[451] Cornish 1994, 153.
[452] Koskela & Nurminen 2010, 9.
[453] Smith 2003, 223.
[454] Smith 2003, 225.

in Tampere and then in Helsinki. In Helsinki, zero-tolerance thinking was made famous by the "Stop töhryille" ("Stop smudges") campaign that sought to prevent illegal graffiti. The ideology was related to the theory of broken windows. According to the theory, social control prevents people from committing criminal damage and vandalism, but if this control is not in place, the reckless attitude gains ground in society. The broken window theory supports the idea of a rapid reaction to criminal damage and the instant repairing of damage as a means to prevent future crimes.[455] Based on the zero-tolerance approach by reacting to all crimes and other forms of social disorder, society can maintain a feeling of security.[456]

The challenge faced by early intervention and zero-tolerance crime prevention is that vulnerable young people should be reached before any crimes have taken place.[457] There is also the possibility that strong societal control not only fails to prevent vandalism and criminal damage but might even provoke people into committing destructive acts.[458] The fast removal of graffiti is a double-edged sword. It can either reduce graffiti or provide the grounds for competition for those who do graffiti.[459]

The idea of the revitalization of society as a means of crime prevention is based on the inclusion of people into societal life and the use of unofficial forms of social control. This approach minimizes the official means of crime prevention and uses social interaction to increase the security of urban areas. Cultural criminology brings into discussion the cultural conflicts that exist between the generations. According to this approach, the way contemporary society is organized creates subcultures that are based on an antagonistic relationship to social norms. Therefore, cultural criminology approaches crime prevention through a pluralistic and open-minded understanding of phenomena. This approach underlines constructive dialogue and common sense between the conflicting parties to solve the problems in society caused by malicious damage.[460]

Rather than engagement in a dialogue, vandalism and malicious damage are considered to be a cry for help.[461] Because social exclusion increases criminality in society, the prevention of social exclusion has in some cases been seen as a way to prevent criminal damage. Then the aim of crime prevention has been to maintain a dialogue between different populations.[462]

Anarchistic criminology approaches crimes and criminality from the perspective of subculture. This approach to crime prevention rejects the authority of crime prevention and recognizes the equal right of subcultures, such as graffiti and hip-hop cultures, to exist in public environments. According to the anarchist

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455 Koskela & Nurminen 2010, 10.
456 Koskela & Nurminen 2010, 11.
457 Koskela & Nurminen 2010, 68.
458 Koskela & Nurminen 2010, 69.
459 Koskela & Nurminen 2010, 70.
460 Koskela & Nurminen 2010, 11.
461 Koskela & Nurminen 2010, 75.
462 Koskela & Nurminen 2010, 76.

theory of crime prevention, the traditional means of crime prevention seldom produce significant results. A more important means to prevent crimes is related to approaching the illegal and unwanted behavior of subcultural groups from a wider perspective that could influence the way social power relations, inequality, and cultural pluralism are understood.[463]

Sometimes the attachment to a place is a more significant factor in promoting the prevention of vandalism and criminal damage. The reputation of a place is based on its history, public image (both official and unofficial), and the interaction between people. The bad reputation of a place is slow to change. The reputation influences the attitude of people and the values both inside and outside the community. Regional identity is essential to successful crime prevention. Regional identity and the attachment to a place affects the level of success in preventing malicious damage on a regional level. These are particularly important for children and young people. Strong regional identity makes people more interested in their own living environment and inspires them to care for the environment and take responsibility for it. Both the reputation of the neighborhood and its residents' subjective opinions about the region are central background factors in crime prevention.[464]

In the United Kingdom, the idea that memory institutions could have an important social role in defeating social exclusion rose in the late 1990s, and since then discussion has been ongoing around the roles of memory institutions in work combating and preventing social exclusion.[465] Before any effective social exclusion projects can be established in association with memory institutions, the nature of deprivation and the needs of people should be understood. [466] Many factors may cause a person to be excluded. They may experience some periods of exclusion or this situation can last for years. People who suffer from social exclusion do not represent a homogeneous group. Therefore, the nature of their individual experience of social exclusion should be understood in order to help them.[467]

6.1.1 Crime prevention in Finland

Crime has increased radically in Finland since the 1950s. This is related to the increased criminal opportunities that have followed from the improvement of living standards, changes in living environments, and internationalization. In the 1990s, it was estimated that crimes were committed by a small group of people and there were significant regional differences in crime rates, the nature of crimes, and crime-related problems.[468]

The objective of the national crime prevention program in the 1990s and 2000s was to create a common policy for crime prevention and the promotion of

[463] Koskela & Nurminen 2010, 11.
[464] Koskela & Nurminen 2010, 12.
[465] Newman 2005, 325.
[466] Newman 2005, 326.
[467] Newman 2005, 327.
[468] Ministry of Justice 2000, I.

security, so that the way decisions influence crime would be considered in all public decision-making. The objective was to actively engage the state, the municipalities, the business sector, the Evangelical Lutheran Church, civil organizations, and private individuals in crime prevention work.[469] The national crime prevention program underlined the role of locally designed measures with the aim of drafting adapted programs for all municipalities.[470]

In the mid-1990s, a common attitude toward urban environments and the interaction of people with these environments changed rapidly. This was believed to have been related to larger social changes in Finland.[471] Graffiti disturbed many business owners and in 1994, the Helsinki Chamber of Commerce suggested that the City of Helsinki should seek to control illegal graffiti and smudging.[472] After three years, real estate owners in Helsinki started their own regional projects, hoping to prevent vandalism. The suburb of Vallila in Helsinki initiated a project called "Töhrimättä paras" ("Best without smudging") and similar projects soon followed in other parts of Helsinki.[473]

Graffiti and tagging had provoked many people in Helsinki. The situation appeared to have spun out of control and led to the city council launching the "Stop töhryille" ("Stop smudging") project that sought to prevent illegal graffiti. According to the graffiti writers and painters, the project was also an attempt to destroy graffiti culture, which the city officials dismissed as smudging. The graffiti artists felt that the vandalism prevention project turned them into large-scale criminals in their own home city.[474] Although the initiative that launched the "Stop töhryille" project did not contain a zero-tolerance approach to graffiti and the prevention of vandalism, the zero-tolerance practices were later applied by the public works department of the City of Helsinki.[475]

The "Stop töhryille" project was disliked by the people involved in the graffiti subculture.[476] It was seen as the city officials using power over the environment.[477] The project may have increased young people's aggressive attitudes towards city officials and some security guards who became known for their heavy-handed actions against taggers. The people who objected to the project disagreed with the idea that the existence of graffiti would automatically inspire people to do more graffiti. They also disagreed with the broken windows theory, which suggested that graffiti would automatically lead to an increase in other crimes, such as robberies and assaults.[478]

The people who were part of the graffiti subculture or who admired it found it difficult to understand the harshness of the convictions and the very high fines they were ordered to pay. This confrontation between the public power and a

469 Ministry of Justice 2000, I.
470 Ministry of Justice 2000, II.
471 Brunila & Ranta & Viren 2011, 9.
472 Brunila & Ranta & Viren 2011, 14.
473 Brunila & Ranta & Viren 2011, 15.
474 Brunila & Ranta & Viren 2011, 9.
475 Brunila & Ranta & Viren 2011, 160.
476 Brunila & Ranta & Viren 2011, 9.
477 Brunila & Ranta & Viren 2011, 160.
478 Brunila & Ranta & Viren 2011, 9.

group of people who appreciated graffiti culture led to the war against graffiti and smudges failing to prevent them from appearing in Helsinki. Since the project failed to reach its goals in "smudge prevention", it was shut down in 2008.[479] It has been suggested that one reason for the attempt to remove graffiti culture from the urban environment was that it was not a part of the institutional mainstream culture.[480] After 2000s position of graffiti culture in the urban environments has changed in Finland.

The same conflicting attitudes between the authorities and subcultures can be seen behind the different demonstrations in Helsinki between 2005 and 2008. Demonstrations such as "Vapaa Helsinki" ("Free Helsinki") and "Töhryfestari" ("Smudge festival") that followed the anarchistic "Euro May Day" riots in Helsinki in 2005, 2006, and 2007 were loosely affiliated with graffiti culture.[481] The violent riots at the national railway company VR warehouses took place right before the massive fire in 2006. During the night of the riots, the "Euro May Day" demonstrators had caused malicious damage in other parts of Helsinki city center.

A common approach in crime prevention is the idea that the successful prevention of crime requires knowledge, prioritization, and control.[482] But the means of control is a delicate issue in contemporary Western societies. The research done on vandalism and criminal damage supports the idea that in urban environments, control and rule over public spaces is one of the central causes for conflicts.[483]

In 1999, the Finnish state established a national crime prevention program called "Turvallisuustalkoot"[484] ("Voluntary work for security"). This program promoted the view that Finnish people and organizations have the motive and the obligation to participate, voluntarily, in maintaining and improving the security of their own neighborhoods. The objective of this program was to develop working models of crime prevention and to increase security. The project also aimed to develop uniform operational policies across Finland. These policies included methods that could be used to minimize the opportunity to commit crimes and to prevent people from becoming criminals. In 2004, they were supplemented by an internal security program called "Arjen turvaa" ("Everyday security"). In 2006, the Finnish Ministry of the Interior established the "Paikallisen turvallisuustyön kehittäminen" ("Regional security development") program to develop regional and local security planning for the needs of national security planning.[485] The ideological context of these crime prevention programs was that criminal behavior can be prevented more effectively through early-stage crime prevention work than through attempts to instill the fear of punishments and convictions.[486]

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479 Brunila & Ranta & Viren 2011, 9.
480 Brunila & Ranta & Viren 2011, 163.
481 Brunila & Ranta & Viren 2011, 11.
482 Korsell & al. 2006, 184.
483 Brunila & Ranta & Viren 2011, 11.
484 The Finnish term "Turvallisuustalkoot" communicates the idea that security is improved and maintained collectively and voluntarily.
485 Koskela & Nurminen 2010, 15.
486 Koskela & Nurminen 2010, 15.

6.1.2 Cultural heritage crimes

Cultural heritage crimes have become an increasingly topical research subject. Crimes that affect cultural heritage vary from larcenies to vandalism.[487] Crimes have varying impacts on cultural heritage. Transnational problems related to the trafficking of cultural objects impact on societies in a different way than anti-social behavior and vandalism of heritage objects and sites.[488] Heritage crimes, however, are not often recognized in societies and these crimes are not often properly recorded by the police.[489] In some countries there have been attempts to collect data on heritage crimes.[490] In Finland statistical data on heritage crimes has not been collected.

Louis Grove has divided heritage crimes into three categories: targeted heritage crimes, incidental heritage crimes, and heritage-specific crimes. Targeted heritage crimes represent cases where specific heritage assets have been the target of crime. Incidental heritage crimes represent cases where cultural heritage has not clearly become a target of crime because of its historic status but is caused by routines in offending. Heritage-specific crimes represent cases that are crimes only because specific laws have been implemented to protect heritage assets.[491]

High profile cultural properties that become targets of crime often make the world news. The deliberate destruction and looting of cultural property has become a globally known and visible threat because of this media attention. The reasons for the destruction and looting of cultural property are multiform. Most often, heritage sites located in politically unstable conflict areas and that contain a large amount of valuable cultural property are at risk of heritage crimes.[492] One example of an unstable geographical area that has been turned into material resources for illicit heritage trafficking is Africa. It has been estimated that for example Nigerian museums alone have lost cultural property worth hundreds of millions of US dollars to illicit heritage trafficking. These stolen objects have sometimes been discovered in the custody of heritage dealers based in New York city and London. In the case of Nigeria, it is believed that the heritage larcenies in museums could only have succeeded with the assistance of people inside these museum organizations.[493] Suzie Thomas (2014) suggests that Finland is a transit country between the European Union and the Russian Federation in the trade of illegal cultural objects.[494]

The UNESCO Convention on the Means of Prohibiting and Preventing the Illicit Import, Export and Transfer of Ownership of Cultural Property was adopted in 1970. It aimed to create a legal framework for intensifying the protection of cultural heritage against crimes. This was accomplished in 1995

[487] Thomas 2014b, 231.
[488] Thomas 2014b, 232.
[489] Grove & Thomas & Daubney 2018, 2.
[490] Grove & Thomas & Daubney 2018, 4.
[491] Grove & Pease 1914, 112–113.
[492] Munch Rasmussen 2014, 14.
[493] Appiah 2012, 73.
[494] Thomas 2014a, 146.

with the adoption of the UNESCO Convention on Stolen or Illegally Exported Cultural Objects (UNIDROIT). Ever since, the UNIDROIT convention has been the most important international convention aiming at the prevention of heritage trafficking. The convention tried to protect both movable and immovable cultural heritage against crimes such as illicit excavations; the export and import of cultural property; and the illicit transfers of heritage ownership.[495]

Heritage crimes motivated by financial profit require both a demand and a market for antiquities. It has been estimated that some of the heritage objects reach the legal or illegal antiquities markets as a result of cooperation between entrepreneurs and criminals.[496] The UNESCO Recommendation Concerning the International Exchange of Cultural Property was adopted at the 1976 General Conference meeting in Nairobi. The recommendation opposed heritage trade and it has been suggested that it caused a rise in cultural heritage prices, which again increased the illicit heritage trade.[497] Modern heritage criminality has not concentrated just on archeological sites, as objects belonging to both private people and public institutions have become targets of larceny.[498] The concern of the international community over heritage crimes has increased during the 2000s.[499]

The illegal movement and export of cultural heritage has been a central object of interest for research into heritage crimes. Vandalism and malicious damage occurring to cultural heritage has not been researched to a great degree in peace-time societies. The first piece of research on heritage crimes in the Nordic countries was published in Sweden in 2006. This research was based on data collected using questionnaire surveys. In the research, 2111 responses were collected in Norway, Denmark, Sweden, and Finland. These were supplemented by 150 interviews with subject matter specialists from the same countries. In the field of cultural heritage, crime types vary on the basis of the heritage objects; their place of storage; and the country where the objects are located.[500]

Many kinds of people commit heritage crimes.[501] Some use any opportunity to steal heritage objects to either collect or sell them. Others have substance misuse problems and steal whatever they think might have some value in order to feed their habit and survive. There are also thieves who steal specific heritage objects on contract.[502] In the Nordic context, Evangelical Lutheran churches experienced larceny of heritage objects in the early 2000s. In addition to silver candlesticks and other silver objects, wooden objects and other antiquities have

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[495] UNESCO 2015, Prevention of Looting and Illicit Traffic of Cultural Property. http://www.unesco.org/new/en/phnompenh/culture/tangible-cultural-heritage/prevention-of-looting-
[496] Korsell & al. 2006, 23.
[497] Klung 2010, 737.
[498] Korsell & al. 2006, 23.
[499] Klung 2010, 737.
[500] Korsell & al. 2006, 7.
[501] Korsell & al. 2006, 8.
[502] Korsell & al. 2006, 7.

also been stolen. Swedish churches have repeatedly been the target of heritage larceny, leading to the disappearance of several significant heritage objects.[503]

In addition to incurring economic losses, heritage larceny in churches has a significant emotional impact on both the local community and the parishioners. These objects have often been in the churches for centuries and have been donated to the parish by local people or the local community.[504]

One of the discussed cases, the Uspenski Cathedral icon thefts, could also be analyzed as heritage object larceny or heritage trafficking. These larcenies are nevertheless analyzed in the context of vandalism, since the crimes were related to the essential objects of the Orthodox Church of Finland that have religious functions in both the church services and the prayer life of Orthodox Christians. The larceny of the icons and the jewelry donated for the icons is an act of vandalism that disgraces the sanctity of the objects and the faith of Orthodox Christians.

The motives of heritage larcenies are often financial. The financial motives are related to the offender's aims to either sell or collect the stolen objects.[505] The motives of collectors committing heritage larceny are mostly unknown, although they are sometimes known to be financial. The motives of heritage dealers involved in heritage larcenies are primarily financial.[506] The Uspenski Cathedral icon larcenies comprise a group of robberies that took place in 2008 and 2010. Although it is impossible to say whether these were related in any other way, the type of the stolen property and the cathedral where the property was stolen from were the same. In cases where heritage objects have been stolen from memory institutions, an employee of the institution has in some cases been involved in the crimes. In the cases where heritage objects have been stolen from churches, the employees have rarely been involved in the crime.[507] The illegal removal of heritage objects requires an opportunity. These opportunities are often based on existing security weaknesses. In this context, security refers to adequate crime prevention measures.[508] Security gaps at sites containing significant cultural heritage, such as churches, is most commonly related to insufficient means of protection; imprecise inventories; inaccurate security routines; and poor security prioritization.[509]

6.1.3 Graffiti—art or crime?

Although graffiti culture today represents established art, I concentrate here on unwanted forms of graffiti culture. Criminology approaches graffiti culture as a phenomenon that combines features of both art and crime.[510] According to Mark Halsey and Alison Young (2002), graffiti and vandalism have been used in the

[503] Korsell & al. 2006, 8.
[504] Korsell & al. 2006, 8.
[505] Korsell & al. 2006, 119.
[506] Korsell & al. 2006, 165.
[507] Korsell & al. 2006, 84.
[508] Korsell & al. 2006, 95.
[509] Korsell & al. 2006, 105.
[510] Halsey & Young 2002, 165.

same context, but there are also notable differences. The official approach to graffiti has regarded it as damage to property. But this does not mean that people who do graffiti would engage in other types of vandalism. Halsey and Young suggest that graffiti is fundamentally different from many other forms of vandalism, such as the breaking and destroying of property, because the objective is to gain access to a certain favored place. The most significant difference between graffiti and other forms of vandalism can be seen in the actions, motives, and reactions they cause in other people.[511]

Graffiti often includes the goals of its writer, who will use it to claim territorial rights over a certain area. Writers may also compete over the rule of an area or to maintain their position among the writers by striving to make the greatest graffiti.[512] When the first writers ran out of available wall space and trains had already been covered with graffiti, the writers started to develop distinct styles to make their name stand out.[513]

The vandalism cases discussed in this study contain graffiti that include both painted or carved figures and texts. Only two of the six cases did not contain graffiti-related forms of vandalism. In the St. Jacob's Church vandalism case, the cultural heritage was harmed by destroying and tearing up sacral objects while no carvings or graffiti were made. In the case of the Uspenski Orthodox Cathedral icon larcenies, the vandalism consisted of the theft of some icons and donated jewelry.

Graffiti can be classified in several ways. One of the definitions divides graffiti into public and private. Public graffiti often contains initials or nicknames and they are painted or carved on the object. The general purpose of public graffiti is to let society know that the writer exists. In the 1980s, public graffiti was typically seen in the neighborhoods of lower social groups and only rarely appeared in those of higher social groups.[514] Later on, public graffiti spread more widely across societies. Graffiti focusing on sexuality and private taboos has been defined as private graffiti. These are usually anonymous because of the shameful nature of the subject matter. The negligible risk of getting caught writing graffiti encourages people to break their private taboos. Aggression toward cultural norms may also cause some people to write private graffiti. When it represents a subculture, it often contains a message to the state and its political leaders.[515]

6.2 Symbolism of deliberate heritage destruction

What can be said about the cases where vandalism has destroyed or damaged cultural heritage? I will approach the deliberate destruction and vandalism of heritage sites through Pauline von Bonsdorff's (1998b) approach to the

[511] Halsey & Young 2002, 168.
[512] Cooper & Chalfant 1996, 54.
[513] Cooper & Chalfant 1996, 14.
[514] Jokinen 1989, 203.
[515] Jokinen 1989, 204–205.

appearance of areas that clarifies perceptual elements of public space that is based on the area's permanent or changing features on its actual or possible use. I found this approach useful when I tried to identify the appearances of the areas where my vandalism and arson cases had occurred. In her approach, von Bonsdorff has placed areas under the following types: 1. market place, 2. supermarket and mall, 3. downtown and business centers, 4. centers of administration and power, 5. residential areas, 6. leisure areas and 7. traffic.[516] The vandalism cases have taken place at heritage sites and areas that seem to manifest the history of the society in the context of spiritual or administrative power.[517]

In my research, four cases of vandalism took place near city centers that represent areas of administration and power but also include features of residential areas such as apartment buildings. Two of the vandalized sites clearly represented areas of spiritual or political power located in residential areas in the Helsinki suburbs.[518] According to Pauline von Bonsdorff, residential areas are often populated by people who have different ideas about how to live. These areas are not functionally or socially homogeneous; the residential functions are mixed with other functions of the area.[519] All these vandalized heritage sites seem to dominate the area where they are located. These heritage sites are defined by rules of proper behavior. von Bonsdorff suggests that accessibility influences the character of public places. Accessibility is related to the social position of an individual in a society that transmits given roles through the construction of environments.[520]

Can cultural heritage vandalism be explained through the cultural change of a society and the postmodern cultural values? Are these values in conflict with the fundamental idea of cultural heritage, which retains many aspects that date back to National Romanticism? Because the process of defining cultural heritage is often authoritative in nature, Michel Foucault's notion of anti-authority struggle can help explain why these destructive actions take place in relation to heritage sites and objects. Based on Foucault's theory of power relations, the damaged cultural heritage or memory institution that defines cultural heritage does not represent the "main enemies" of the individuals who choose to attack them but the "immediate enemies" of the people.[521] For example, authorities can be understood as representatives of public administration. This suggests that the acts of destruction that take place in relation to cultural heritage might be aimed at institutional bodies and the nation state that controls and uses power over individual people, public spaces, and the environment through cultural heritage management.

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[516] von Bonsdorff 1998b, 171.
[517] von Bonsdorff 1998b, 177.
[518] von Bonsdorff 1998b, 178.
[519] von Bonsdorff 1998b, 183.
[520] von Bonsdorff 1998b, 178.
[521] Foucault 1982, 780.

Vandalism reflects the circumstances in which it occurs.[522] Therefore the visual impression of vandalism may sometimes be the only source of information able to reveal something about the motives behind the act. Just like heritage is a defined statement of a society's past, vandalism may also convey symbolic messages about the cultural conflict that takes place between a person and the cultural heritage.

According to Eero Tarasti (2000), environmental experiences have strong cultural bonds. These bonds between people and their environment result in aesthetic statements over the environment and the environmental experiences being strongly influenced by cultural background, cultural values, and aesthetic taste of an individual. All these are context-dependent. The cultural contexts and linkages of an individual also result in the environment and the environmental experience being situated either inside or outside the remit of their cultural values.[523]

The environment can cause either a positive or negative environmental experience. Environments are situated either inside or outside the viewer's cultural context. Positive cultural interpretations represent the cultural elements that are valued and liked, while negative ones represent dislikes. Whether the experience of a landscape or an environment is positive or negative depends on its cultural similarities or differences with the viewer's values.[524] The offender's cultural values may have something to do with the motives behind allowing the deliberate deterioration of cultural heritage.

6.3 Vandalism of movable cultural heritage

Vandalism of movable cultural heritage has sometimes occurred in more guarded and controlled environments, such as inside a historic site where heritage objects have been kept. In my research, three cases of vandalism involve movable cultural heritage objects. These are: 1. the destruction of sacral objects at St. Jacob's Church in 2007; 2. vandalism of portraits at a Turku Castle Museum exhibition in 2008; and 3. the larcenies of icons at Uspenski Orthodox Cathedral in 2008 and 2010.

6.3.1 Vandalism of ecclesiastical objects at St. Jacob's Church

St. Jacob's Church is located right next to Lauttasaari Church in Helsinki. Both churches were designed by the architect Keijo Petäjä and the interiors, furniture, and the original sacral objects were designed by the interior architect Ilmari

[522] Rose 2001, 17.
[523] Tarasti 2000, 154–155.
[524] Tarasti 2000, 157.

Tapiovaara. Both churches were built in 1958 and are protected by the church law.[525]

St. Jacob's Church was broken into one night in May 2007. Nothing was stolen but one piece of religious artwork (a sculpture) in the church vestibule and several design objects with sacral functions at the church hall were vandalized and destroyed. The person responsible for destroying the objects injured themselves in the attack and stained some of the damaged objects with blood.[526]

In the church vestibule, the vandal used a part[527] of the artwork to damage and destroy other parts of it. In the church hall, the vandalism was focused on the altar area: the altar table, candlesticks, church textiles, and the font and its stand were damaged. Also, the components of the church hall audio system, such as the microphones, were torn from their fixings and broken. The original lighting, votive ship, and other original furniture in the church hall and the vestibule were not damaged.[528]

The primary damage caused by the vandalism was mechanical, as items or their parts were broken, torn, dented, and twisted. Because the person responsible for the vandalism was hurt, some objects were also stained with blood.[529]

The vandalism was discovered in the morning by an employee of the parish. The police were alerted to the disaster scene and they conducted a technical investigation. After the investigation, the first stage of recovery consisted of cleaning up the church hall and the vestibule. The heritage objects that could be restored were either restored or conserved but those beyond repair, such as the font and the audio system, were replaced with similar objects.[530]

The textiles damaged in the attack were washed by a laundry service. The twisted candlesticks were restored by a silversmith and the altar table was repaired by a carpenter.[531]

I have illustrated in figure 23 the script analysis of the St. Jacob Church vandalism case.

[525] Federation of Helsinki Parishes 2018, Lauttasaaren kirkko.
https://www.helsinginseurakunnat.fi/lauttasaarenkirkko/artikkelit/7sj4ly9gp
[526] Johannes Parish 8.2.2011, themed interview.
[527] The part in question was a cross made of granite.
[528] Johannes Parish 8.2.2011, themed interview.
[529] Johannes Parish 8.2.2011, themed interview.
[530] Johannes Parish 8.2.2011, themed interview.
[531] Johannes Parish 8.2.2011, themed interview.

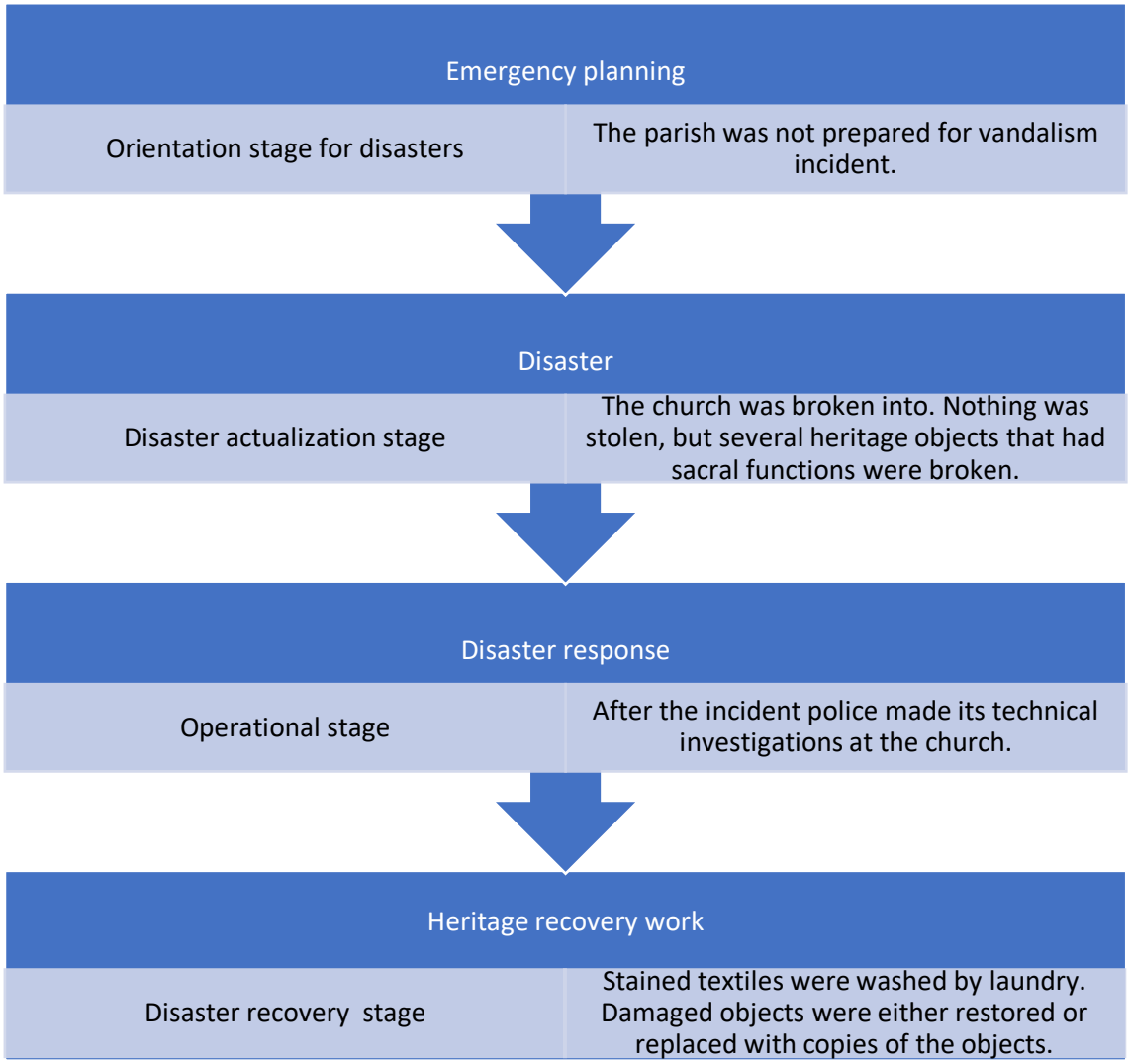

FIGURE 23 The script analysis of St. Jacob Church vandalism case

The parish was not prepared for a vandalism incident at the church. The operational stage for disaster response can be understood as the police's technical investigation after the burglary. After this, the heritage recovery stage started with the restoration of the deteriorated objects and their replacement with copies. The stained church textiles were washed by a laundry service.

6.3.2 Vandalism at a museum exhibition at Turku Castle

Turku Castle is owned by the Finnish state and rented to the City of Turku to be used as a museum. It is one of the Turku Museum Center locations. All objects in the exhibition belong to the Museum Center collections, but some of them are owned by other organizations and are deposited at the Castle.[532]

The history of Turku Castle goes back to the 1280s when its construction started on an island at the confluence of the River Aura and the Archipelago Sea.

[532] Turku Museum Center 17.6.2009, themed interview.

The building was used as the administrative castle for the Swedish Crown. In the decades that followed, the castle was enlarged, and Duke Johan modernized it into a renaissance castle between 1556 and 1563. This is the appearance it still retains.[533]

During the 1630s, Turku Castle became the residence of the governor-general Per Brahe. In the late 18th century the governor's residence and the court of appeals moved from the castle to a building next to Turku Cathedral. After the move, the castle underwent many changes. It served as a prison and a state depository until the 1890s, after which the cultural historical museum took over a part of the castle. It deteriorated badly during the bombings of the Continuation War in 1941. The rebuilding and renovation started in 1946 and was completed in 1961. The latest large-scale restoration at Turku Castle was carried out under the supervision of the Finnish Heritage Agency between 1975 and 1993.[534]

The vandalism at the exhibition occurred on a Thursday afternoon in November 2008. The exhibition normally employed nine museum guards and one doorman, but when the vandalism took place, economic reasons had forced the museum to leave three of the positions vacant.[535]

There are about 160 rooms in the museum space in Turku Castle. At the time, one museum guard was responsible for the security of about 26 rooms. The camera and security systems employed dated back to the late 1980s and early 1990s.[536]

Ten or eleven artworks were vandalized with a small metal object, perhaps a key. In some of the paintings the object was used to poke a hole through the canvas. When a wooden frame prevented the penetration of the canvas, the object was used to make a dent in it and an x-shaped carving on top of the dent. These carvings and holes were made in the bottom-left corner of the paintings. Some photostat pictures were also damaged, leading the museum to believe that the vandalized objects were selected at random.[537] Figure 24 illustrates the vandalized Alma Engblom oil painting from 1889 of Finland's 17th century governor-general Per Brahe.

[533] RKY 2015, Turun linna.
http://www.rky.fi/read/asp/r_kohde_det.aspx?KOHDE_ID=1844
[534] RKY 2015, Turun linna.
http://www.rky.fi/read/asp/r_kohde_det.aspx?KOHDE_ID=1844
[535] Turku Museum Center 17.6.2009, themed interview.
[536] Turku Museum Center 17.6.2009, themed interview.
[537] Turku Museum Center 17.6.2009, themed interview.

FIGURE 24 Alma Engblom's vandalized oil painting from 1889 of governor-general Per Brahe. Photo: Mats Sjöström/Turku Museum Center 2008.

The acts had no eyewitnesses. Most of the damaged objects were displayed in a certain part of the exhibition. The guard responsible for the safety and security of the area noticed the damage to the objects just before she left work for a short holiday and forgot to inform the door attendant of the vandalism. When she returned to work, she told the attendant of the incident. After this, the museum and its conservation department started the normal safety precautions and the examination of the collection. The police were also alerted and they examined the damaged objects.[538]

At the beginning of the following week, the conservators condition evaluated all the exhibited objects. During the evaluation, it was noted that ten or eleven artworks had been vandalized. One of the paintings was owned by Ateneum Art Museum, who sent its own conservator to evaluate the condition of the painting. CCTV provided no information on the vandalism or the identity of the perpetrator.[539]

The vandalism resulted in improvements to the museum's security. The museum protected the most valuable artworks with security alarms, and an internal communication system was acquired for the museum guards. With this system, the guards and the door attendant could communicate with each other from various parts of the museum, improving the security of the exhibition.[540]

After the incident, Turku Museum Center received funding from the City of Turku to fill the three open security guard vacancies. The conservation of the deteriorated paintings started the month following the incident and was completed a couple of months later. It was conducted by the conservation department of Turku Museum Center. After the incident, the Museum Center started to plan the modernization of the CCTV and security systems in the castle. The funding was received from the City the following year.

538 Turku Museum Center 17.6.2009, themed interview.
539 Turku Museum Center 17.6.2009, themed interview.
540 Turku Museum Center 17.6.2009, themed interview.

After the vandalism, Turku Museum Center concluded that it had failed in its crisis communication. The incident was made public by museum visitors. As a result of this experience, Turku Museum Center changed its crisis communications strategy. The new objective was to take a more active role in informing the public about incidents. For the museum, this was also a way to influence its media image.[541]

In figure 25 I have illustrated the script analysis of the vandalism incident at the museum exhibition at Turku Castle.

[541] Turku Museum Center 17.6.2009, themed interview.

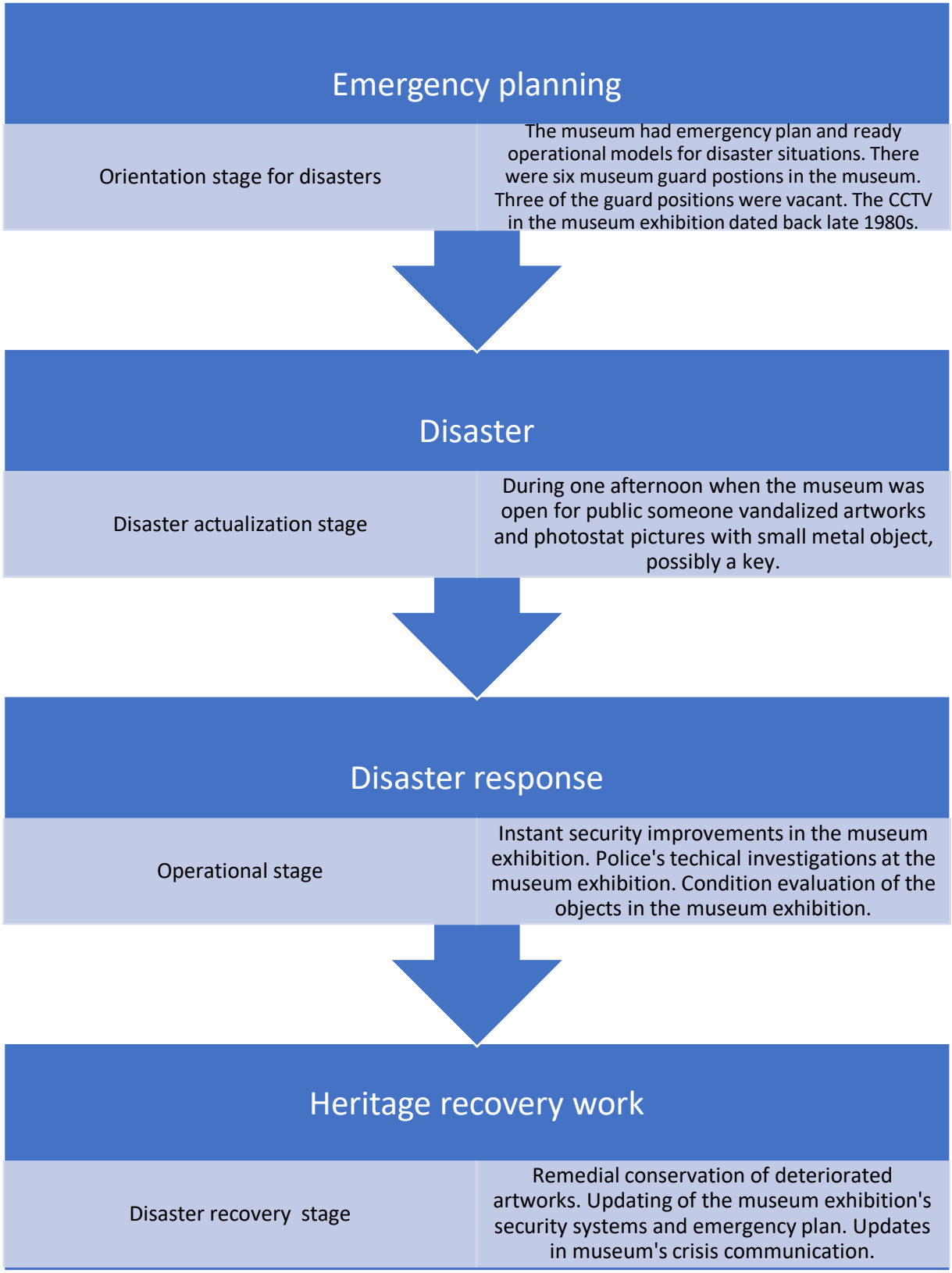

FIGURE 25 The script analysis of vandalism incident at the museum exhibition of the Turku Castle

The orientation stage for disasters can be understood by the fact that the museum had an emergency plan and an operational model ready for disaster situations. There were also museum guards at the exhibition, but three of the guard positions were vacant. The CCTV system in the museum exhibition dated back to the late 1980s. The disaster occurred one afternoon when somebody vandalized artworks and photostat pictures in the museum exhibition. The operational stage for disaster response is instilling instant security improvements in the museum, evaluating the condition of museum objects and having the police conduct a technical investigation after the incident. After this, the heritage recovery stage started remedial conservation of the deteriorated artworks. The museum also updated its technical security system in the museum exhibition, gained three more guard positions, and updated its emergency plan, including its crisis communication.

6.3.3 Icon larcenies at the Uspenski Cathedral

The icon larcenies at the Uspenski Cathedral in Helsinki are analyzed here as vandalism, because of the religious nature of the objects. The first larceny occurred in August 2008, the second in June 2010, and an attempted larceny took place in August 2010. Both incidents in 2010 were perpetrated by the same individuals.[542]

The subject of the first larceny was an icon of St. Nicolaus, stolen in broad daylight when the cathedral was open to visitors. A parish trainee was working at the cathedral at the time. It was a very warm August day in 2008 and all the doors to the cathedral were open. Many people visited the cathedral that day. According to the interviewed employees, it is believed that several people took part in stealing the icon. The employees believe that a trainee's attention was drawn elsewhere while the icon was stolen. The employees were responsible for both guarding the cathedral and selling souvenirs and candles during opening hours.[543]

It is possible that a group of people made a human wall around the icon so that its removal from the stand could not be seen. At the same time, the cathedral was full of tourists. It is possible that the icon was removed from the cathedral in a large bag. The interviewed employees presume that it was about 10 to 15 minutes before the larceny was noticed by the employees.[544]

The second larceny occurred in June 2010 at nighttime. A man broke into the cathedral through a narrow window on the north side. Inside the cathedral, two showcase windows were broken and the Theotokos of Kozelshchyna icon as well as a significant amount of donated gold jewelry, pearls, and diamonds were stolen from the showcases. When a security guard and a parish employee arrived at the cathedral, the offender had fled the scene.[545]

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[542] Helsinki Orthodox Parish 29.12.2010, themed interview.
[543] Helsinki Orthodox Parish 29.12.2010, themed interview.
[544] Helsinki Orthodox Parish 29.12.2010, themed interview.
[545] District Court of Helsinki 2010: Judgement 10/9573, 2.

Three men were involved in an attempted larceny in August 2010. Two had broken into the cathedral through the same window while another man waited outside. The two men inside the cathedral were caught when the police and security company employees arrived at the scene. One parish employee arrived at the cathedral five minutes after the burglar alarm went off.[546]

The initial disaster response in both cases was to call the police and report the offence. The larcenies resulted in disaster response where a top priority was given to security improvements at the cathedral. The Orthodox Parish received advice and recommendations from the police after the larcenies. The parish also used the services of a private security company to create an emergency plan for the cathedral. The lack of economic resources meant that only smaller security improvements could be made to the security system.[547]

As an example, the parish decided that only one entrance door, by the sexton's desk, would kept open for visitors in the future. Also, the display cases holding the icons were fastened to their stands. The first larceny resulted in the personnel becoming aware of the possibility that someone might steal valuable religious objects and cultural heritage such as icons.[548]

In the district court decision, the larceny and the attempted larceny were considered to be compound larceny because of the economic value and the religious nature of the stolen property. The larcenies were well planned and the means of stealing the property were used as arguments for the compound larceny conviction.[549]

Known secondary damage suffered by the Theotokos of Kozelshchyna icon was caused by the storage means used to hide the icon after the larceny. The icon was buried in the ground in Turku. The location was revealed by one of the offenders in February 2011 and the icon was returned to the Helsinki Orthodox Parish. None of the jewels were recovered. Before the icon was returned to its place at Uspenski Cathedral, it was conserved by the conservation department of the Valamo Monastery. Remedial conservation was used to fix the damage.[550]

Part of the disaster recovery process was the returning of the icon to Uspenski Cathedral in a holy cross procession through Helsinki city center. The procession started in Helsinki at the Holy Trinity Orthodox Church and ended at Uspenski Cathedral where liturgical ceremonies took place, honoring the return of the icon of Theotokos of Kozelshchyna.[551] Figure 26 shows the returning of the icon to Uspenski Cathedral in the holy cross procession.

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[546] District Court of Helsinki 2010: Judgement 10/9573, 2, 6.
[547] Helsinki Orthodox Parish 29.12.2010, themed interview.
[548] Helsinki Orthodox Parish 29.12.2010, themed interview.
[549] District Court of Helsinki 2010: Judgement 10/9573, 7–8.
[550] Helsinki Orthodox Parish 17.1.2017, Kozelshtshanin Jumalansynnyttäjän ikoni. http://hos.fi/fi/uspenskin-katedraali/kozelshtshanin-jumalansynnyttajan-ikoni
[551] Helsinki Orthodox Parish 17.1.2017, Ihmeitätekevä Kozelshtshanin Jumalansynnyttäjän ikoni palasi ristisaatossa läpi Helsingin. http://hos.fi/www/fi/ajankohtaista/index09fe.html?we_objectID=545

FIGURE 26 The returning of the icon to Uspenski Cathedral in a holy cross procession. Photo: Helsinki Orthodox Parish 2011.

I have illustrated in figure 27 the script analysis of the icon larcenies at Uspenski Cathedral.

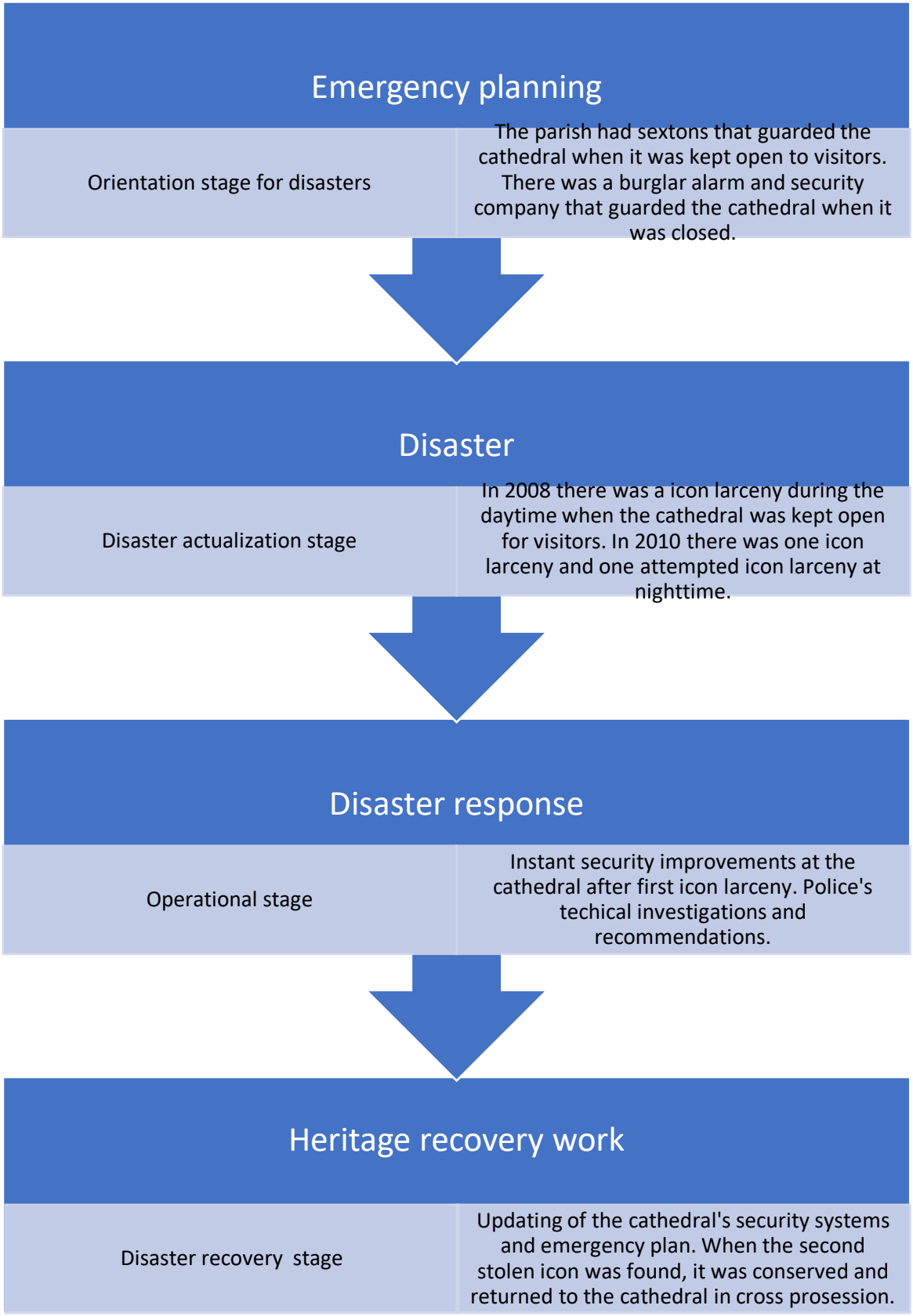

FIGURE 27 The script analysis of the icon larcenies at the Uspenski Cathedral

The orientation stage for the disasters can be seen as the fact that the cathedral was guarded by sextons when it was kept open for visitors and that it had a burglar alarm system and a security company guarding the cathedral at nighttime. The first icon larceny occurred in 2008 when the cathedral was open to visitors. The second icon larceny and the attempted icon larceny in 2010 occurred at nighttime. The operational stage for disaster response can be seen as the instant security improvements at the cathedral after the first icon larceny and the police's technical investigation after the incidents. During the heritage recovery stage the parish updated its emergency plan and its security systems in the cathedral. When the second stolen icon was found, it was conserved and then returned to the cathedral in a cross procession.

6.4 Vandalism of immovable cultural heritage

Three of the discussed vandalism cases concern immovable heritage. All these sites are in large cities and are easily accessible. The cases where immovable cultural heritage was vandalized are: 1. the vandalism of the archeological hill fort in the suburb of Vartiokylä, Helsinki in the 1990s and 2000s; 2. the vandalism of the Orthodox Church in Jyväskylä in 2010; and 3. the Kotka Orthodox Church vandalism in the 1990s and 2000s.

The hill fort in Vartiokylä is an archeological site managed by the Finnish Heritage Agency. Although the archeological site and the orthodox churches are part of an urban area, they are located so that many people do not pass them during late evening or at nighttime. The two orthodox churches are guarded by parishioners who live nearby. When the disasters occurred, these heritage sites were not protected by CCTV. There are detached houses near Vartiokylä Hill Fort.

6.4.1 Vandalism of Kotka and Jyväskylä Orthodox churches

I will concentrate in this section on the Kotka Orthodox Church and Jyväskylä Orthodox Church vandalism cases, because they have thematic similarities. The vandalism of the Orthodox churches in Jyväskylä and Kotka focused on the outside walls of the buildings. Both churches have significant religious and cultural historical value in Finland. The Church of St. Nicholas in Kotka was built in 1801 and is one the oldest buildings in the city of Kotka.[552] The Church of the Resurrection of Christ in Jyväskylä was built in 1954 for the Orthodox parish of Sortavala that was resettled in Central Finland after the Continuation War. The church is the first Orthodox church built during the Reconstruction Period in

[552] RKY 2018, Kotkan ortodoksinen kirkko ja Kirkkopuisto.
http://www.rky.fi/read/asp/r_kohde_det.aspx?KOHDE_ID=1165

Finland.[553] In Kotka, the park surrounding the church has traditionally been a popular place for young people to gather.[554]

In Jyväskylä, the church has been subject to vandalism only once between 1990 and 2010. In Kotka, the Orthodox church has suffered from small-scale vandalism and criminal damage from the late 1980s onwards. In Jyväskylä's case, outside walls, windows, doors, and the free-standing belfry suffered damage. In Kotka, the forms of vandalism comprise writing and other marks on the walls of the church, the moving of paving stones, and the breaking of cenotaphs in the churchyard.[555]

In Jyväskylä's case, the vandalism has a clear message with strong feelings (rage or hatred). But in Kotka's case, the incidents share features with public graffiti writing. The perpetrator is making their existence known.[556] The attack in Jyväskylä occurred soon after the church and the belfry had been repainted. The attack saw the outside walls, doors, windows, and the belfry covered with spray-painted text and symbols, such as the number 666. The only walls and windows that survived intact were the ones facing the street and the adjacent sidewalk.[557]

In both cases, the primary disaster response was to remove the marks of vandalism and criminal damage from the building soon after the incident. First, the police were alerted and informed of the incident. After the criminal investigation, the parishes organized the cleaning of the marks of criminal damage and vandalism.[558]

In Kotka, as well as in Jyväskylä, the general approach after the vandalism was to restore the building to its pre-incident state. Both parishes have used insurance money to finance the restoration work. Both parishes have found it difficult to secure funding for the costs not covered by insurance.[559]

In Jyväskylä's case, the restoration consisted of painting over the plastered walls. Since the church had recently been painted, the correct color code and the type of paint were known. The vandalized windows and wooden window frames were cleaned.[560]

In Kotka's case, the restoration meant cleaning the tags and repairing the carvings. Broken old cenotaphs were most likely removed from their original location in the churchyard. The vandalized steps were fixed by moving the paving stones back to their original place.[561]

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[553] Ortodoksi.net 2018, Jyväskylän ortodoksinen kirkko. http://www.ortodoksi.net/index.php/Jyv%C3%A4skyl%C3%A4n_ortodoksinen_kirkko
[554] Kotka Orthodox Parish 11.5.2011, themed interview.
[555] Jyväskylä Orthodox Parish 25.1.2011, themed interview, and Kotka Orthodox Parish 11.5.2011, themed interview.
[556] Jyväskylä Orthodox Parish 25.1.2011, themed interview and Kotka Orthodox Parish 11.5.2011, themed interview.
[557] Jyväskylä Orthodox Parish 25.1.2011, themed interview.
[558] Jyväskylä Orthodox Parish 25.1.2011, themed interview and Kotka Orthodox Parish 11.5.2011, themed interview.
[559] Jyväskylä Orthodox Parish 25.1.2011, themed interview and Kotka Orthodox Parish 11.5.2011, themed interview.
[560] Jyväskylä Orthodox Parish 25.1.2011, themed interview and Kotka Orthodox Parish 11.5.2011, themed interview.
[561] Kotka Orthodox Parish 11.5.2011, themed interview.

In figure 28 I have illustrated the script analysis of the vandalism cases at Jyväskylä Orthodox Church and Kotka Orthodox Church.

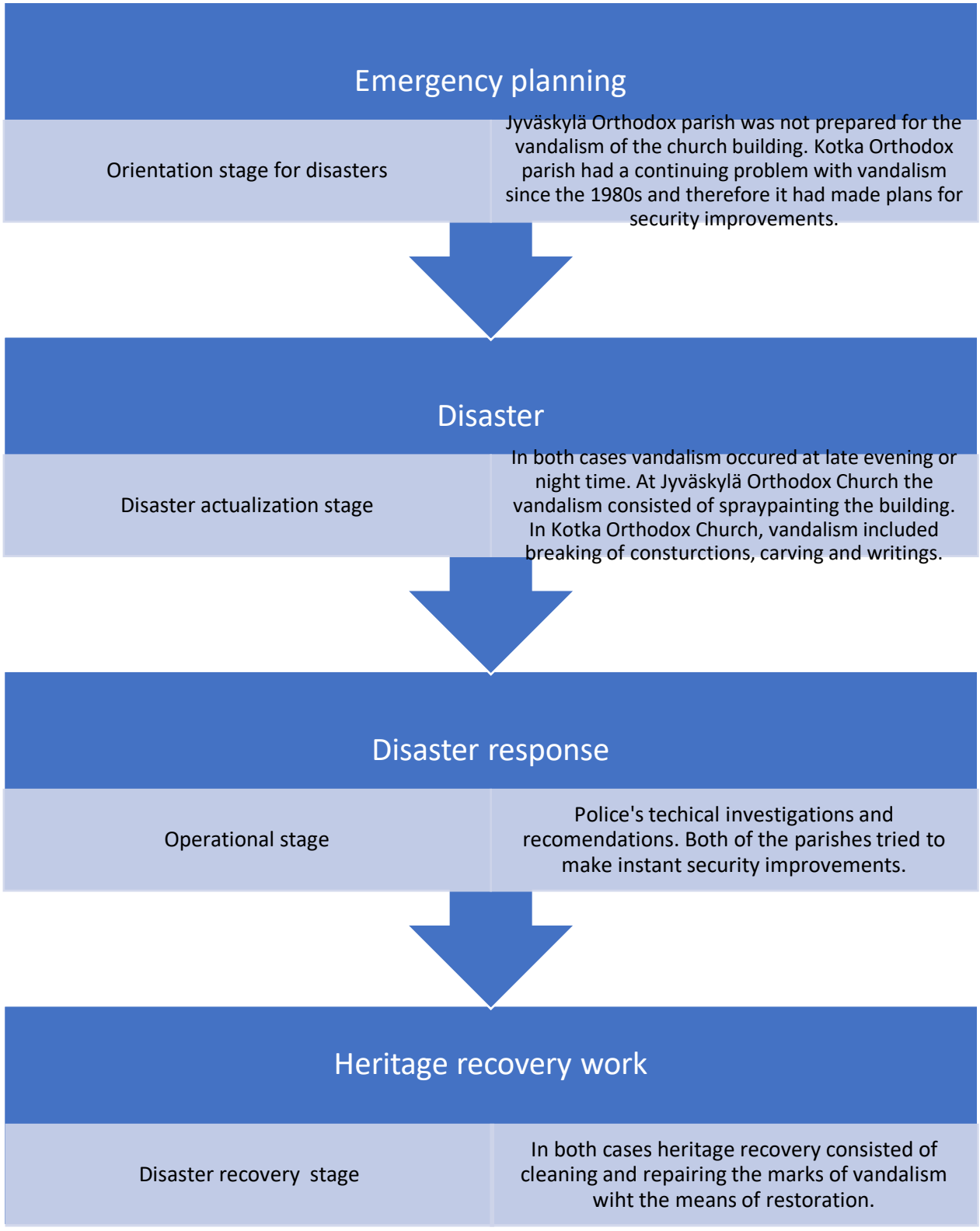

FIGURE 28 The script analysis of the vandalism cases at the Jyväskylä Orthodox church and the Kotka Orthodox church

In Kotka Orthodox Church's case, the orientation stage for the disasters can be considered as the fact that the congregation had made plans for security improvements in the churchyard. Jyväskylä Orthodox Parish was clearly unprepared for vandalism of the church building. At the Jyväskylä Orthodox Church, vandalism occurred only once between 1990 and 2010. In Kotka's case the vandalism incidents occurred many times between 1990 and 2010. The operational stage for disaster response can be understood as the police's technical investigations at the churches. Both parishes also tried to make instant security improvements in the surroundings of the church. The heritage recovery at both churches consisted of cleaning and repairing the marks of vandalism. In the Jyväskylä Orthodox Church's case, the spray-painting was painted over because the church had been recently painted.

6.4.2 Vandalism of Vartiokylä Hill Fort archeological site

Vartiokylä Hill Fort is located in a Helsinki suburb. The site is surrounded by an area of detached houses overlooking Vartiokylä Bay and the Gulf of Finland. The hill fort is one of Helsinki's most significant archeological sites due to its long and multifaceted history. The archeological site comprises three layers of archeological remains related to the military history of Finland: 1. the remains of a late iron age or early Medieval fortress; 2. the remains of a mill that manufactured bricks for the construction of Suomenlinna maritime fortress; and 3. the remains of the First World War fortress, Base V.[562]

The oldest fortress at Vartiokylä Hill Fort was built during either the late Iron Age or the early Medievals. The fortress was constructed with multiple stone walls. Since it is unclear when the first fortification was built, the identity of the builders remains a mystery. The hill fort resembles ancient fortifications found in Sweden and Åland, Finland, but it could have been built according to local traditions and the requirements set by the landscape.[563] The population history of the province suggests that the first fortification was built by Swedish settlers at the beginning of the 13th century.[564] Figure 29 shows part of the remains of the Late Iron Age or Early Medieval fortress.

[562] Schulz 1998, 4–5.
[563] Schulz 1998, 20.
[564] Schulz 1998, 4–6, 10–13.

FIGURE 29 Part of the remains of the Late Iron Age or Early Medieval fortress. Photo: Heidi Wirilander 2012.

In 1754, a horse-powered brick manufactory was built in the area. It was established to provide bricks for the construction of Suomenlinna maritime fortress. The remains of the brick factory are identifiable at the site. The second fortification was built at the hill fort in 1915 by the Russian army. This construction work was related to the fortifications built for the protection of Helsinki during the First World War. The site comprises the First World War fortification Base V and Station 8, which were used as storage bunkers for munitions. The corrugated iron roof and steel door were later removed.[565] The floor and walls of the bunker were cast from concrete. One of the walls contained a mural, possibly from the First World War. Many of the moats and dugout walls at Station 8 were cast from concrete. Some of the moat walls were supported with logs.[566]

The restoration work at the hill fort site has spurred some people into destructive action. After the restoration work in 1973, the stone walls of the ancient fortress were deliberately destroyed. One form of destruction was the rolling of the wall stones down the hill.[567] The destruction of the hill fort continued until the 1990s.[568] Both intentional and unintentional vandalism has continued at the site up until the 2000s. The First World War bunker has been broken into many times. The walls have been spray-painted with graffiti and the space has been littered with trash. According to the Finnish Heritage Agency, the cave was used in the 1990s as a habitat and even as a place for devil-worshipping ceremonies. The concrete walls of the moats and dugouts have also been covered

[565] Schulz 1998, 5.
[566] Schulz 1998, 5.
[567] Schulz 1998, 10.
[568] Schulz 1998, 6.

with graffiti.[569] Figure 30 shows a picture of the entrance of the First World War bunker at Vartiokylä Hill Fort.

FIGURE 30 Picture of the entrance of the Fist World War bunker at Vartiokylä Hill Fort in 2012. Photo: Heidi Wirilander 2012.

Paths at the site have information signs and footpaths have sometimes been vandalized. The signs have been regularly covered with graffiti following cleaning. The guardrails alongside the footpath have been torn off. Residents of nearby houses have disposed of leaves and branches in the moats. People have also dumped trash on the site and left rubbish behind while at the site.[570]

Vandalism has also disturbed people living next to the hill fort as stones from the site have been thrown into their yards. Flow barriers have been set up in the First World War moats to prevent this type of vandalism. However, it did not take long for the barriers to get broken. After this, the moats were covered with logging waste to make moving in them more difficult.[571]

As a disaster response means, the Finnish Heritage Agency replaced the broken lock on the bunker door with a heavier lock, preventing entry to the site. This did not stop the spray-painting outside the cave. The City of Helsinki cooperated with the Finnish Heritage Agency in maintaining Vartiokylä Hill Fort. The City tried to clean up the outside concrete and solid rock walls regularly, but they have deteriorated due to the repeated spray-painting and cleaning. [572]

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[569] The Finnish Heritage Agency, Department of Archeology 2.3.2011, themed interview.
[570] The Finnish Heritage Agency, Department of Archeology 2.3.2011, themed interview.
[571] The Finnish Heritage Agency, Department of Archeology 2.3.2011, themed interview.
[572] The Finnish Heritage Agency, Department of Archeology 2.3.2011, themed interview.

The built infrastructure at the site, such as armor fences above the cave, has repeatedly been damaged. The fences have been repeatedly repaired for safety reasons. There have been two sets of wooden stairs leading to the archeological site and both have been frequently broken. In addition, the handrails have been torn down. The broken stairs have been repaired when it has been possible financially. Every time the spray-painting has been removed from the signs, they have quickly been spray-painted again. Instant cleaning or repairing of any larger damage has not been possible due to the lack of resources. Sometimes it has taken a year or two before damage has been repaired. It may also have been the case that damage was only documented but not acted upon while the site remained deteriorated.[573] Figure 31 shows a picture of spray-painted dugout walls at Vartiokylä Hill Fort in 2012.

FIGURE 31 Spray-painted dugout walls at Vartiokylä Hill Fort in 2012. Photo: Heidi Wirilander 2012.

Criminal damage at an archaeological site is rarely reported to the police since it is extremely rare that charges are pressed. The legal evidence is often missing and it is difficult to prove that somebody has committed criminal damage at the site. When vandalism has put lives into danger, the police have usually been informed by the Finnish Heritage Agency.[574]

In the case of Vartiokylä Hill Fort, the primary disaster response has been the attempt by both the Finnish Heritage Agency and the City of Helsinki to maintain the site in a reasonable condition. The main disaster response actions have been the cleaning up of spray-painting and trash, and the repairing of the infrastructure required to keep the site safe for visitors. Regular reconstruction works have received special funding for rebuilding the damaged infrastructure

[573] The Finnish Heritage Agency, Department of Archeology 2.3.2011, themed interview.
[574] The Finnish Heritage Agency, Department of Archeology 2.3.2011, themed interview.

at the site. Once in the 1970s there was an attempt to rebuild the stone walls of the ancient fortifications by collecting the removed stones and returning them to where they were believed to belong.[575]

Both the spray-painting and their removal have deteriorated the walls of the First World War fortification. This can be regarded as secondary damage resulting from the cleaning. Because of the vandalism, the need to clean up or repair the infrastructure at the site is continuous. As a result, only absolutely necessary repairs are made to maintain the hill fort. The repairs and restorations are based on an approach that aims at the maintenance of the entire archaeological site.[576]

I have illustrated in figure 32 the script analysis of the vandalism incidents at Vartiokylä Hill Fort.

[575] The Finnish Heritage Agency, Department of Archeology 2.3.2011, themed interview.
[576] The Finnish Heritage Agency, Department of Archeology 2.3.2011, themed interview.

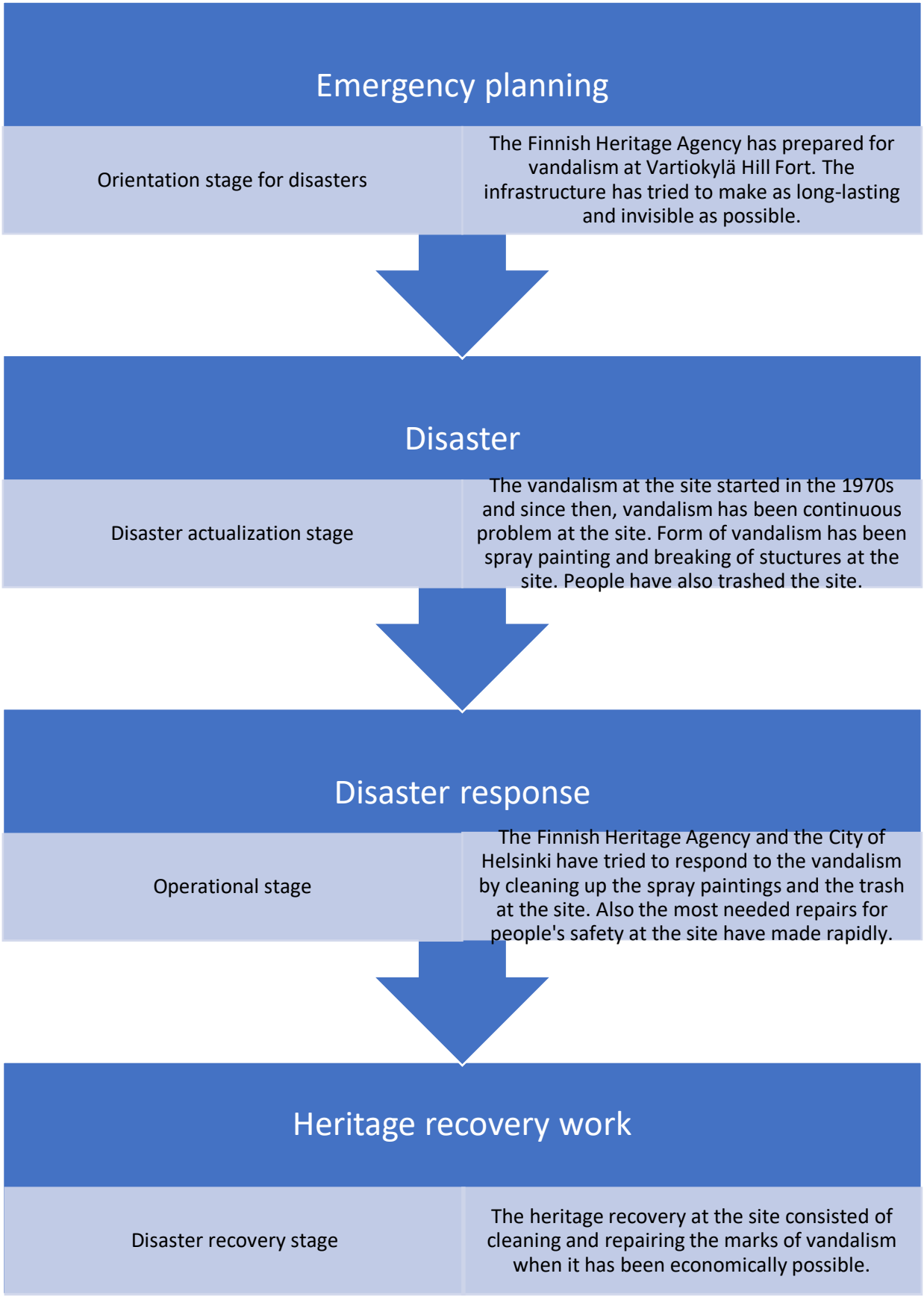

FIGURE 32 The script analysis of the vandalism incidents at Vartiokylä Hill Fort

The orientation stage for disasters can be understood by the fact that there has been effort to make the infrastructure of the archaeological site as long-lasting and invisible as possible. The vandalism incidents at the site started in the 1970s and it continued between 1990 and 2010. Forms of vandalism have included trashing, spray-painting and breaking the infrastructure at the site. The operational stage for disaster response can be understood as the instantly made repairs to the infrastructure in order to maintain people's safety while visiting the site. The heritage recovery at the site consisted of regular cleaning and repairing the most important infrastructure at the site.

6.5 Discussion

I have described through research literature characteristics of heritage crimes and vandalism in sections 6.1, 6.1.1, 6.1.2, 6.1.3, and 6.2. I have utilized this background information in analyses of my vandalism and arson cases. Vandalism has been regarded as an indicator of social problems. It is difficult to identify the real reasons for vandalism in the context of cultural heritage. The six researched vandalism cases indicate that cultural resistance to and the power struggle over the heritage sites exists between memory institutions and individuals or small groups of people. Memory institutions and heritage authorities try to preserve, maintain, and cherish the collective memory of the nation state through its cultural heritage. This heritage has been established by the memory institutions and it is valued by the majority of people. Cultural heritage seems to cause in some people or groups of people the need to damage or destroy the heritage sites and objects found in their own living environment. The vandalism cases indicate that cultural heritage does not enjoy the unconditional respect of the entire society or even the local community. The same cultural heritage causes different experiences in different people. Could these reactions be the result of people's cultural background, previous memories, and thoughts activated by the environment? In this case, the emotions and impulses for destructive actions might be triggered by the environmental experience of cultural heritage.

The discussed vandalism cases represent social disorder. Four of the cases show that vandalism in a heritage site or against objects shares features with both public and private graffiti. In my research, only the case of St. Nicholas Orthodox Church in Kotka is a clearly public graffiti case. All other cases have included a strong emotional message to society. These cases represent private graffiti-featured vandalism. The vandalism of the Orthodox Church of the Resurrection of Christ in Jyväskylä and at the exhibition of the Historical Museum in Turku Castle have features of private graffiti. There is reason to believe that more than one person or a group of people have been responsible for all the vandalism at Vartiokylä Hill Fort and at St. Nicholas Orthodox Church in Kotka. It is also possible that several generations who have lived near the sites are responsible for their deterioration. The vandalism of the hill fort has features of both private and

public graffiti. It is possible that different people are behind the private and the public graffiti.

Both Eero Tarasti's existential semiotics on landscape and Pauline von Bonsdorff's environmental aesthetics bind the environmental experiences and interaction with the environment to the individual's cultural context and knowledge. Because there is reason to believe that the people behind the five cases of destructive vandalism are local and probably also native Finns, they are aware of the cultural importance of the heritage for the local community. The mechanism that directs people to vandalizing cultural heritage is related to the role of heritage in Finland. Heritage is a visible monument of the power of the Finnish state, the local administration, and the Finnish authorities over the public environment.

An act of deliberate destruction can take the established cultural heritage that manifests the presence of organized society and the fragments of nationally cherished past and transfer it from being honored and respected to being openly dishonored and disgraced. The active parties in the transference of signs are heritage professionals who, through interpreting the heritage, try to produce its cultural manifestations in the environment. The people who change, distort, or even remove the heritage from the environment through their destructive actions change the way the cultural heritage object or site exists.

Social exclusion can also be cultural, as cultural heritage does not often represent the past and the memories of excluded people. From the 1990s onwards, communities and individuals have had an increasing opportunity to influence the definition of cultural heritage, but it is possible that this opportunity to define heritage does not engage entire local communities in the process of heritage definition.

In the vandalism of both movable and immovable cultural heritage, damage is caused by the actual act of vandalism. Vandalism also causes mechanical damage, such as breaking, scratching, and the loss of parts of or even the entire heritage object. In the case of immovable cultural heritage, painting over something, such as graffiti and tags done with spray paint or indelible ink, have chemically modified the heritage sites. Among the six discussed vandalism cases, the most common means to deliberately deteriorate heritage objects was by causing mechanical damage by breaking, carving, or modifying the object or site. All the cases related to movable heritage objects like the damaging of liturgical objects at the St. Jacob's Church, the damaging of portraits at Turku Castle, and the icon larcenies at Uspenski Cathedral, had heritage objects broken, taken, or modified by carving, tearing or removing parts belonging to them.

In the cases of immovable cultural heritage, it is likely that the acts of vandalism are usually committed over a longer period of time by more than one person. Therefore, the forms of vandalism also had more variation as they contained mechanical damaging, modifying, and chemical damaging of a heritage site. In the cases of Vartiokylä Hill Fort and Kotka Orthodox Church, the vandalism has occurred over an extended period and many people have participated in damaging the sites both mechanically and chemically. It is

possible that the existing marks of vandalism encouraged other people to carry out new acts of vandalism at the site. In the case of Jyväskylä Orthodox Church, only one incident of vandalism was analyzed in my research. This featured only chemical damaging of the church building with spray paint. The heritage site was not mechanically damaged.

The primary disaster response at immovable heritage sites was to report the criminal damage or vandalism to the police. After the police completed the technical investigations at the site, the first recovery action was to repair or clean up the damage. In most cases, the recovery also included the restoration of the deteriorated heritage site. However, in the cases where vandalism was continuous, the recovery work had features of minimal intervention so far as only the vital restoration or conservation was carried out. Complete restoration was not usually considered viable. Also, the financial resources of the heritage site's owner organizations were often limited. The conservation approach preferred by the owners was comprehensive, comprising the maintenance of the entire heritage site.

Based on the script analysis of the vandalism cases, it is possible to conclude that most of the organizations had in some way prepared for heritage crimes. The larger organizations, however, had more developed emergency plans and security systems that were used to secure the buildings where cultural heritage objects were placed. In those cases where vandalism incidents occurred only once between 1990 and 2010, the organization was less prepared for the specific type of vandalism when the first incident occurred. Those heritage sites that had continuous problems with vandalism were more prepared for vandalism in general. These organizations tried to make risk assessments work that would reduce the problems of vandalism. The police's recommendations in security issues after the heritage crime played a central role in improving the safety of heritage sites. At one heritage site the problems with vandalism started in the 1970s. This heritage site is located in a suburb of Helsinki. Another heritage site's problems with vandalism started in the 1980s. This heritage site is located in the city center of Kotka. Based on the script analysis, it seems that museums were more prepared for crimes that were aimed at their cultural heritage than the Evangelical Lutheran or the Orthodox parishes were.

Security, life, and the welfare of the public are the top priorities of the Finnish police. Cultural heritage is recognized as an important cultural resource, but it is not prioritized in common police practice. As a result, the vandalism of heritage sites and collections is rarely subject to thorough investigation. The probability of being caught vandalizing a heritage site remains low. This may encourage some people to continue vandalism aimed at cultural heritage sites and objects. The police have cooperated in planning the security measures for significant heritage sites. As a result, significant heritage sites are identified by the regional police department who cooperate with other regional authorities and heritage site owners in writing an emergency plan for the sites.[577]

[577] Police University College 12.1.2012, specialist team interview.

Crime prevention programs are important means to prevent crimes also those that are aimed at cultural heritage. By 2010, the Finnish Ministry of Justice had arranged crime prevention projects in various parts of Finland that focused on thefts by young people and campaigns against bullying in schools. The aim was not only to eradicate bullying—the wider aim of the projects was to prevent the formation of criminal behavior and to stop young people from engaging in criminal activities. Crime prevention needs to start in early childhood to be effective.[578] Discouraging vandalism should also be part of environmental planning.

[578] Haapasalo 12.12.2011, specialist team interview.

7 DISASTERS CAUSED BY ARSON AND ARSON ATTEMPTS

In chapter 6, I analyzed cases of heritage vandalism and in this chapter, I will focus on my cases of church arson and attempted church arson. In the beginning of the chapter I concentrate on the background factors of church arsons. I will describe and analyze the six church arson and attempted church arson cases and the related heritage recovery processes. At the end of the chapter I will discuss my church arson and attempted church arson cases from the perspective of the research literature.

The patterns visible in Finnish arson statistics resemble those of other Western countries.[579] The sacred buildings of both majority and minority religions have been targeted by arsonists in Finland. Here I focus on arson and attempted arson attacks on Finnish Evangelical Lutheran churches. The analyzed cases are: 1. the arson attack on St. Olaf's Church in Tyrvää in 1997; 2. the arson attack on Porvoo Cathedral in 2006; 3. the Kaivoksela Church arson attack in 2006; 4. the attempted arson attack on St. Bridget Memorial Church in Lempäälä in 2008; 5. the attempted arson attack on Suomenniemi Church in 2009; and 6. the attempted arson attack on Hammarland Church in 2010.

7.1 Background to arson

Research on pyromania began in the 1830s in France and in the 1840s in the United States, where it was first classified as an illness. At the beginning of the 20th century, the psychodynamic basis of arson was examined and in the middle of the 20th century, research focused on the characteristic features of arsonists.[580]

In the United Kingdom in the late 1980s, research was conducted on arson prevention, and a theoretical framework was published. According to this

[579] Jokinen 1994, 9.
[580] Räsänen 1995, 33.

research, types of arson could be classified based on the motives of the arsonist. When the motives were related to vandalism, the destruction was most often deliberate and could take place anywhere, but was usually directed at schools and other public buildings. The perpetrator of a vandalism-based arson attack is most often a young male. When the motive for arson is revenge or hatred of a particular group of people, the arsonist can target any site. Revenge and hatred-based arson is less common than arson based on vandalism.[581]

In the United Kingdom in the mid-1990s, both nationally and internationally significant heritage sites were seriously threatened by fire multiple times every year.[582] In 1995, fires that were started deliberately were one of the leading causes of fires at historic sites. The people behind these arson attacks would be motivated by vandalism; thieves trying to hide their crimes; visitors with unclear motives or even mistreated employees.[583] The study nevertheless revealed that historic sites are at no greater risk of arson than other buildings.[584]

Arson usually occurs on weekends, during the evening or at night. It happens around the year. In Finland, arsonists were more often born in cities than in rural areas. Also, two out of three arson attacks occur in cities. The targeted places usually have emotional significance for the arsonist.[585]

In Finland, the number of arsons increased every year between 1965 and 1991, following the trend in Western countries.[586] In 1980, arson was determined as the cause of 5.7% of all fires, while in 1989 the rate was up to 10.8%.[587] In 1991, there were 772 cases of arson in Finland.[588]

Between 1980 and 1990, 90% of arsonists were men and annually about 11% of arsons were committed by people aged 15 to 20.[589] Various kinds of people commit arson and their motives vary.[590] At first, intellectual disability was seen as a feature shared by the majority of arsonists. Later, personality disorders, alcoholism, problems at home, and adolescent behavioral disorders were added to the list.[591] Multiple attempts have been made to classify the people who commit arson. One classification considers a male arsonist most often to be 30- to 34-years-old, single or divorced, and suffering from low social position, poor education, and unemployment.[592]

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581 Laitinen & Ahonen 2000, 8.
582 Kidd 1995, 12.
583 Kidd 1995, 21.
584 Kidd 1995, 12.
585 Räsänen 1995, 26.
586 Räsänen 1995, 23.
587 Jokinen 1994, 16.
588 Räsänen 1995, 61.
589 Räsänen 1995, 61.
590 Räsänen 1995, 22.
591 Räsänen 1995, 33.
592 Räsänen 1995, 24–25.

Pirkko Räsänen (1995) has defined the typical arsonist as a poorly educated and unemployed male suffering from alcoholism[593], suicidal behavior,[594] and mental health issues[595].[596] In the early 1990s in Finland, most arsonists were male, about 25% of them were under 18 years, and only 10% were female.[597] According to Jaana Haapasalo (2008), female arsonists in particular have often struggled with depression. They have also had difficulties in expressing their aggressive feelings through other means. Sometimes arson may directly relate to a person's attempt to commit suicide.[598] Arsonists are often antisocial and have problematic family backgrounds, which makes it even more difficult for them to solve their problems constructively.[599]

Mental status examinations indicate that arsonists often suffer from personality disorders such as unstable or antisocial personality disorder.[600] Arsonists who suffered from personality disorders were often also addicted to alcohol. Alcohol addiction was detected more often in male offenders. About 10 to 25% of the people who committed arson suffered from psychosis and 10% of the people had a mental illness, such as depression. It is believed that only about 1% of arsonists are pyromaniac.[601]

Haapasalo has categorized arsons into two groups: goal-oriented and reactive. The goal-oriented arsonist aims to achieve a personal objective such as covering up a crime, getting help and treatment for personal problems, or making financial gain. This group also includes arson attacks motivated by political and social reasons. Reactive arson attacks, on the other hand, often represent impulsive actions that may have been triggered by internal emotional conflicts related to acute crises or a long-term chaotic life situation. But not all reactive arson attacks can be explained through the offender's life situation. These cases have been related to delayed intellectual growth. The objective of reactive arsons is to change the conditions of one's life. Pyromania has often been connected to reactive arson attacks.[602]

Haapasalo suggests that for the offender, arson represents either an individual crime or a series of crimes that take place during a period of time and may sometimes even comprise multiple simultaneous arson attacks. The target of the arson can be randomly selected or it may have symbolic meaning for arsonist. Burning a church may contain symbolic meanings in a work of

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593 In the early 1990s, 84% of the people who committed arson suffered from alcoholism. Räsänen 1995, 61.
594 It was observed that 68.4% of the people who committed arson had personalities that indicated self–harming and suicidal behavior. Räsänen 1995, 61.
595 85% of the people who committed arson had received psychiatric care before the crime. Räsänen 1995, 61.
596 Räsänen 1995, 7.
597 Räsänen 1995, 22.
598 Haapasalo 2008, 201.
599 Haapasalo 2008, 209.
600 Räsänen 1995, 24–25.
601 Räsänen 1995, 27.
602 Haapasalo 2008, 201.

destruction. Arson may be directed at a person or property, while arson against a person repeats the dynamics of violent crimes.[603]

The target is often selected on the basis of the level of security at the site. Unguarded or poorly guarded sites in outlying areas are the most common targets. Arsons usually occur at night or in the evening.[604] Several different classifications have been used in relation to criminal profiling. Arson attacks have been divided into two categories based on whether the target is a person, either the offender or another person, or property, and whether the motive is based on expressive or indirect reasoning.

In 1994, the most common targets of arson in Europe were schools, churches, and restaurants.[605] The motives were related to the person's wish to die or the need to escape a difficult life situation.[606] Sometimes the arson followed a traumatic event or crisis.[607] Before the arson, the offender had often suffered from depression, faced disappointments in various areas of their life, and had a low self-esteem. Most arsonists suffer from loneliness and feelings of insecurity. Revenge and hatred are common motives. Other motives include jealousy, heroism, attention-seeking, and a cry for help.[608] In 1994, there were significant statistical differences between Finland and other Western countries regarding the motives for arson. In Finland, there were three major motives leading people to deliberately cause fires: 1. alcoholism and mental health problems; 2. hatred, jealousy, and revenge; and 3. children under 15 playing with fire. In other countries, about 50% of arsons were caused by vandalism or criminal damage-related reasons.[609]

Fire prevention work has been carried out in Europe since the 1980s and it became more organized on a European level in 1990. Coordinated arson prevention work started in Finland in 1999 when the Finnish Ministry of the Interior appointed a working group to work on the topic. This working group filed its report to the ministry in 2002. This was followed by a five-year-long arson prevention program between 2003 and 2008. The cooperation group continued its work as the coordinator of the arson prevention program during the periods of 2003–2005 and 2006–2008. Raising awareness about criminal sentences and the dangers of arson has been an important part of the work from the beginning.[610] The idea of using awareness-raising as a means of crime prevention is based on the belief that increased knowledge will change the behavior of individuals.[611] There are many organizations that play a central role in arson prevention work, such as social and health care, fire departments, police, insurance companies, and schools.[612]

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603 Haapasalo 2008, 200.
604 Räsänen 1995, 32.
605 Jokinen 1994, 33.
606 Räsänen 1995, 30.
607 Haapasalo 2008, 200.
608 Räsänen 1995, 30.
609 Jokinen 1994, 39.
610 Räsänen 1995, 32.
611 Jokinen 1994, 10.
612 Räsänen 1995, 32.

7.1.1 Peacetime church arson attacks

Historically, arson has represented a strong violation of social norms. In 18th century Europe, arson was criminalized and could even incur the death penalty.[613] During wartime, arson attacks on significant buildings have been used as a strategic means to injure the enemy by attacking their cultural heritage. Arson has increased in Western countries since the middle of the 20th century.[614]

Church arson attacks in the United States have pointed at cultural conflicts. There were many church arson attacks and bombings in the United States between 1990 and 1997.[615] During this time, most of the more than 400 church arson attacks, bombings, and bombing attempts were investigated by the United States Department of Justice.[616] Most of the church arson attacks and bombings were reported in the southern states and these incidents were seen as an expression of old racial conflicts between the white and the African American populations. John Bartkowski, Frank Howell, and Sun-Chuan Lai (2002) characterized the most likely area for church arsons in the United States to be in small metropolitan areas or in non-metropolitan counties in the South with cities of more than 10,000 inhabitants.[617] The churches most likely to get burned, according to the statistics, were located in areas with a high percentage of minority residents. Also, 40% of the churches that were subject to arson or were bombed belonged to minority-dominant parishes. More than 33% of the attacked minority-dominant churches were in the southern parts of the United States.

Arson attacks on the churches of majority religions in Norway, Sweden, and Finland do not have the same cultural background as those in the United States. Nordic arson attacks speak more about resistance toward the dominant religion and culture. Church arson can also be seen as an expression of hate that is directed either at the Evangelical Lutheran Church as an institution or at a local parish. The arson attacks in Norway, Sweden, and Finland have many similarities.

In Norway, the number of church arsons increased in the 1990s. This was linked to the increasing number of satanists who were involved with black metal music. In 1997, 33 wooden churches were burned in Norway.[618] In 2004, the Swedish National Heritage Board published its research on church fires in Sweden. Some of the church arson attacks analyzed in this research were related to satanism. In these cases, the central motive was simply to burn down the church. A couple of Swedish cases somehow involved suicide.[619] The Swedish National Testing and Research Institute published, in 2006, a fire research projects report entitled *An overview of fire protection of Swedish wooden churches.* This report featured statistics for more than 17 fires in historic wooden churches

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613 Räsänen 1995, 33.
614 Räsänen 1995, 33.
615 Bartkowski & Howell & Lai 2002, 578.
616 Bartkowski & Howell & Lai 2002, 579.
617 Bartkowski & Howell & Lai 2002, 578.
618 Norton 1995, 60.
619 Alexandersson & Karlsfors 2004, 6.

in Sweden between 1959 and 2001. These statistics show that arsons became, in the 1990s, the most common cause of wooden church fires. After 1990, five or six fires were caused or suspected to be caused by arson. The cause for three of the fires that occurred after 1990 were reported as unknown. Only one fire was caused by a technical failure, and one most likely started because of restoration work at the premises.[620]

7.1.2 Arson attacks in Finland

Most of the arson attacks in Finland have had emotional motives, such as revenge or hatred. Irrational or unexplained reasons represent about 20% of the cases.[621] The number of arson attacks increased in Finland between the mid-1970s and mid-1990s. Although arson represented 10% of all fires in the 1980s, in 2000 the number had increased to 25%.[622]

In Finland, arson attacks are focused on certain areas. Statistics show that arson is generally committed in economically and socially "affluent" areas. There is a large variety of arson-based cases in Finland. In 2002, about 16% of all fires were deliberate, while in the Helsinki area, over 30% of fires were arson-based. In the cities of Oulu, Salo and Kouvola, 40% of fires in 2002 were the result of arson.[623]

Most arsonists target easily accessible and poorly guarded property, such as waste bins, mailboxes, and abandoned buildings. Public buildings have also been targeted, but after dark when they have been empty.[624]

7.1.3 Church arson and attempted church arson attacks in my research

The cases of church arson and attempted church arson attacks in my research include churches that form a significant part of Finnish cultural heritage. Four of the arson attacks targeted Finnish medieval stone churches. These churches are in the provinces of Pirkanmaa, Uusimaa, and Åland. St. Olaf's Church in Tyrvää is a 16th century stone church located in Pirkanmaa; Porvoo Cathedral in Uusimaa was built in the 15th century; St. Bridget Memorial Church in Lempäälä, Pirkanmaa was built in the early 16th century; and Hammarland Church in Åland was built in the early 14th century.

Two of the churches are significantly younger. Kaivoksela Church was built in 1969 in the suburb of Kaivoksela, Vantaa, and it represented Finnish 1960s suburban church architecture common in the capital city area. Suomenniemi Church was built in 1866 and it represents Finnish South Karelian rural wooden church architecture. Suomenniemi is a small municipality that merged with the city of Mikkeli at the beginning of 2013.

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620 Arvidson 2006, 13.
621 Tuhopolttojen torjunnan yhteistyöryhmä 2002, 4–5.
622 Tuhopolttojen torjunnan yhteistyöryhmä 2002, 3.
623 Tuhopolttojen torjunnan yhteistyöryhmä 2002, 3.
624 Tuhopolttojen torjunnan yhteistyöryhmä 2002, 3–4.

It is possible to analyze the environments where church arson attacks occurred on a general level. Pauline von Bonsdorff's environmental aesthetics place churches atmospherically into the context of administration and power. Before the era of organized city planning, villages and cities were built around castles or churches that represented institutions of religious or political power. Churches were often built in places that were considered holy, and the church would further increase the holiness of the place.[625]

Pauline von Bonsdorff's environmental aesthetics made it possible to observe that the churches subjected to arson and attempted arson attacks represented either the most important or one of the most important buildings in the area.[626] These churches were also the local-level centers of both religious and administrative power. All the churches manifested regionally and even nationally important cultural, historical, and religious values connected to the local community and sometimes even to a larger group of people who felt attached to the site. Five of the burned churches were local parish churches and one a cathedral, the symbolic main church of the diocese with "the bishop's seat."

Four of the churches were in agricultural areas and three in a suburban environment. St. Olaf's Church in Tyrvää fell out of use in 1855 when it was replaced by a new church building closer to the current town center. Two of the arson attacks occurred in urban areas, in the Kaivoksela suburb of Vantaa and in the old administrative center of the city of Porvoo.

7.2 Unsolved attempted arsons in Lempäälä and Suomenniemi

I have analyzed in this chapter the attempted church arson attacks on Lempäälä and Suomenniemi churches, because these cases have similarities. St. Bridget Memorial Church in Lempäälä was the target of a night-time arson attempt in January 2008. It is believed that someone had first tried to break into the church. Having failed, the person tried to set the church on fire. At first, the outer pane of a side window was broken, and some crumpled paper was placed between the windows and set on fire. The paper failed to ignite the frame and the fire died. Then the person forced the church door slightly ajar and put some paper between the door and its frame. Again, the paper was set on fire, but it failed to ignite the door.[627]

A burglar alarm alerted the security firm and when the guard arrived at the church, the would-be-arsonist was still at the scene but managed to escape. The attempt caused a small amount of damage to the church, mostly to the window and the door. The fires also caused minor smoke and soot damage inside the church.[628]

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625 von Bonsdorff 1998b, 177.
626 von Bonsdorff 1998b, 177.
627 Lempäälä Parish 28.3.2011, themed interview.
628 Lempäälä Parish 28.3.2011, themed interview.

The attempted arson attack in Suomenniemi had much in common with that in Lempäälä. In December 2009, an arsonist also tried to set two parts of the church on fire at night. First, the arsonist used a lighter to set the main door on fire. Then a side window was partially broken, and a small fire was lit between the windows. The outside temperature was very cold, and the fire progressed slowly.[629]

The fire at the main door caused a fire alarm inside the church vestibule to go off. The alarm alerted the local volunteer fire department, which managed to extinguish the fire. The attempt caused minor damage to the broken window and its frame. A hole was burned through the main entrance door and the vestibule suffered some smoke and soot damage. The perpetrator fled the scene before the fire department arrived.[630]

Although both arson attempts share many similarities, police inquiries have suggested that the perpetrators are different. The person who tried to burn the Suomenniemi Church might have been slightly older as they wore clampers on their shoes.[631] The St. Bridget Memorial Church arsonist must have been young and physically fit as they managed to escape from the scene by running away. Both cases are still open and the motives for the attempts remain a mystery.[632]

Both attempts caused soot, smoke, and burn damage on the church door, windows, and window frames. Damage was caused by breaking a window, fire, and heat. In the St. Bridget Memorial Church case the fire self extinguished but in the Suomenniemi Church case, the fire was extinguished with a foam extinguisher. The extinguishing did not cause any noticeable secondary damage.[633]

The first-stage disaster response was to inform the police. Both cases also led to the updating of security plans and the carrying out of required technical security improvements. After the police had conducted the technical investigation, the damage left by the arson attempt and the fire extinguishing were cleaned and removed.[634]

In both cases, the recovery approach was based on the restoration of the building. The aim was to restore the church to its state prior to the arson. The partly burned door was replaced in Suomenniemi Church. Windows and window frames were repaired. Soot and smoke damage was cleaned up.[635]

In figure 33 I have illustrated the script analysis of the attempted arsons at St. Bridget Memorial Church and Suomenniemi Church.

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629 Suomenniemi Parish 15.3.2011, themed interview.
630 Suomenniemi Parish 15.3.2011, themed interview.
631 Suomenniemi Parish 15.3.2011, themed interview.
632 Lempäälä Parish 28.3.2011, themed interview.
633 Suomenniemi Parish 15.3.2011, themed interview & Lempäälä Parish 28.3.2011, themed interview.
634 Suomenniemi Parish 15.3.2011, themed interview & Lempäälä Parish 28.3.2011, themed interview.
635 Suomenniemi Parish 15.3.2011, themed interview & Lempäälä Parish 28.3.2011, themed interview.

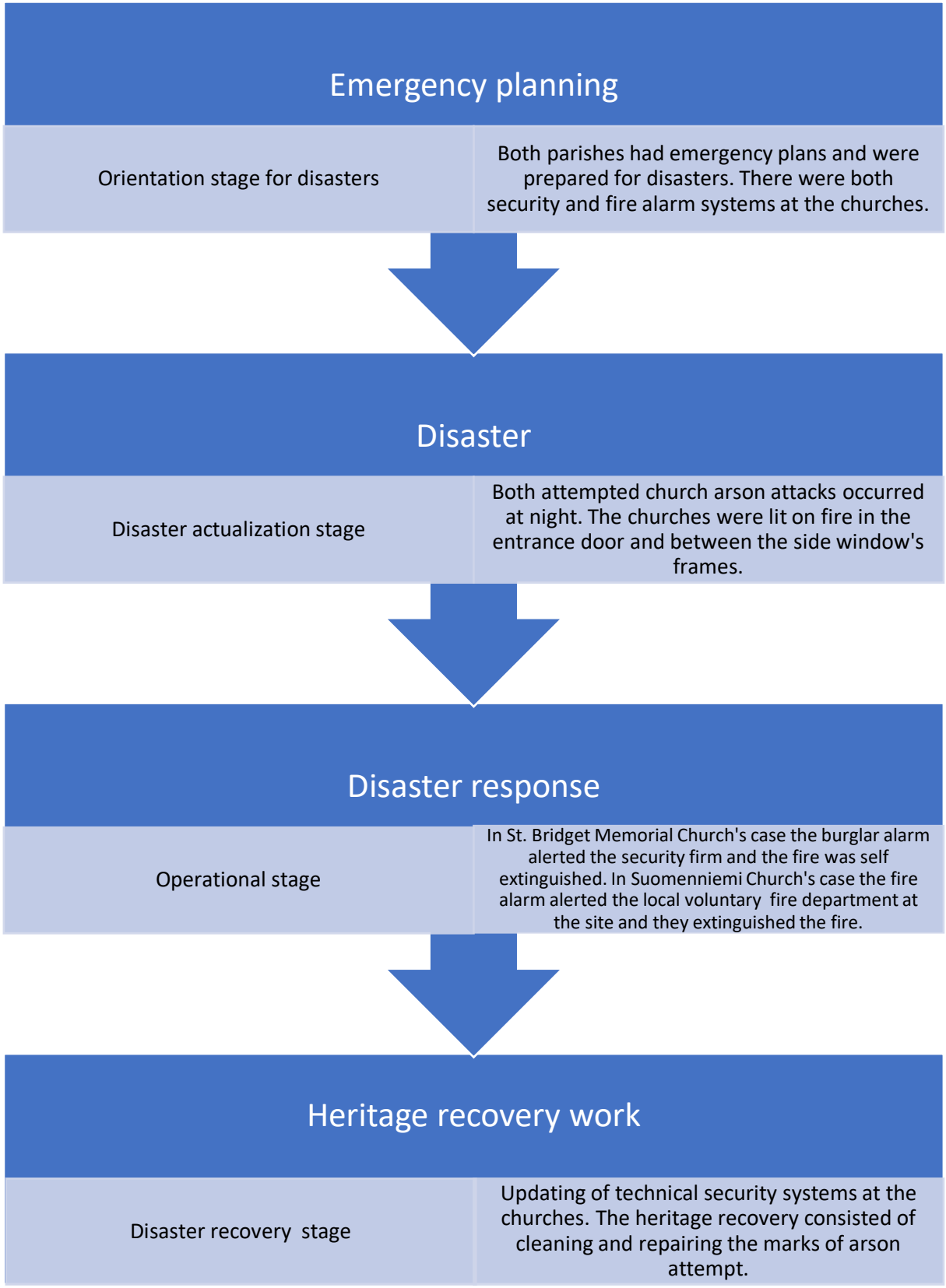

FIGURE 33 The script analysis of the attempted arsons at the St. Bridget Memorial Church and the Suomenniemi Church

The orientation stage for disasters can be understood by the fact that the parishes had emergency plans and both churches had both fire and burglar alarm systems. The attempted church arson attacks occurred at nighttime. Both churches were lit on fire at the entrance door and between the side window frames. The operational stage for disaster response can be understood as the security company's arrival at St. Bridget Memorial Church and the local voluntary fire department's arrival at Suomenniemi Church to extinguish the fire. The police's technical investigations were part of the disaster response. The heritage recovery at both churches included cleaning and repairing the marks of the arson attempt. Both churches' technical security systems were updated.

7.3 Hammarland Church arson attempt

An arson attempt was made against Hammarland Church late in the evening in February 2010. The two girls who tried to burn the church were both between 15 and 17 years of age.[636] They broke a side window of the church hall and threw seven fire bombs, so-called Molotov cocktails, into the church hall. The devices were made of glass bottles filled with a mixture of ethanol and gasoline. Around the bottles, the girls had wrapped patches of fabric that were soaked in gasoline, kerosene, and ethanol.[637] The fire alarm alerted the local volunteer fire department, who managed to quickly extinguish the fire. The fire sources inside the church building were extinguished with a foam extinguisher.[638] The girls had left the churchyard before the fire department arrived and walked to a bus stop. They were caught waiting for a bus to Mariehamn.

Hammarland Church was selected as the target of church arson because of the good bus connections between Mariehamn and Hammarland. The girls found the instructions on how to make the fire bombs on the internet. They brought the fire bombs with them, having made them before they boarded the bus.[639] Both girls suffered from depression and other mental health issues.[640] One of the girls had received psychiatric treatment. After the attempt, the girls acknowledged the wrongfulness of their actions and showed remorse.[641]

Although seven fire bombs were used to try to burn Hammarland Church, the village voluntary fire department was able to arrive at the site so quickly that the actual damage remained small and the case is here analyzed as an attempted arson. The firefighters chose fire-extinguishing means that minimized water damage.[642]

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[636] District Court of Åland 2010: Judgment 10/394 DNO: R 10/223, 2.
[637] District Court of Åland 2010: Judgment 10/394 DNO: R 10/223, 1.
[638] Hammarland Parish 12.4.2011, themed interview.
[639] District Court of Åland 2010: Judgment 10/394 DNO: R 10/223, 1.
[640] District Court of Åland 2010: Judgment 10/394 DNO: R 10/223, 4–5.
[641] District Court of Åland 2010: Judgment 10/394 DNO: R 10/223, 10.
[642] Hammarland Parish 12.4.2011, themed interview.

The primary damage comprised significant burning damage to one pew and minor damage to two other pews. The gasoline-ethanol mixture also burned the wooden floor, damaging the electrical and speaker wiring.[643] The fire caused significant soot and smoke damage to the interior and objects such as the altarpiece, the pulpit, and the organ as well as artworks, chandeliers, and church textiles.[644]

Although the first-stage disaster response was the fire extinguishing and the technical investigation by the police, the parish also started to plan security improvements. An attempt was made to avoid secondary damage to both the church building and its objects by covering the broken window until it was repaired. This first-stage attempt to prevent secondary damage was based on the ideas of climatological control and preventive conservation.[645]

In case of Hammarland Church, heritage recovery comprised the remedial conservation and restoration of individual objects. Primary heritage recovery means were remedial conservation and cleaning. After the disaster, the church hall window and pews were restored. Both the church interior and the objects were cleaned by conservators and the organ by an organ specialist.[646]

I have illustrated in figure 34 the script analysis of the attempted arson at Hammarland Church.

[643] District Court of Åland 2010: Judgment 10/394 DNO: R 10/223, 1–2.
[644] Hammarland Parish 12.4.2011, themed interview.
[645] Hammarland Parish 12.4.2011, themed interview.
[646] District Court of Åland 2010: Judgment 10/394 DNO: R 10/223, 1–2.

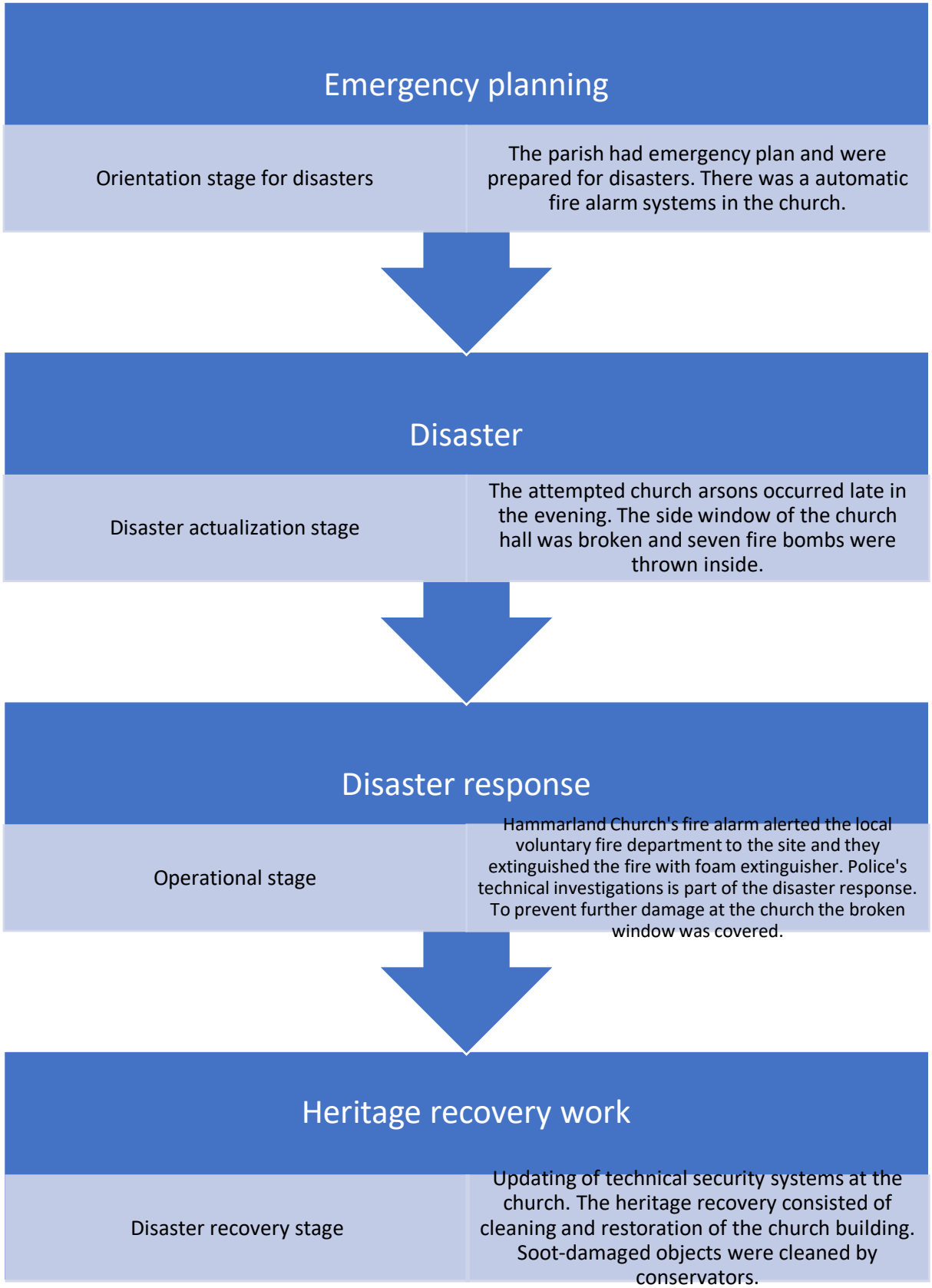

FIGURE 34 The script analysis of the attempted arson at Hammarland Church

The orientation stage for disasters can be understood by the fact that Hammarland Parish had an emergency plan and there was an automatic fire alarm system in the church. The attempted church arson occurred in the late evening. The side window of Hammarland Church was broken and seven fire bombs were thrown inside. The operational stage of the disaster response can be understood as the local voluntary fire department's arrival at the church to extinguish the fire. The police's technical investigations were part of the disaster response. In order to prevent secondary damage at the church, the broken window was covered immediately. The heritage recovery at the church contained cleaning and restoring the church building. The soot-damaged objects of the church were cleaned by conservators. The technical security systems of the Hammarland Church were updated.

7.4 Tyrvää St. Olaf's Church arson

Before the arson, St. Olaf's Church in Tyrvää had been damaged by a fire once at the beginning of the 17th century.[647] The graystone church is part of a sparsely populated area by a lake. An old, unheated, early 16th century church, it was only used during the summertime. No burglar or fire alarm had been installed in the church. Before the arson, the church had received a good deal of attention in the local media, because its shingle roof had been restored by volunteer community members.[648]

One night in September 1997, a 25-year-old man broke into the church through a side window. According to the man, he was very drunk and broke into the church to steal something and to drink the sacramental wine. He found nothing to steal and to cover up the burglary and his tracks, he decided to burn down the church.[649] To do so, he placed church candles under the pews and lit them. After this, he fled the scene. The fire department has estimated that the fire was ignited between 3:00 and 4:00 a.m. At that time there were no witnesses near the church.[650]

The fire was first spotted by people living near the church. The fire and rescue services were alerted more than 30 minutes after the fire had started.[651] The fire destroyed the entire interior of the church. The stone and mortar construction of the church also suffered considerable damage because of the heat and the water used by the fire department to extinguish the fire.[652]

The parish vicar received information about the arson between 6:30 and 7:00 a.m. It was a Sunday morning, the old church was on fire, and there was nothing that could be done to prevent the destruction of its wooden construction and

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647 Hiekkanen 2007, 263–265.
648 Sastamala Parish 27.5.2009, themed interview.
649 District Court of Tampere 2003: Judgment DNO: R 02/369, 2–3.
650 District Court of Tampere 2003: Judgment DNO: R 02/369, 2–3.
651 Sastamala Parish 27.5.2009, themed interview.
652 District Court of Tampere 2003: Judgment DNO: R 02/369, 2.

interior. By 8:00 a.m., the church had been ruined. All wooden parts had burned down and the roof had collapsed. The interior had also burned down. Only the 16th century stone walls and pediments had not collapsed or been destroyed. The dirt and soot on the inside walls of the church burned off, crystalizing the walls.[653] Figure 35 shows the remains of the St. Olaf's Church after the arson attack in 1997.

FIGURE 35 Tyrvää St. Olaf's Church after the arson attack in 1997. Photo: Hannu Moilanen 1997.

The arson badly damaged St. Olaf's Church. Most of the wooden parts of the church burned down and were destroyed, with some wooden parts of the church floor preserved. The stone, brick, and mortar constructions of the church were preserved, despite being in a severely deteriorated state. The first stage recovery action was based on environmental control and preventive

[653] Sastamala Parish 27.5.2009, themed interview.

conservation. To prevent the ruins from deteriorating further, they were protected from rain soon after the fire had been extinguished. After the technical investigation by the police, the remains of the burned timber were examined and documented. Some preserved parts of the timber floor were later reused in the reconstruction. Police apprehended the arsonist more than five years later in connection with other investigations.[654]

In 1997, Vammala, where the church is located, was still an independent parish. After the arson, the parish received broad support, which led to the decision to rebuild the church as it was before the arson. The rebuilding work utilized original techniques, especially in restoring the church building, while in the interior, contemporary artists were engaged. St. Olaf's Church was rebuilt by volunteers between 1997 and 2007. Well-respected Finnish architects and experts in the field of church restoration assisted the parish.[655]

The International Council on Monuments and Sites (ICOMOS) Finland was an important cooperation partner for the parish when the reconstruction was being planned.[656] The Finnish Heritage Agency was also involved in the disaster recovery and renovation of the church right after the arson. The Finnish Heritage Agency provided its expertise on restoration questions from the beginning.[657] Experts from the Finnish Heritage Agency planned the restoration and the parish put the plans into action between 1998 and 2003. One of the most challenging questions was how to restore the stone constructions that represented valuable preserved cultural heritage.[658]

Because the pediments did not collapse while the fire was being extinguished, their stone constructions were carefully examined. The medieval mortar was analyzed at Åbo Academy University in Turku, Finland. Conservation and restoration plans were made for the rebuilding.[659] During the restoration work, the destroyed and broken parts of the stone constructions saw joints between the stones chiseled open and the stone constructions re-plastered with mortar.[660]

The parish only employed an overseer for the project. Everyone else participating in the work did so on a voluntary basis. The first overseer (a decorator) worked between 1997 and 2000, and from 2001 on, a long-term volunteer was hired as the overseer.[661] The restoration of the stone construction was completed by students from a local arts and crafts school. It took four summers to complete the restoration of the stone construction.[662]

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654 Sastamala Parish 27.5.2009, themed interview.
655 Sastamala Parish 27.5.2009, themed interview.
656 Sastamala Parish 27.5.2009, themed interview.
657 Laurila 2004, 123.
658 Ojansivu 2003, 6–7.
659 Sastamala Parish 27.5.2009, themed interview.
660 Hiekkanen 2007, 261.
661 Vammalan seurakunta 12.8.2009, Tyrvään Pyhän Olavin kirkon jälleenrakennus. https://www.pyhaolavi.fi/jalleenrakennus.shtml
662 Sastamala Parish 27.5.2009, themed interview.

The problem of reconstructing the inside interior and the paintings was difficult to solve.[663] When the new interior was planned, two options were considered. The first was to try to rebuild the interior as it had been before the arson attack. The second option was to build a modern interior that would reproduce the original interior in spirit. The architect who oversaw the rebuilding work planned the interior reconstruction.[664] The new interior sought to reconstruct the original atmosphere. Instead of being a copy of the old interior, it was designed as new.[665] The parish assembled a working group for the rebuilding of the interior. The reconstruction was completed using old handicraft methods.[666]

Before the arson attack, the altar area had a triumph crucifix. The Pyhäjärvi Foundation proposed using an old crucifix that had been in the Karelian Pyhäjärvi parish church before the Winter War (November 30, 1939 – February 13, 1940). The crucifix was rescued from the church during the war and the Evangelical Lutheran Church Council, which was established after the Continuation War, had placed it in the custody of Pello Parish in Finland. The crucifix was moved to St. Olaf's Church on the initiative of the Pyhäjärvi Foundation. Before it was moved, it was restored.[667] In 2003, the parish decided that the new church paintings would be painted in the places where the old paintings had been. The artists chosen to paint the new paintings were Osmo Rauhala and Kuutti Lavonen. The artists were asked to use figurative and pictorial visual arts. The idea was not to copy the original church paintings visually, but to reconstruct the original atmosphere of the church through the means of contemporary art. The 101 paintings from St. Olaf's Church were completed in autumn 2009.[668]

I have illustrated in figure 36 the script analysis of the church arson attack at St. Olaf's Church.

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[663] Ojansivu 2003, 7.
[664] Vammalan seurakunta 12.8.2009, Tyrvään Pyhän Olavin kirkon jälleenrakennus. https://www.pyhaolavi.fi/jalleenrakennus.shtml
[665] Sastamala Parish 27.5.2009, themed interview.
[666] Vammalan seurakunta 12.8.2009, Tyrvään Pyhän Olavin kirkon jälleenrakennus. https://www.pyhaolavi.fi/jalleenrakennus.shtml
[667] Ojansivu 2003, 7.
[668] Vammalan seurakunta 15.8.2009, Oli riemu, kun sain tulla sun, Herra, temppeliis. https://www.pyhaolavi.fi/oli_riemu_kun_sain_tulla.shtml

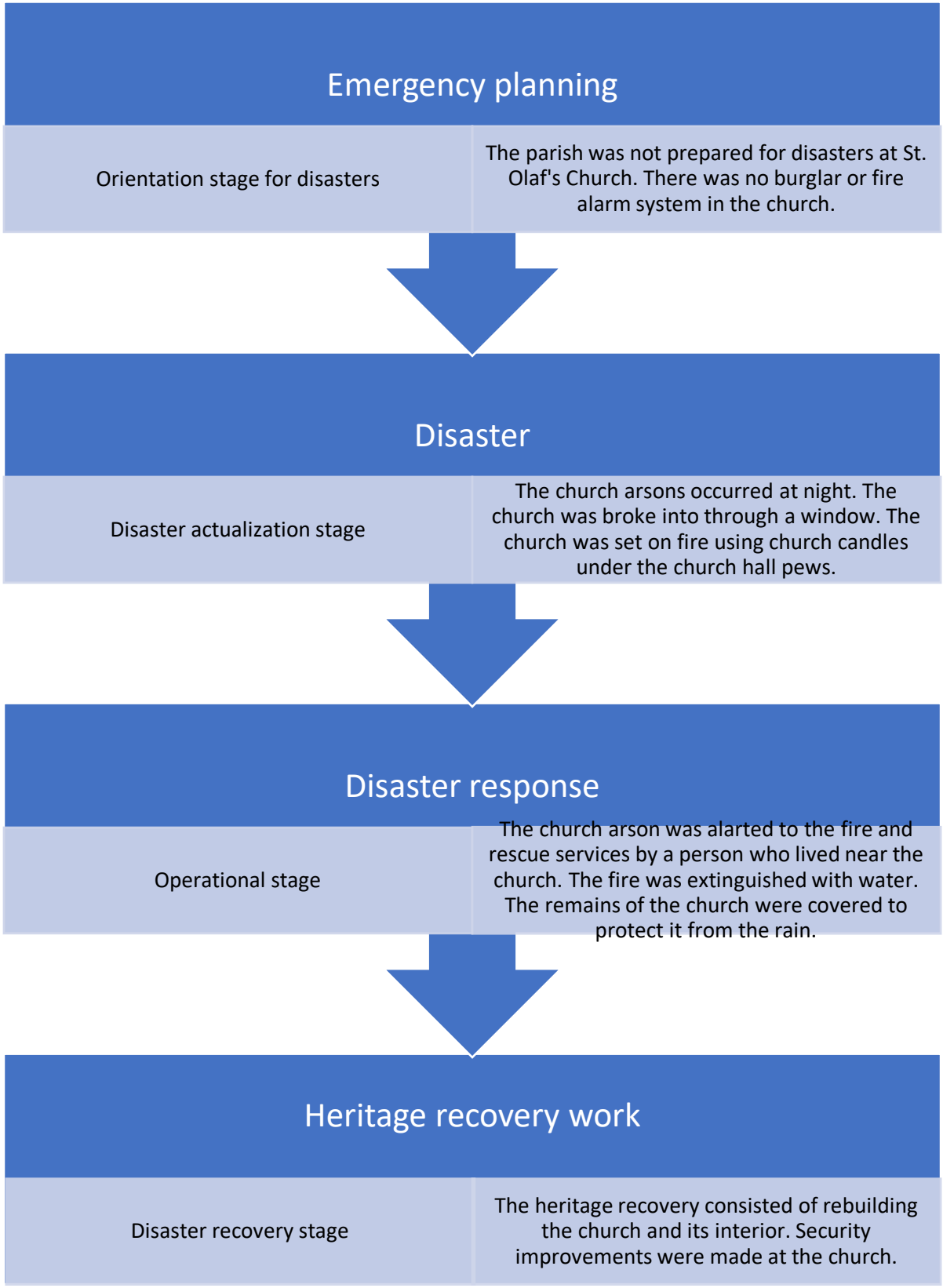

FIGURE 36 The script analysis of the church arson at St. Olaf's Church in Tyrvää

The parish was not prepared for burglary or arson at St. Olaf's Church. The unheated church did not have any electricity, and it was used by the parish only part of the year. The church arson attacks occurred at night. A young man broke into the church through a side window. The operational stage for the disaster response can be understood as a person who lived near the church alerting the fire and rescue services about the fire. The fire was extinguished with water. The police's technical investigations were part of the disaster response. In order to prevent secondary damage at the church, the remains of the church were covered to protect it from the rain. The heritage recovery at the church consisted of rebuilding the church and its interior. Technical security systems were installed at St. Olaf's Church.

7.5 Porvoo Cathedral arson attack

Before the 2006 arson, Porvoo Cathedral had burned down partly or entirely in 1570, 1591, and 1708. These fires occurred during wars between Sweden and Russia. These wars were the Nordic Twenty-Five-Years' War (1570–1595) and the Great Northern War (1700–1721). At the beginning of the Continuation War, the cathedral was hit by an aerial bomb in 1941. The damage was small because the bomb penetrated the whole building and exploded in the soil under the church floor. The bomb caused both a hole in the vault and some damage inside the cathedral, mostly as a result of bomb fragments.[669]

The arson attack occurred at night in May 2006. The cathedral was set on fire by an 18-year-old man.[670] He had spent the entire night in the company of an 18-year-old woman and a 20-year-old man. They had all drunk a significant amount of alcohol that evening, staying in a restaurant until it closed. They were walking towards Porvoo Cathedral, located in the center of the old town.[671] On the way there, the 18-year-old man picked up some paper leaflets.[672] As they were walking towards the cathedral, the 18-year-old man shouted that he was going to burn down the cathedral. He also insulted the church before the group arrived at the site.[673] The 20-year-old man and the 18-year-old woman thought their friend was joking, not believing that he would actually set the cathedral on fire.[674]

When they arrived at the cathedral, the 18-year-old man entered the churchyard and ran to the sacristy side of the building. Next to the sacristy was an old sweeping ladder, fastened to the cathedral wall. The young man used the ladder to climb onto the sacristy roof and place some of the leaflets in the wooden

669 Hiekkanen 2007, 460–461.
670 Uusi Suomi 25.3.2009, Tuomiokirkon tuhopolttaja: En pysty maksamaan. http://www.uusisuomi.fi/kotimaa/54615-tuomiokirkon-tuhopolttaja-en-pysty-maksamaan
671 District Court of Porvoo 2006: Judgment 6/700 DNO: R 06/558, 5.
672 District Court of Porvoo 2006: Judgment 6/700 DNO: R 06/558, 13.
673 District Court of Porvoo 2006: Judgment 6/700 DNO: R 06/558, 4–5.
674 District Court of Porvoo 2006: Judgment 6/700 DNO: R 06/558, 13.

eaves. He then set the papers on fire using a lighter. The cathedral had a shingle roof, and the man was aware of its sensitivity to fire. After the papers were lit, the fire proceeded quickly. Having lit the papers, the man returned to the churchyard and met the woman. They walked to their friend, who was waiting in the cathedral parking lot, and the younger man told his friends that he had set the cathedral on fire. After some minutes, the glow of the fire started showing in the cathedral walls. All three continued walking in the old town.[675] The 18-year-old young man sent an SMS to his acquaintance saying that he had set the cathedral on fire.[676]

All three claim to have panicked after the cathedral caught fire and left the scene without notifying the fire and rescue services.[677] The fire department arrived at the scene some minutes after the cathedral was ignited. There was a risk that the fire would spread to a larger area of the old town. It destroyed the wooden roof of the cathedral and the stone and arch constructions suffered from damage. Because of the fire and the fire extinguishing, the interior of the cathedral sustained smoke and water damage. Three large chandelier mountings were broken by the heat and the chandeliers were damaged when they fell on the church floor. A smaller wooden church and a belfry next to the cathedral were in danger of being damaged.[678]

The motive for the arson was criticism of Christianity, which the 18-year-old man considered to be a foreign religion in Finland. There were indications that the inspiration for the arson came from Norway.[679]

The fire and rescue services were alerted to the fire just after 2 a.m. The call was made by a person who passed by the cathedral and phoned the Emergency Response Centre.[680] Because the fire department was not alerted by an automatic fire alarm, it is possible that the message was delayed by several minutes.

The churchyard entrances were too narrow for the fire truck, so the firefighters were forced to break down a part of the stone wall surrounding the churchyard to get close to the disaster site. The fire extinguishing at the cathedral started right after the arrival of the fire department. To exhaust the smoke inside the cathedral, one of the stained-glass windows was broken. There were no instructions on which window should be broken. During the fire extinguishing, the firefighters covered the heritage objects such as the altar painting, the organ, and the piano with light tarpaulins. Police officers guarded the disaster site and saw that no outsiders could get in.[681]

The fire department informed the real estate manager of the Federation of Porvoo Parishes of the arson at 3 a.m. When the real estate manager arrived at the disaster site, he started calling different employees of the parish about the fire, summoning them to the site. After the fire extinguishing, the real estate

[675] District Court of Porvoo 2006: Judgment 6/700 DNO: R 06/558, 14.
[676] District Court of Porvoo 2006: Judgment 6/700 DNO: R 06/558, 6.
[677] District Court of Porvoo 2006: Judgment 6/700 DNO: R 06/558, 9.
[678] District Court of Porvoo 2006: Judgment 6/700 DNO: R 06/558, 2.
[679] District Court of Porvoo 2006: Judgment 6/700 DNO: R 06/558, 6.
[680] Federation of Porvoo Parishes 25.5.2009, themed interview.
[681] Federation of Porvoo Parishes 25.5.2009, themed interview.

manager called the catastrophe unit of a large Finnish real estate management firm to the disaster site to protect the cathedral pews and some other items of furniture that had not been protected by the fire department. All the plastic sheets near Porvoo were needed to cover the pews.[682]

Controlled burning tactics were used to extinguish the fire.[683] The timber roof constructions were allowed to burn down in a controlled manner to minimize the use of water in fire extinguishing and to protect the vaults from collapsing. The fire department used extinguishing foam and a small amount of water in fire extinguishing. The nearby wooden buildings, buildings such as the free-standing belfry, a small church, and other houses close to the cathedral, were protected from the heat and fire with water. The timber parts of the roof collapsed on the vaults that fortunately did not break. The interior of the cathedral was damaged by smoke and water.[684]

The fire endangered the entire old town of Porvoo, because of the burning wooden parts of the roof that flew hundreds of meters away from the site.[685] When the police had completed the technical investigation at Porvoo Cathedral, the parish employees could enter the cathedral and check the damage caused by the fire. They were joined by employees of Porvoo Museum who photographed and documented the heritage objects in the cathedral. The most valuable objects were transported and stored by a firm specializing in art logistics. Less valuable objects were stored in the depositories of both the Federation of Porvoo Parishes and the Porvoo diocese, as well as in various places in Southern Finland, including Vantaa and Helsinki.[686]

In the post-disaster situation, the preservation approach was based on environmental control and preventive conservation. This approach sought to avoid further deterioration and secondary heritage damage. The preventive conservation approach is visible, for example, in the way the cathedral was protected after the arson. Once it had been emptied of objects and artworks, the cathedral had its environmental conditions stabilized. The Federation of Porvoo Parishes had scaffolding erected around the cathedral and a temporary roof and a protective net constructed to cover the building and prevent its further deterioration. After this, the plastic sheeting placed above the vaults could be removed. The aim of the temporary roof and the protective net was to air-dry the roof constructions and vaults after the fire and its extinguishing.[687]

In the Porvoo Cathedral case, the central recovery approach was based on the restoration and rebuilding of the heritage site. The objective was to rebuild the damaged cathedral to how it had been before the arson. Some changes were made for safety reasons. In the case of movable heritage objects, the primary recovery approach was based on the remedial conservation of individual objects.

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682 Federation of Porvoo Parishes 25.5.2009, themed interview.
683 Eastern Uusimaa Fire Department's operative unit 4.5.2011, specialist team interview.
684 Federation of Porvoo Parishes 25.5.2009, themed interview.
685 Eastern Uusimaa Fire Department's operative unite 4.5.2011, Specialist team interview.
686 Federation of Porvoo Parishes 25.5.2009, themed interview.
687 Federation of Porvoo Parishes 25.5.2009, themed interview.

Mostly this meant cleaning. In some cases, restoration and repairing were needed before the objects could be returned to their original place.

The updating of the cathedral's security systems started at the same time as the restoration planning. The Federation of Porvoo Parishes ordered a risk assessment and a security plan from a private security company. Both the cathedral's security plan and the technical security systems were renewed as part of the restoration project.

Before the arson attack, the Federation of Porvoo Parishes had already started to prepare the renovation of the cathedral for the 200-year jubilee of the Diet of Porvoo (March 1809). The parish had planned to carry out painting and renovation work at the cathedral. An architect had been chosen to create a plan for the renovation work. After the arson, the existing plan was used to plan the rebuilding and restoration of the cathedral.[688]

The Federation of Porvoo Parishes received a significant amount of assistance from heritage professionals for the rebuilding and restoration of the cathedral. The parish quickly established a restoration committee with members comprising the employees of the Federation of Porvoo Parishes; elected parish officials; politicians; Porvoo City employees; officials of the Finnish Heritage Agency; architects; and representatives of Porvoo Museum. The insurance company was actively involved in every part of the rebuilding project. Both the architect and the construction company that provided the construction management services had experience of church restoration projects.[689]

Inside the cathedral, the recovery from water damage occurred step by step after the protective plastics covering immovable heritage objects had been removed. The brick vaults were repaired and cleaned and the damage was restored. In the church hall, the restoration focused on cleaning and restoring the water and smoke damage, which had penetrated the plaster.[690]

The destroyed timber constructions were rebuilt following the original model. The new timber construction was made of solid wood and connected with nuts and bolts. A sprinkler system was installed in the attic and the sprinkler pipes were used to ensure the fastening of the roof constructions in case of fire. Some of the attachments were made using old timber attachment methods.[691] The roof construction was supported by the exterior walls and brick pillars. The roof was covered, in accordance with the original model, with tarred pine shingles.[692]

During the restoration project, a thorough risk analysis was carried out for the cathedral. Security technology was planned, and many security

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[688] Federation of Porvoo Parishes 25.5.2009, themed interview.
[689] Ympäristöministeriö & Museovirasto 5.4.2007, Porvoon tuomiokirkon vaurioista suuri osa on jo korjattu.
http://www.rakennusperinto.fi/News_Porvoo/fi_FI/Korjaustoillehaettiin/
[690] Ympäristöministeriö & Museovirasto 5.4.2007, Porvoon tuomiokirkon vaurioista suuri osa on jo korjattu.
http://www.rakennusperinto.fi/News_Porvoo/fi_FI/Korjaustoillehaettiin/
[691] Ympäristöministeriö & Museovirasto 25.6.2007, Puutöitä valvotaan tarkasti.
http://www.rakennusperinto.fi/News_Porvoo/fi_FI/puutoitavalvo/
[692] Ympäristöministeriö & Museovirasto 5.4.2007, Porvoon tuomiokirkon vaurioista suuri osa on jo korjattu.
http://www.rakennusperinto.fi/News_Porvoo/fi_FI/Korjaustoillehaettiin/

improvements were made during the restoration project. Both the cathedral and its roof construction received an automatic sprinkler system and automatic fire alarms were installed both inside and outside the cathedral. Also, a new CCTV system and new locks were acquired. The old sweeping ladder was removed from its previous location, and the stone wall received a wider entryway so that fire trucks could access the churchyard.[693]

I have illustrated in figure 37 the script analysis of the arson attack at Porvoo Cathedral.

[693] Federation of Porvoo Parishes 25.5.2009, themed interview.

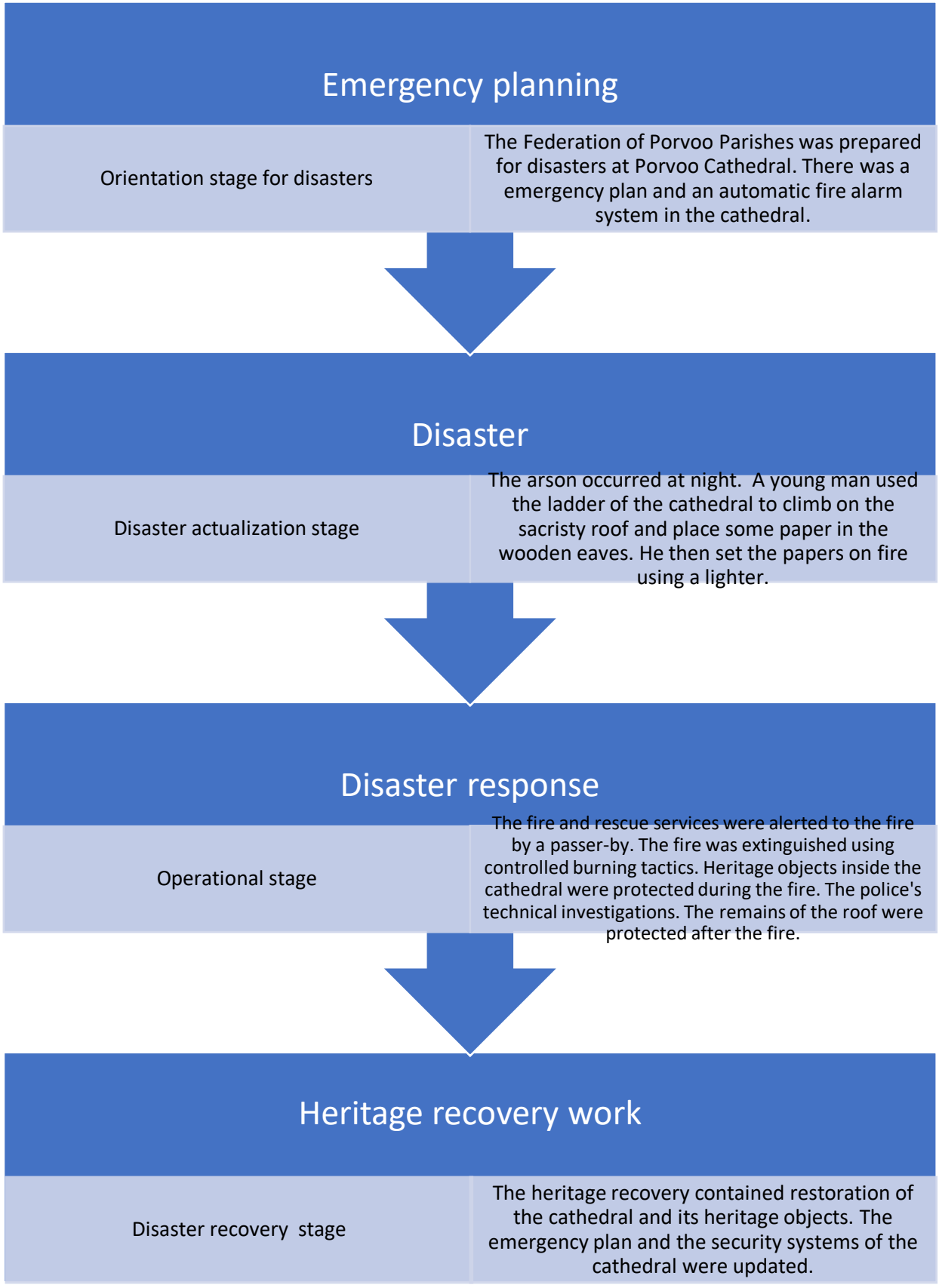

FIGURE 37 The script analysis of the arson at Porvoo Cathedral

The orientation stage for disasters can be understood by the fact that the Federation of Porvoo Parishes had an emergency plan for Porvoo Cathedral and there was an automatic fire alarm system in the cathedral. The arson occurred at night. A young man entered the church yard and used the ladder of the cathedral to set the wooden eaves of the cathedral on fire. The operational stage for disaster response can be understood as the fire extinguishing performed with fire extinguishing foam, minimal use of water and controlled burning tactics. Heritage objects inside the cathedral were protected by the fire department during the fire. The police's technical investigations were part of the disaster response. In order to prevent secondary damage at the cathedral, the remains of the roof were protected. The heritage recovery at the cathedral included restoring the cathedral and its deteriorated objects. The emergency plan and the technical security systems of Porvoo Cathedral were updated.

7.6 Kaivoksela Church arson

The Kaivoksela Church arson attack occurred in October 2006, only five days after the Kingdom Hall of Jehovah's Witnesses was burned down in neighboring Martinlaakso, Vantaa. The 25-year-old man responsible for both arsons was familiar with both parishes whose churches he burned. These buildings were also close to his home.[694] The young man had acquired a jerrycan and gasoline on the day he set fire to the Kingdom Hall of Jehovah's Witnesses.[695]

On Saturday night, the young man had been at a bar until it closed and when he arrived at home, according to the interlocutory judgement, he "lost his nerves." He took the gasoline with him and rode his bicycle (as he did five days earlier, before the first arson) a few hundred meters to Kaivoksela Church. He walked around the church and made sure that there was nobody inside (he also did this with the first arson). He then poured gasoline in the kitchen and on the outside kitchen door and set them on fire.[696] This took about 15 minutes, after which he returned home.[697] The church set on fire at around 4 a.m. on Sunday morning.[698]

The fire spread from the kitchen into the cafeteria, the entrance hall, and the church hall. The interior of the church and the objects in the affected spaces were destroyed.[699] The motive for these two arsons were related to the loneliness of the arsonist and his failed attempts to seek help from both the Jehovah's Witnesses and the Evangelical Lutherans. He wanted to be near God, but was disappointed with both parishes, who had "betrayed" him when he sought their

[694] District Court of Vantaa 2007: Interlocutory judgment 07/325 DNO: R 07/91, 6.
[695] District Court of Vantaa 2007: Interlocutory judgment 07/325 DNO: R 07/91, 5.
[696] District Court of Vantaa 2007: Interlocutory judgment 07/325 DNO: R 07/91, 2.
[697] District Court of Vantaa 2007: Interlocutory judgment 07/325 DNO: R 07/91, 5.
[698] Federation of Vantaa Parishes 21.4.2011, themed interview.
[699] District Court of Vantaa 2007: Interlocutory judgment 07/325 DNO: R 07/91, 2.

assistance.[700] During his trial, the young man was found to be mentally incapacitated.[701]

There was a delay before information about the arson reached the Emergency Response Centre and the Regional Fire department in Vantaa. A person passing the church at about 5 a.m. alerted the Emergency Response Center. When the fire and rescue services arrived at the site, there was not much that could be done to save the building. However, a wing of the building that held most of its heritage objects was preserved because a closed door was able to prevent fire from spreading to that part of the church. The door was made of wood and plywood.[702] Figure 38 shows a picture of Kaivoksela Church's interior after the arson attack.

FIGURE 38 Kaivoksela Church inside interior after the arson attack in 2006. Photo: Central Uusimaa Fire and Rescue Services 2006.

Information about the fire reached the Emergency Response Centre on Sunday morning at around 5 a.m., and the first unit to arrive at the scene was a police patrol at 5:13. Fire extinguishing at Kaivoksela Church started at around 5:30 and continued through Sunday. In total, 12 fire department units with 34 firefighters were involved in extinguishing the fire. According to the interviewed

[700] District Court of Vantaa 2007: Interlocutory judgment 07/325 DNO: R 07/91, 5.
[701] District Court of Vantaa 2007: Judgment 07/1583 DNO: R 07/91, 1.
[702] Federation of Vantaa Parishes 21.4.2011, themed interview.

employees of the Federation of Vantaa Parishes, water was used in extinguishing the fire.[703]

Kaivoksela Church was part of Vantaakoski Parish. Part of the first stage disaster response was to inform the media and the public about the incident. The vicar of the Vantaakoski Parish took responsibility for informing the public about the disaster. Part of the first-stage disaster response was the technical investigations by the police.[704] Figure 39 shows Kaivoksela Church after the arson attack in 2006.

FIGURE 39 Kaivoksela Church after the arson in 2006. Photo: Central Uusimaa Fire and Rescue Services 2006.

The church was badly damaged in the arson. Only the concrete walls and the floors of the building did not burn down or collapse during the fire and its extinguishing. However, the concrete constructions were considered to be highly deteriorated because of the fire and heat that was estimated to have reached over +1000 °C during the fire. The fire destroyed everything inside the church hall, vestibule, and kitchen. The heritage objects placed in the wing of the building, where the sacristy was located, were preserved, but they suffered from soot and smoke damage. Some of the Kaivoksela Church heritage objects, such as communion vessels, some church textiles, and framed graphics artworks that were stored in the sacristy at the time of the fire, were preserved.[705]

[703] Federation of Vantaa Parishes 21.4.2011, themed interview.
[704] Federation of Vantaa Parishes 21.4.2011, themed interview.
[705] Federation of Vantaa Parishes 21.4.2011, themed interview.

According to the interviewed employees of the Federation of Vantaa Parishes, Vantaankoski Parish had no need for a church in Kaivoksela because the parish had two other churches and a chapel in the region. Because the building was no longer needed as a church, the Federation first applied for a permission from the City of Vantaa and the Finnish Heritage Agency to build apartment houses and senior housing apartments on the church site. In these plans, the church hall would have been retained but it would have been reconstructed as a refectory for the senior apartment houses. The application was rejected and five years after the arson, the council of the Federation decided to tear down the remains of Kaivoksela Church and applied for permission to build apartment houses on the site.[706]

The recovery of the cultural heritage was based on a dual approach that served the practical needs of the Federation of Vantaa Parishes and Vantaankoski Parish. In the case of movable heritage objects, the approach was to clean the objects damaged by smoke and soot. The framed graphics were cleaned using means of remedial conservation, but the preserved church textiles were taken to a nearby laundry.[707]

In the case of immovable cultural heritage, the preservation was based on the idea that marks of Kaivoksela Church's existence should be preserved, even if restoring or rebuilding the church did not serve the interests of the Federation of Vantaa Parishes and Vantaankoski Parish. The first plan was to maintain the memory of the church by integrating the church hall into a new real estate entity, in this case a senior housing center. Because the Federation of Vantaa Parishes failed to get permission for the plan, they decided to demolish the ruins of the church. To cherish the memory of the church, its bells were reused in the Chapel of St. Lawrence that was completed in August 2010 in Vantaa, Finland.[708]

I have illustrated in figure 40 the script analysis of the Kaivoksela Church arson attack.

[706] Federation of Vantaa Parishes 21.4.2011, themed interview.
[707] Federation of Vantaa Parishes 21.4.2011, themed interview.
[708] Federation of Vantaa Parishes 21.4.2011, themed interview.

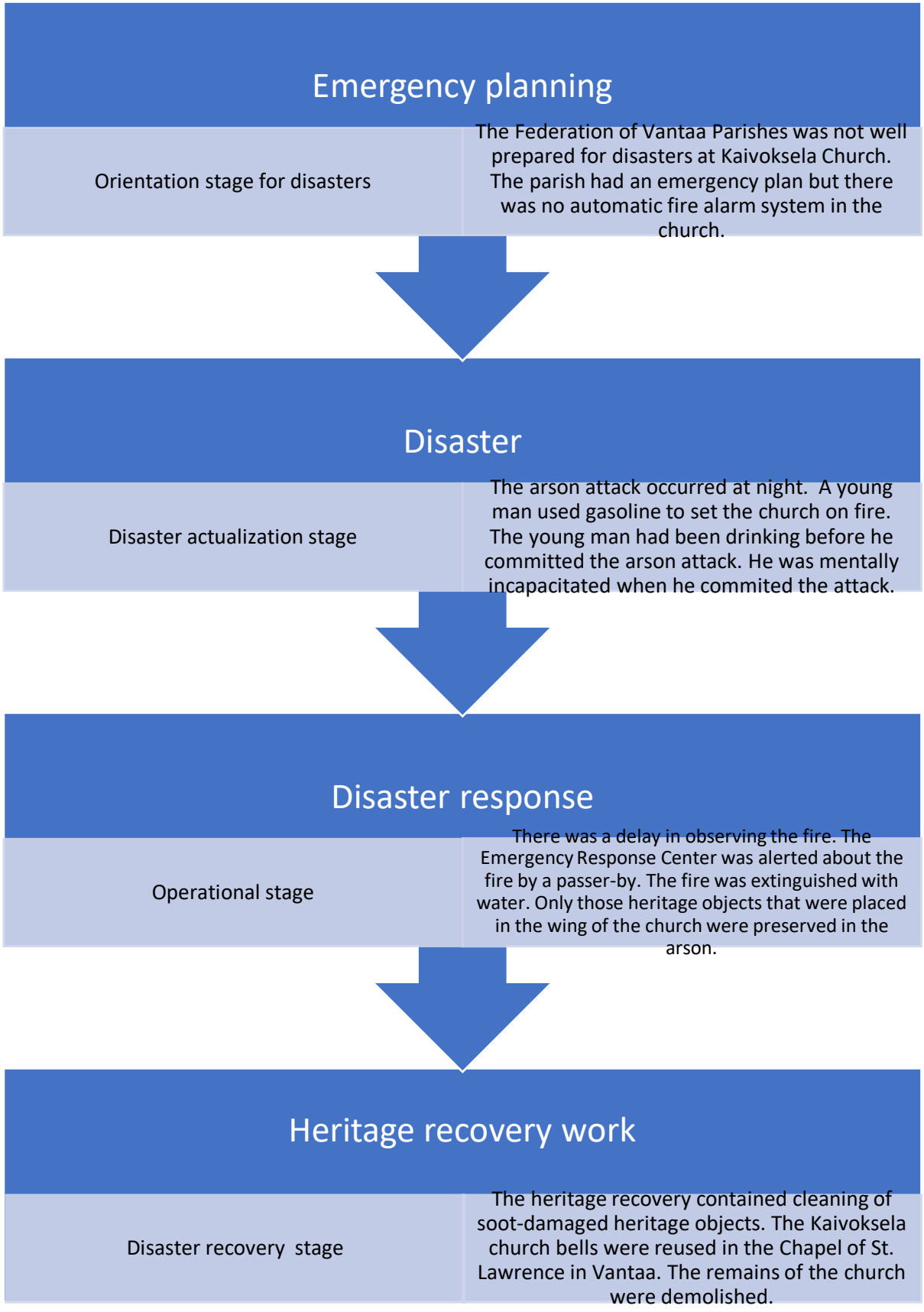

FIGURE 40 The script analysis of the Kaivoksela Church arson attack

The orientation stage for disasters can be understood by the fact that Vantaankoski Parish had an emergency plan. The organization was not prepared for arson at Kaivoksela Church. There was no automatic fire alarm system at the church. The arson occurred at night. A young man, who had been drinking before he committed the arson attack, used gasoline to set the church on fire. He was mentally incapacitated when he committed the arson. There was a delay in observing the fire. The Emergency Response Center was alerted to the fire by a passer-by early in the morning. The operational stage of the disaster response can be understood as the fire extinguishing being performed with water. The police's technical investigations were part of the disaster response. The heritage recovery stage included cleaning of the soot-damaged heritage objects that were preserved in the wing of the church when the arson attack took place. The Kaivoksela church bells were reused in the Chapel of St. Lawrence in Vantaa. The church's remains were demolished.

7.7 Discussion

I have described the characteristics of arson and church arson in sections 7.1, 7.1.1, and 7.1.2. I have used this background information in my analyses of church arson and attempted church arson cases. The Finnish church arson and attempted church arson attacks between 1990 and 2010 seam to be strongly connected to the behavior of native Finnish youth and young adults in their own local environment. The motivation for church-burning cannot always be explained through an ideology such as satanism. The questions of mental health issues, alcohol, and social exclusion tend to play a part in these incidents. It is hard to say whether the churches and Evangelical Lutheran Christianity have become a source of conflict for some Finnish young people. There is a chance that the arson attacks were inspired by the institutional power the churches represent and not because of religious reasons.

Is the social exclusion of Finnish youth also behind the church arson attacks? To gain more reliable research results, further research into criminology and criminal psychology is needed. According to these six church arson attacks, males set five churches on fire and they did so alone. In only one case, was a church set on fire by two people and, in this case, arsonists were female.

All of the church arson and attempted church arson attacks discussed in my study occurred late in the evening or at night.[709] In only one of the researched cases was the fire lit inside the church. In this case the arsonist used candles belonging to the church to start the fire. In all other cases, the arsonist brought the ignition materials to the churchyard and set the church on fire without entering the building.[710]

[709] Tuhopolttojen torjunnan yhteistyöryhmä 2002, 3–4.
[710] Sastamala Parish 27.5.2009, themed interview.

The solved cases of arson and attempted arson discussed in this chapter indicate that the motives of Finnish arsonists are similar to the motives of the people responsible for the arson attacks on British heritage sites. In two of the cases, vandalism was the main motivation; in one case a burglar tried to hide their traces by setting the church on fire; and in one case a mistreated parishioner wanted to burn down a church. Heritage buildings, such as churches, contain significant symbolic value. However, it is unclear if churches in general are at greater risk of arson than other heritage sites in Finland.

The discussed solved arsons and two attempted arson attacks indicate that the acts were motivated by hatred or revenge. There was only one case where the reason for arson was caused by an attempt to destroy evidence. Arson attacks committed by mentally disturbed people are rare. The probability of this kind of arson was believed to be low in 1988.[711] In my research, two arson attacks out of the four solved ones featured mental disturbances requiring psychiatric treatment as background factors. These two cases also had features of hatred or revenge aimed at either the Evangelical Lutheran Church of Finland or a specific parish.

Arson has been classified in different ways. I chose to use the classification introduced by Hans Andersson in 1995. According to this classification, the St. Olaf's Church arson in Tyrvää represents an arson attack that had a clear objective. The aim was to destroy evidence of a burglary.[712] Since there was not much valuable property that could have been stolen and sold, the church was set on fire by placing burning candles under the church hall pews.

The other three arson cases solved by the Finnish police involved people who committed arson for emotional reasons. The motives for an emotional decision to commit arson may be based on revenge, hatred, conflicts, or mental disorder. Alienation could explain two types of orientation. These were a mental disorder related to non-suicidal revenge or hatred, and suicidal behavior and a cry for help.[713] Two of the three solved arsons, Porvoo Cathedral and Kaivoksela Church, had features of emotionally-motivated arson based on non-suicidal hatred and conflict with either the Evangelical Lutheran Church or the local parish. In the Porvoo Cathedral case, the young man's impulsive action can be explained through his critical view of Christianity, especially its majority form in Finland, and the heavy use of alcohol before the act. The Kaivoksela Church arson attack revealed a mentally ill person's non-suicidal hatred based on previous bad experiences of the local parish. The arson was an attempt to get revenge for the perceived feelings of injustice. Although the trial found the person mentally incapacitated, there was an apparent reason for the arson. The Hammarland Church arson attempt had features of emotionally-motivated arson triggered by suicidal mental disorder and hatred towards society. The arson was a desperate cry for help.

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711 Laitinen & Ahonen 2000, 8.
712 Laitinen & Ahonen 2000, 7.
713 Laitinen & Ahonen 2000, 7.

The attempted arson attacks on Suomenniemi Church and St. Bridget Memorial Church in Lempäälä remain unsolved. The features of these cases indicate that the motivation behind the attacks seems to be based on emotional behavior. The fire was lit in both churches in similar ways. Since the churches were lit outside, they were obviously not attempting to hide a crime with the fire. The attacks may have been caused by mental disorders. In the case of the St. Bridget Memorial Church arson, the suspect escaped when the guard arrived at the site.

Based on Jaana Haapasalo's categorization, the analyzed cases seem to have features of three types of arson: 1. expressive arson attacks aimed at inanimate objects; 2. indirectly motivated arson that provides satisfaction for the offender; and 3. indirectly motivated arson aimed at inanimate objects.[714] The discussed cases seem to represent both goal-oriented and reactive arsons. Based on Haapasalo's definition of the motives for arson and attempted arson, the cases in my research have features of 1. covering up criminal evidences; 2. anger and revenge; 3. cry for help; 4. political reasons; and 5. feelings of power.[715]

In all the cases that remained at the level of attempted arson, the damage was small. In all three attempted cases of arson, a technical alarm system, either a burglar alarm or fire alarm, alerted the fire or the security personnel to the site. Fire extinguishing succeeded because the alarm systems alerted either the local fire department or a nearby security company employee to the disaster site. In one of these cases, the fire died out on its own.

In all cases where fire led to large-scale damage, no fire or burglar alarm systems were in place or the existing system could not detect the fire where it was started. In these cases, the regional fire and rescue services received information about the fire from a person who had detected the fire and contacted the Emergency Response Centre. Rapid fire extinguishing succeeded to prevent the destruction of the burned church. Delays in disaster response caused more severe damage to the churches.

The burning of a religious building carries strong symbolic meanings. In Finland, churches often represent the oldest buildings with strong cultural value for the local communities. Churches, as the most noticeable real estate of local parishes, are often understood as being the representatives of the Church in the environment. Although Finland has two independent folk churches,[716] the Evangelical Lutheran parishes are historically connected with both regional and national administrative power and authorities. Symbolically, churches manifest local and national cultural values and history.

At least two significant meaning-making processes can be observed to take place when a church is set on fire. The first meaning-making process is the act of arson itself that is connected to the arsonist's relationship with the church (as both an institution and a religious building). The second meaning-making

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[714] Haapasalo 2008, 205.
[715] Haapasalo 2008, 203–204.
[716] Finland does not have state churches as such, but it has two folk churches, the Evangelical Lutheran Church and the Orthodox Church, with special roles and special rights.

process is in the modification of the church building by the arson and the disaster response and heritage recovery processes.

The script analysis of the church arson cases revealed that five out of six church arson attacks were lit outside. In those cases where the church was lit outside, the person who tried to set the church on fire brought the necessary ignition materials to the site when they accessed the churchyard. In one case where the church was set on fire inside the building, the ignition materials were found inside the church. Through the script analysis it seems that the main churches of the parishes were better equipped with burglar and automatic fire alarm systems than the other churches of the parishes when the church arson or attempted church arson attack occurred. In those cases where the churches were lit outside the building, the existing automatic fire alarm system was not always able to alert the Emergency Response Center to the fire. In those cases where the fire was not identified by an automatic fire alarm system, the Emergency Response Center received information about the fire from a person who detected the fire.

8 INTEGRATED RESULTS

In this chapter, the integrated results are presented from the perspective of the research questions:

1. What types of direct and indirect threats does cultural heritage face in Finland?
2. How can past severe instances of damage to cultural property in Finland inform us of how cultural heritage sites, monuments, and collections should be risk-evaluated and protected?

8.1 Direct and indirect threats faced by cultural heritage in Finland

Direct threats that aim at cultural heritage relate to the factors that directly causes disasters that may deteriorate cultural heritage. Direct factors include water damage, explosions, and fires. Indirect threats that cultural heritage may face represent the factors that may promote deterioration of cultural heritage and may lead to heritage disasters. Such factors include shortages in economic resources, cultural values, overall criminality in the region, and climate change. In my research, five factors influenced the direct and indirect threats faced by cultural heritage in Finland: 1. social segregation; 2. deliberate deterioration; 3. shortage of economic resources; 4. human activity near cultural heritage; and 5. natural forces.

Social segregation influences social exclusion and may on a general level increase criminal behavior in societies. This may have an increasing influence in the crimes aimed against cultural heritage. Shortages in economic resources that create both direct and indirect threats for cultural heritage are based on the economic resources of both the heritage owners and the authorities that provide services to heritage owners. A shortage of funds will have an impact on the ability of the heritage owner to maintain the cultural heritage both before a disaster and during the disaster response and heritage recovery processes.

Shortages in the economic resources of the authorities will affect, for example, their ability to help and provide recommendations for heritage owners regarding the protection and recovery of heritage. In the case of security authorities, shortages can lead to crimes against cultural heritage being considered low priority by the police.

Human activity could lead to a fire and water damage in an archive or a gas explosion in a museum, for example. Natural forces, especially storms and heavy rains, have caused urban environments in Finland to flood, inflicting water damage on underground heritage depositories. In accident-based heritage disasters, human activity, such as construction work and non-heritage-related use of storage buildings, increased the risk of accident-based heritage disasters.

Based on Louise Grove's heritage crime categorization,[717] the heritage crime cases[718] in my research represent both targeted and incidental heritage crimes. In my opinion, all my church arson cases fall under the targeted heritage crimes category, although the fundamental motivation behind the arson and attempted arson attacks was perhaps not caused by the cultural historical meanings of the targeted churches. It is possible that four (1. vandalism at the Orthodox Church of the Resurrection of Christ in Jyväskylä; 2. vandalism at St. Jacob's Church in Lauttasaari, Helsinki; 3. vandalism at Turku Castle; and 4. vandalism at Uspenski Orthodox Cathedral in Helsinki) of my vandalism-based heritage disasters also represent targeted heritage crime cases and two (1. vandalism at St. Nicholas' Orthodox Church in Kotka; and 2. vandalism at Vartiokylä Hill Fort in Helsinki) cases fall under the incidental heritage crime categories. It is possible that among my heritage crime cases, anti-social features of the offenders can be found behind both the targeted heritage crime and the incidental heritage crime cases.

In my research, vandalism and arson represented cases where cultural heritage was deliberately deteriorated or destroyed. Vandalism can be caused by intentional or unintentional actions. Vandalism aimed at cultural heritage is more probable in urban environments that are close to socially unstable conurbation areas. In the case of arson attacks, there was no clear correlation between the location of the church and its chances of being targeted by an arsonist.

Considering the direct and indirect risks faced by cultural heritage in Finland, three key factors influence the occurrence of heritage disasters and the level of success of disaster response and heritage recovery processes. These factors are: 1. risk management work before a disaster; 2. emergency planning; and 3. the economic, material, and personnel resources required by the heritage recovery work.

My research supports Naomi Marzey's observations on the connection between power and the vandalism of cultural heritage. The research data suggests that the deliberate destruction of cultural heritage through vandalism

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[717] Grove & Pease 2014, 112–113.
[718] Vandalism, church arson, and attempted church arson cases.

and arson created a significant threat for both movable and immovable cultural heritage. These risks were thought to be caused by the noticeable relations between cultural heritage, the authorities, and social power. This power-related character of cultural heritage led some individuals or small groups to contest the cultural heritage of their own neighborhood, when possible. This is more about resistance to institutional power and society than it is about resistance to cultural heritage. Therefore, the deliberate destruction of cultural heritage should be regarded as a noticeable risk that is more likely to occur in urban environments than in the countryside of Finland.

The researched vandalism and arson cases provide further support for Brian Graham and Peter Howard's claim that both insiders and outsiders participate in cultural heritage processes. People tend to adopt a position in cultural discourses from which the discourse makes most sense to them.[719] Does this mean that people who fail to find for themselves a meaningful position in the cultural heritage discourse may direct their aggression at cultural heritage? Figure 41 describes the interaction between cultural heritage and Finnish society. The research data indicates that individuals and social groups as well as the nation state, municipalities, and other public bodies interact with cultural heritage and memory institutions that have a leading role in defining cultural heritage. This interaction does not always secure the long-term preservation of cultural heritage. The research data suggests that the process of individualization in the current era has also had an impact on the concept of collective memory and society's vision of its past. There is diversity in feelings and opinions about cultural heritage.

[719] Jeffersson 2004, 34.

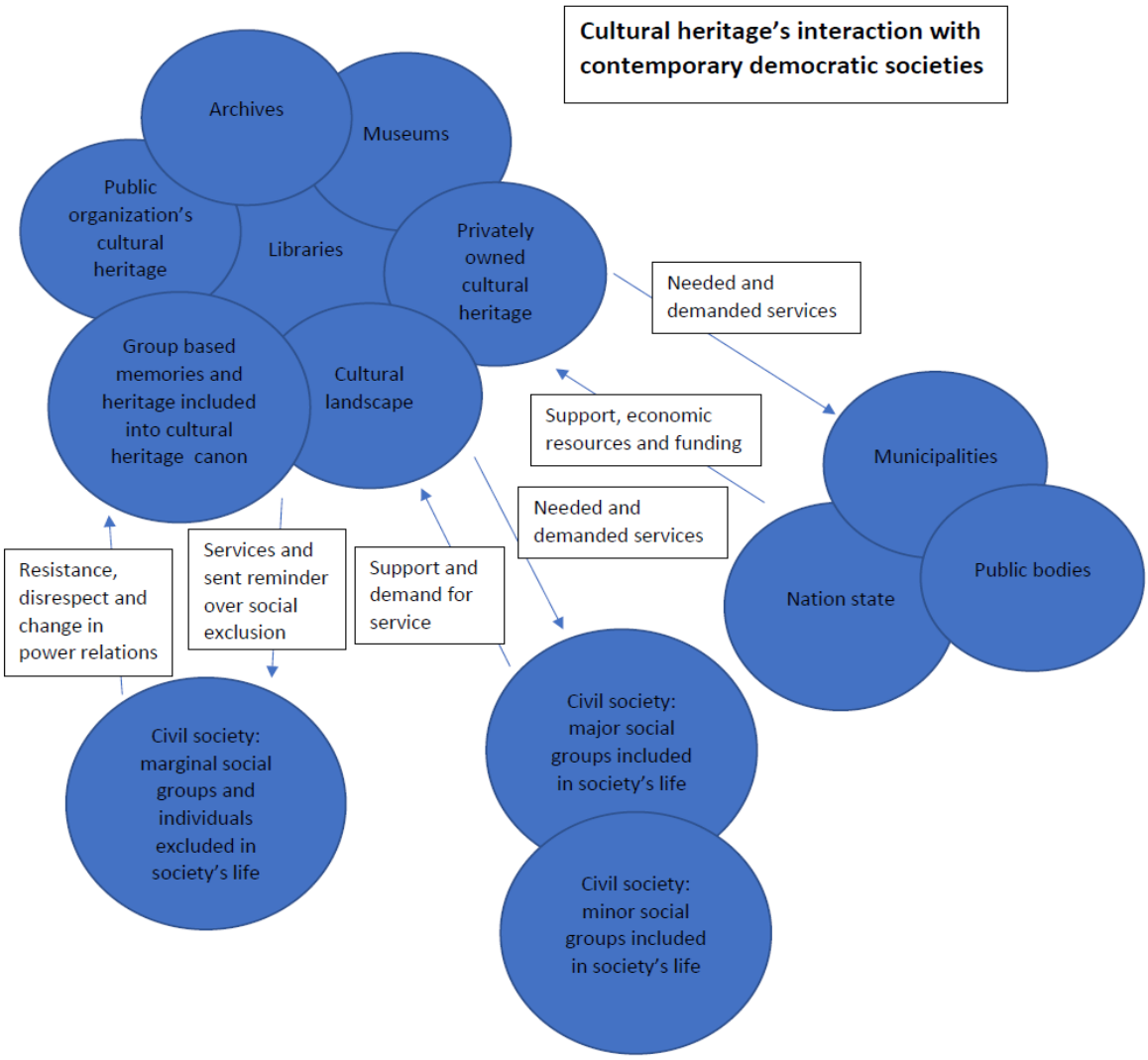

FIGURE 41 The interaction between cultural heritage and Finnish society

Municipalities, the nation state, and public bodies have needs and demands for memory institutions and other organizations that maintain significant cultural property. To fulfill them, memory organizations receive public funding and support. There also exists marginalized social groups and individual people at risk of social exclusion. Some people who fall into this category approach cultural heritage through power relations, resistance, and disrespect. Although memory institutions and other public organizations provide heritage services "for everybody," their work also highlights the ways these marginal groups and people have become disinherited from society's past. It is possible that this prompts destructive action from some members of these groups. The report of the National Crime Prevention Program from 2000 supports the findings of my research regarding heritage crimes. According to the report, most crimes in

Finland in the 1990s were committed by a small group of marginalized people who had started their criminal activity at an early age.[720]

Observations related to general crime prevention theories regarding criminal activity could also help to explain some of the discussed disaster cases. The vandalism and arson-based disasters perhaps occurred because the right person came across a tempting target for vandalism or arson that also had shortages in risk management while in a certain state of mind. Public property might be at greater risk of becoming a target of destructive action than private property. The anti-authority struggles described by Michel Foucault are a feature in the vandalism and arson cases discussed in my research. These struggles may be about resistance to the use of power that rejects the identities of individual people and determine the nature of their collective memory in the public environment. The problem may be that cultural heritage forces people to take on determined roles.

The research data indicates that criminal acts against cultural heritage, such as arson and vandalism, have become better known as phenomena because of media exposure. It is impossible to say whether this has also inspired acts against cultural heritage, thereby increasing the number of heritage vandalism and arson cases in Finland.[721]

The Finnish Heritage Agency[722] has observed that in the capital city region of Finland, archaeological sites have suffered from serious acts of deliberate destruction and vandalism since the 1990s. The vandalism is based on both conscious actions that deteriorate archaeological sites and sometimes on a lack of knowledge and understanding. The forms of vandalism during the 2000s have varied from deliberate actions such as breaking down information signs at an archaeological site and spray-painting the structures of the site to covering it with trash. The forms of vandalism may also be based on a lack of understanding, like in cases where stones have been removed from Bronze Age mounds. Archaeological sites may also get destroyed because of rough play at the site. Sometimes the Finnish Heritage Agency has used cooperation with local people, schools, and regional associations as a means of disaster prevention in maintaining an archeological site. The aim of this cooperation has been to raise the interest of the local community to maintain and preserve the cultural heritage in their own neighborhood.[723]

Vandalism can be either revenge-motivated, play-motivated, tactical, or malicious. The motives for my vandalism cases are not known but when they were approached from the point of view of these themes, I observed that at least two of the cases, Vartiokylä Hill Fort and the Orthodox Church of St. Nicholas in Kotka, had features of both play and malicious vandalism. In one of the vandalism cases, St. Jacob's Church, the act of vandalism may have been motivated by revenge. In the cases of the Orthodox Church of the Resurrection

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720 Ministry of Justice 2000, I.
721 Police University College 12.1.2012, specialist team interview.
722 Previously known in English as the National Board of Antiquities.
723 The Finnish Heritage Agency, Department of Archeology 2.3.2011, themed interview.

of Christ in Jyväskylä and Turku Castle Museum exhibition, the act may fall into the category of malicious vandalism. The Uspenski Orthodox Cathedral icon larcenies in Helsinki had features of tactical behavior.

Vandalism in the form of graffiti often has territorial features. Graffiti is related to young people gaining access to a favored place. The heritage site at which the graffiti is written or painted may be somehow special and a significant place for the perpetrator. In the case of immovable heritage sites, it is possible that the phenomenon of vandalism is at least partly connected to the popularity of the heritage site among the young people of the region. The Finnish Heritage Agency has noted that sometimes the vandalism of a heritage site may be based on the free-time activities of a generation of local young people and the site may be an important meeting place for them. When a heritage site has been left in peace, the youth of the following generation have found their own special places for their free-time activities and gatherings.[724]

The data revealed that human activities near where cultural heritage is stored caused most of the accident-based disasters. Therefore, human activities such as construction work and fire-related work that takes place near a location where cultural heritage is stored should be planned so that cultural heritage would be less at risk. Two of the discussed accident-based heritage disasters were caused by accidents resulting from human activity in a building where a cultural heritage collection was stored. Buildings that also have users and uses other than the preservation of cultural heritage are more at risk of direct and indirect damage. Increased risks should be noted in the emergency plans and risk management work of a cultural heritage collection that is stored in such buildings.

In Finland's climate in the 1990s and 2000s, the heritage disasters caused by natural forces were most likely to be floods following from storms and heavy rain and resulting in water damage to an underground heritage depository in an urban environment. The climate change may increase the probability of rain-based floods in Finnish cities. This may put heritage depositories at risk, especially if they are located on the underground levels of the buildings.

The analyzed cases indicate that the use of controlled burning tactics and fire extinguishing foam instead of water caused less water damage to the cultural heritage sites and objects. The use of different fire extinguishing methods were chosen based on the nature of the fire and the conditions in which it occurred. When a fire started inside the heritage site or the progression of the fire was extremely strong, the heavy use of water was common. When a roof fire started from a specific spot, the fire extinguishing could utilize controlled burning tactics and fire extinguishing foam. In these cases, the use of water was avoided to prevent water damage. In one case, the first-stage fire extinguishing started with an old sprinkler system that was connected to the water pipes. This caused significant water damage to both the building and the heritage objects, but also prevented the total burning of the heritage objects.

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[724] The Finnish Heritage Agency, Department of Archeology 2.3.2011, themed interview.

A lack of economic resources endangers both the basic collection management of cultural heritage and the disaster management work. In one disaster case, the lack of funding for documenting the collection before the disaster caused difficulties from the perspectives of disaster response and value-based heritage recovery. The lack of security systems (such as automatic fire alarms) have caused delays in observing fires at six disaster cases. In two of the church arson cases, the absence of automatic fire alarms caused such a delay in observing the fire that it resulted in severe fire-based damage to the church. In at least one church arson case where the fire started outside the building, the existing fire alarm system failed to observe the fire at an early stage. In one church arson case, the burglar alarm alerted the security guard to the disaster site, and the arson attempt was identified in this way. In this case the fire self-extinguished. Missing water damage alarm system caused delays in observing two water damage cases in library depositories.

8.2 Risk evaluation and the protection of cultural heritage

The data indicates that both the disaster prevention and emergency planning phases of heritage risk management affected the likelihood of disasters and the type of primary damage they inflicted. The causes of the disasters fall into three groups: natural forces, human activity, and technical failure. The targets in the discussed vandalism and arson-based disasters were selected either intentionally or randomly. Heritage disasters could cause either major or minor damage, based on the nature of the disaster and the response work. In the post-disaster phase, the success of the heritage recovery process depended on the available material and personnel resources. Existing operational models increased the heritage recovery process's effectiveness.

The research data revealed that from the perspective of risk categorization, urban and suburban heritage regions were particularly important. Cultural heritage in urban environments is a more likely target of vandalism. Also, human activities in urban environments near to cultural heritage appear to be more likely to lead to accidents that endanger cultural heritage.

The research data also suggests that the churches in both small and large conurbation areas are at risk of becoming targets of arson. In preventing arson-based damage, the most important security devices were automatic fire and burglar alarm systems. It is possible that arson occurring in smaller conurbation areas lead to more severe damage because of the response time of the fire and rescue services. Rapid disaster response and fire extinguishing have been the best ways to minimize the damage arson causes to cultural heritage.

There are certain measures social and welfare services could use to prevent cultural heritage crimes, but these measures require efforts of the entire society. Cultural heritage crimes could be decreased by 1. improving overall democracy and social equality; 2. preventing social exclusion; 3. providing and offering well-

functioning social and welfare services, and 4. establishing crime prevention programs that start at an early age.[725]

Cultural change has increased the ways cultural heritage can be experienced. The discussed disaster cases indicate that heritage is being contested by individuals or small groups of people at the community level. This phenomenon might have something to do with the social exclusion of youth and young adults. The possibility of the deliberate destruction of cultural heritage should be regarded as a direct risk to cultural heritage sites and objects. The risk factor may be larger in socially unstable and poor cities and conurbation areas. It is also possible that the trigger behind the deliberate destruction of cultural heritage relates to the power-related features of heritage sites. It is feasible that people and social groups who challenge public spaces with their actions are trying to establish their own important places.[726] This might be the case in the Vartiokylä Hill Fort and Kotka Orthodox Church vandalism cases, where some of the graffiti writing may also have territorial marking purposes for the vandal.

In the prevention of vandalism, strong social relations, trust among people, and a high level of civic engagement represent the kinds of social resources that may double as protective factors. It is also possible that increasing social relations, trust among people, and the level of civic engagement could protect cultural heritage from vandalism.

Preventing the social exclusion of young people might reduce the risk of cultural heritage getting deliberately destroyed.[727] In United Kingdom the idea that memory institutions could play an important social role in defeating social exclusion arose in the late 1990s and since then discussion has been ongoing around the roles of memory institutions in work combating and preventing social exclusion.[728] People who suffer from social exclusion do not represent a homogeneous group. Therefore, the nature of their individual experience of social exclusion should be understood in order to help them.[729]

8.2.1 Measures of education and community involvement

According to Michéle Cloonan, contemporary heritage preservation requires the effort of an increasing number of stakeholders.[730] The possibility of reducing the power-related features of cultural heritage can be based, for example, on projects that increase the engagement of children and young people with the cultural heritage in their own neighborhood. In Finland, a good example of this is the *Adopt a Monument* project that has aimed at engaging people and local communities to take care of and to take responsibility for heritage buildings and archeological sites in the Tampere (since 2008), Jyväskylä (since 2015), and Helsinki (since 2017) regions. The model for this work came from the *Adopt a*

[725] Haapasalo 12.12.2011, specialist team interview.
[726] McDowell 2008, 46.
[727] Haapasalo 12.12.2011, specialist team interview.
[728] Newman 2005, 325.
[729] Newman 2005, 327.
[730] Cloonan 2018, 184.

Monument work of Archeology Scotland.[731] Educating children about cultural heritage and providing them with hands-on experience of cultural heritage might have an impact on how they engage and continue to engage with the heritage found in their own neighborhood. This cultural heritage education could perhaps be integrated into the national core curricula of early childhood education and care, pre-primary education, and basic education of the Finnish education system. A hands-on approach in cultural heritage education is important for gaining experimental competence.[732] Louise Grove and Suzie Thomas suggest that education can be regarded as a long-term strategy in heritage crime prevention.[733] However Louise Grove, Suzie Thomas and Adam Daubney have concluded that it is difficult to evaluate the extent to which heritage crimes can be reduced as a result of increased community involvement at heritage sites.[734]

In Finland, participatory-based conservation processes have not been used in conservation practice. Participatory-based conservation processes have sometimes been internationally used to achieve more sustainable conservation treatments. Participatory-based conservation processes should be tried in Finland to use in the conservation of vandalized cultural heritage sites. This could increase the sustainability of the conservation treatments and reduce the risks of the deliberate destruction of heritage in the future.

It is possible that the raising of overall public awareness about cultural heritage will also increase the public's level of engagement with cultural heritage. This might also increase the overall safety of heritage sites. When the knowledge of both heritage owners and the fire and rescue services about heritage risk management and damage prevention is increased, cultural heritage will also be better secured in disaster situations. It is possible that the lack of local involvement and engagement in cultural heritage preservation and maintenance will pose security risks for cultural heritage.

8.2.2 Use of technical security systems

Based on the disaster cases, technical security systems such as automatic fire and burglar alarms were able to prevent at least three arsons from turning into massive fires. In cases where arson caused major damage, the churches either did not have automatic fire alarms or the fire started in a place that was out of reach of the existing fire alarm. In three water damage cases, the lack of a water damage alarm system led to delays in observing water damage in a library or a archives depository. Therefore, automatic fire, burglar, and water damage alarm systems should be regarded as significant tools for heritage risk management, especially against arson attacks, burglars, and water damage.

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731 Adoptoimonumentti.fi 22.4.2018, Info. http://adoptoimonumentti.fi/info/
732 The Finnish Heritage Agency, Department of Archeology 2.3.2011, themed interview.
733 Grove & Thomas 2014, 228.
734 Grove & Thomas & Daubney 2018, 7.

8.3 Risk management and prevention of risks

Robert Waller's risk formula (P × FS × E × LV[735]) shows that the high probability of vandalism, the proportion of a collection that is susceptible to damage, the extent of damage, and the expected loss of value in cultural heritage are intrinsically connected. Heritage sites most vulnerable to vandalism appear to be unguarded heritage sites in urban areas and archaeological sites near socially unstable and poor conurbation areas. There was no clear difference between the probability of large and small conurbation areas becoming scenes of church arson attacks, but arson attacks in smaller conurbation areas may lead to greater collection damage because of the longer response times of fire and rescue services. The researched accident-based disasters show that the probability of disaster is higher in urban environments. In the accident-based cases, the loss in value depended on how large an area of the heritage site was damaged in the accident and to what extent. The larger the disaster, the larger the fraction of the collection that was susceptible to damage, which determined the loss of value.

I found it difficult to define the risk magnitudes for my disaster cases as precisely as Robert Waller did in his risk management models. This is the case because I did not have the necessary information on the size of the collections exposed to the occurred heritage disaster and accident. Neither did I have specific information about the calculated probability of the occurred heritage disasters and accidents over a 100-year time period. In addition, Robert Waller points out the difficulties and uncertainties in defining specific risk magnitudes affecting collections because of a lack of precise information.[736] Although I use Robert Waller's risk management model in a different context, it is my belief that by using this recognized model I can gain deeper results about my disaster and accident cases.

My disaster cases indicated that in some heritage disaster and accident cases, the disaster risk types that were evaluated in Robert Waller's risk type evaluation as type 1 risks seemed to be more probable risk types in my research. Therefore, I placed these disaster cases as type 2 or type 3 risks. Also, the severity of effects in my disaster cases showed some differences from Robert Waller's model. Table 1 shows the risk type and severity of effect evaluations of my 19 disaster cases. In this Table, I have evaluated the probability of similar disaster cases that could take place at these heritage sites in the following 100-year time period.

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[735] In Waller's formula, P stands for the probability of damage; FS is the fraction of the collection susceptible to damage; E stands for the extent of damage; and LV is the expected loss in the value of the collection. Waller 1996, 3. In this formula, an increase in one factor will have a multiplier effect on the whole.
[736] Waller 1995, 26.

TABLE 1 Risk type and severity of effect evaluation of my disaster cases

Disaster case	Risk type: 3 constant	Risk type: 2 sporadic	Risk type: 1 rare	Severity of effect
National Land Survey of Finland Uusimaa office, archive water damage in 1994		X		Severe
Archives of the National Land Survey of Finland, fire during construction work in 2004			X	Severe
Tyrvää St. Olaf's Church, arson in 1997		X		Catastrophic
Finnish National Library, humidity problems and water damage in the 1990s and 2000s	X			Severe
The Finnish Heritage Agency, Vartiokylä Hill Fort, vandalism cases in the 1990s and 2000s	X			Severe
Finnish Literature Society, library depository, water damage in 2003		X		Severe
Valvilla Wool Mill Museum, archives fire in 2003		X		Catastrophic
Kiasma Museum of Modern Art, VR warehouses fire that caused safety preparations in 2006			X	Mild/gradual
National Museum of Finland, gas explosion in 2006			X	Catastrophic
Porvoo Cathedral, arson in 2006		X		Catastrophic
Kaivoksela Church, arson in 2006		X		Catastrophic
Turku Castle, art vandalism in 2008			X	Mild/gradual
Lempäälä St. Bridget Memorial Church, arson attempt in 2008		X		Mild/gradual
St. Jacob's Church, art vandalism in 2008		X		Severe
Suomenniemi Church, attempted arson in 2009		X		Mild/gradual
Hammarland Church, attempted arson in 2010		X		Severe
Uspenski Orthodox Cathedral, art larcenies in 2008 and 2010		X		Severe
Jyväskylä Orthodox Church, vandalism incident in 2010		X		Severe
Kotka Orthodox Church, vandalism cases in 1990s and 2000s.	X			Severe

Three of the disaster and accident sites were evaluated to be at constant risk. Therefore, these disaster cases are defined in my table as type 3 risks. These were two heritage sites subjected to vandalism and one library depository suffering from water damage caused by both natural forces and pipe leaks. This evaluation is based on the fact that similar kinds of disasters occurred earlier many times or could happen in these sites very often in a 100-year time period. The severity of effect was evaluated in these cases to be severe. In his CMN risk evaluation model, Robert Waller defined vandalism as a type 2 risk, water damage such as floods as type 1 risks, and technical errors such as roof leaks as type 2 risks.[737]

In 12 disaster and accident cases, I evaluated the risk type to be sporadic. Therefore, these disaster cases were defined as type 2 risks. These include one instance of malicious damage related to water in an archival depository and one incidence of flood-based water damage in a library depository. Among the cases was a fire caused by other users of the building where an archival collection was located. Three cases of vandalism and one icon larcenies case were also evaluated as type 2 risks. All the church arson and attempted church arson attacks (six cases) were also evaluated to entail a sporadic level of risk. The severity of effect was in two cases mild or gradual, in six cases severe and in four cases

[737] Waller 1995, 22.

catastrophic. In Robert Waller's risk evaluation model, flood was defined as a type 1 risk and technical-error-based water damage (roof leak) was defined as a type 2 risk. Waller suggested that fire was a type 1 risk and vandalism a type 2 risk. Major theft was defined as a type 1 risk.[738]

Four of my disaster cases were considered to have the risk type of rare. These cases I placed under risk type 1. Among these cases was the roof fire of an archival building at the end of construction work. The safety precautions of a museum during a massive fire near the museum building in the city center of Helsinki was also evaluated as a type 1 risk. A gas explosion at a museum in the city center of Helsinki that was caused by a natural gas pipeline leak was also evaluated as a type 1 risk. One vandalism case at a museum where safety improvements after the incident had meant a similar kind of disaster was less probable in the future was also evaluated as a type 1 risk. The severity of effect was in two case mild or gradual, in one case severe and in one case catastrophic. Robert Waller defined fire as a type 1 risk and vandalism a type 2 risk. Waller's risk categorization did not evaluate the possibility of explosion-based damage.[739]

In my research where the disaster cases were evaluated as type 3 risks, the heritage site's owner organization had tried to carry out risk reduction work at the heritage site. The types of risks however proved to be such that they could not be totally eliminated in association with the heritage site in question. The disaster and accident cases that I evaluated as type 2 risks represented those where the frequency was evaluated to take place sporadically over a 100-year time period. These cases represented such incidents that had not happened before but could perhaps happen again in the future. The probability of type 2 risks was evaluated as higher than type 1 risks. In my research, type 1 risks represented cases that occurred in exceptional conditions. Type 1 risks also led to large-scale security improvements and risk reduction work. This resulted in the fact that it is very unlikely that similar kinds of incidents would take place in the future and therefore these risk types were evaluated as rare over a 100-year time period.

I evaluated that the risk magnitudes are perhaps highest in type 3 risk cases because these kinds of heritage disasters had occurred before the disaster cases. These cases had also caused significant loss in cultural heritage value when the disaster had occurred. I evaluated that the risk magnitude of type 2 risks must be lower than type 3 risks and higher than type 1 risks because of the frequency of the risk type. Type 2 risks could also have led to a significant loss in the cultural heritage's value but the probability of such risk types occurring was significantly lower than type 3 risks. I evaluate that the risk magnitude of type 1 risks is lower than type 2 and type 3 risks, because such heritage disaster types seemed so exceptional and rare in Finland.

When the researched disasters and accidents were analyzed using Robert Waller's Cultural Property Risk Analyses Model (CPRAM), it was observed that

738 Waller 1995, 22.
739 Waller 1995, 22.

the disaster response decisions that led to successful heritage recovery processes and small-scale secondary damage were based on good economic resources that provided, initially, everything that was needed for timely heritage recovery and, second, the cooperation of qualified professionals during disaster response and heritage recovery processes. A link can be seen between the recognized cultural value of heritage and the economic resourcing in heritage management before, during, and after a disaster. Economic resources had an impact on material and personnel resources, especially during the disaster response and heritage recovery work. Heritage owners who employed trained conservators could organize and execute disaster response and heritage recovery quickly.

The heritage disasters revealed that two of the sites, Vartiokylä Hill Fort and the National Library of Finland, were prepared for the types of disasters when they occurred. It is possible that the frequency of the problem's occurrence at the heritage site affected this. Only in these two cases could Robert Waller's three general control means of cultural heritage risk management be identified, although none of these methods managed to eliminate the risks faced by the heritage site. Waller's three general control means are: 1. Eliminate the source of risk; 2. Place a barrier between the source of the risk and the cultural heritage; and 3. Act on the agent responsible for the risk.[740] Waller suggests that the means of control should be considered at eight levels of control: location, site, building, room, cabinet, specimen, policy, and procedure.[741] Because my research concentrates on cultural heritage rather than on natural heritage, a more appropriate word for "specimen" is "object."

In table 2 I have evaluated the risk management work undertaken by the owners of my sites after the disasters occurred. This evaluation is based on Waller's three general means of control in cultural heritage risk management and the levels of control at the disaster sites.

[740] Waller 1996, 3.
[741] Waller 1995, 25.

TABLE 2 Use of the three general means of control and levels of control in cultural heritage risk management at my disaster sites after the disasters

Disaster case	**1. Eliminate the source of risk**	**2. Place a barrier between the source of risk and cultural heritage**	**3. Act on the agent responsible for the risk**
National Land Survey of Finland Uusimaa office, archive water damage in 1994	Building, room, policy and procedure	Room, cabinet	Room, object, procedure
Archives of the National Land Survey of Finland, fire during construction work in 2004	Building, policy and procedure	Building and procedure	Building
Tyrvää St. Olaf's Church, arson in 1997	Building, policy and procedure	Building	Building
Finnish National Library, humidity problems and water damage in the 1990s and 2000s	Building, room, policy and procedure	Room, cabinet	Room, object and procedure
The Finnish Heritage Agency, Vartiokylä Hill Fort, vandalism cases in the 1990s and 2000s	Building, policy and procedure	Site, object and procedure	Site, object and procedure
Finnish Literature Society, library depository, water damage in 2003	Room and cabinet	Cabinet	Object and procedure
Valvilla Wool Mill Museum, archives fire in 2003	Building	Building	Object and procedure
Kiasma Museum of Modern Art, VR warehouses fire that caused safety preparations in 2006	Building, policy and procedure	Building	Building, room, object and procedure
National Museum of Finland, gas explosion in 2006	Site, building, room, and procedure	Building, room, cabinet and procedure	Room, cabinet, object and procedure
Porvoo Cathedral, arson in 2006	Site, building, policy, and procedure	Site, building and procedure	Building and object
Kaivoksela Church, arson in 2006		Object	
Turku Castle, art vandalism in 2008	Building, room, policy and procedure	Building, room and procedure	Building, object, policy and procedure
Lempäälä St. Bridget Memorial Church, arson attempt in 2008	Building, policy and procedure	Building	Building and object
St. Jacob's Church, art vandalism in 2008	Building	Building	Building and object
Suomenniemi Church, attempted arson in 2009	Building, policy and procedure	Building and procedure	Building and object
Hammarland Church, attempted arson in 2010	Building, policy and procedure	Building and procedure	Building and object
Uspenski Orthodox Cathedral, art larcenies in 2008 and 2010	Building, room, cabinet and procedure	Building, room, cabinet, object and procedure	Room, cabinet and procedure
Jyväskylä Orthodox Church, vandalism incident in 2010	Building and procedures	Building	Building
Kotka Orthodox Church, vandalism cases in 1990s and 2000s.	Site, building and procedures	Site and building	Building

At most of the disaster sites, risk management improvements resembling Robert Waller's means of heritage risk control were adopted after the disaster. However, the means of control at the disaster sites were not considered at all of the eight control levels: location, site, building, room, cabinet, object, policy and procedure. Most commonly, the owner of the disaster site tried to eliminate the source of the risk by improving the means of control at building, policy, and procedure levels. The owners often tried to place a barrier between the source of the risk and the cultural heritage at the levels of building, room, and object. The

owners of disaster sites tried most commonly to act on the agent responsible for the risk at the building and object levels.

In figure 42 I have illustrated the factors that influence the heritage owner's ability to manage direct and indirect risks that are aimed at their cultural heritage. In this figure I have clarified how a heritage owner's ability to reduce the direct and indirect risks varies at different levels of the risks. In the center of the circle the heritage owner's ability to reduce the risks are best. The owner's opportunities to reduce the risks diminish towards the outer edge of the circle.

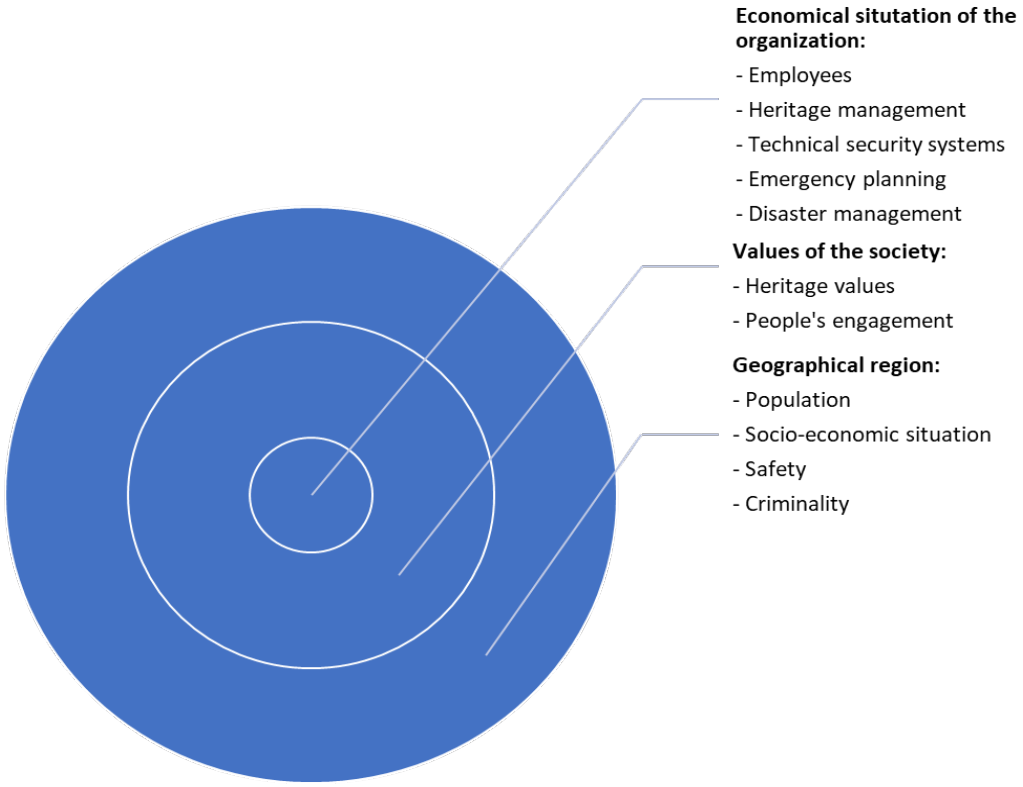

FIGURE 42 Factors that influence risk prevention

The heritage owner's ability to influence the risks that aim at their cultural heritage is strongest in the areas that can be managed inside the organization. The economic situation of the organization is one of these factors that influence how well the organization can conduct its heritage management and disaster management work. The organization's economic situation influences the organization's possibility to acquire qualified personnel and technical security systems at the heritage site.

The owner organization of cultural heritage has limited possibilities to influence the surrounding society's values. Values of the surrounding society influence society's overall heritage values and engagement with local cultural heritage. Heritage owners, the nation state and municipalities can all influence society's heritage values and people's engagement with cultural heritage. The central means in this work is cultural heritage education.

The owners of cultural heritage do not often have the possibility to influence the geographical regions where they are located. The threats that may be aimed at their cultural heritage can be influenced by the kinds of people that live near their heritage site and what the socio-economic situation of the region is, for example. The heritage owners also have little possibility to influence the overall safety and criminality situation of the region where their heritage site is located. The nation state and municipalities have more possibilities to influence the geographical region's socio-economic and safety situation. The central means in this work is urban planning.

8.4 Disaster management

Heritage owners have varying levels of professional skills in heritage and risk management. These professional skills define how disaster management, disaster response, and heritage recovery works in the organizations. Poor professional skills in risk management could lead to unsuccessful disaster management work.

Based on the disaster cases, heritage recovery processes were not refocused and developed during the recovery work. As a result, no novel heritage recovery methods that could have made the process more effective were adopted while the process was ongoing.

The researched cases indicate that emergency plans and operational models of heritage recovery are an essential background factor in successful disaster response and heritage recovery work. The site owners should be active, and they should plan for disasters well in advance. Heritage owners should cooperate with the authorities in looking for the most effective ways to prevent disasters and thefts. It is possible to prevent the spontaneous criminal acts that rise from the mere possibility to commit crime. The means to prevent heritage crimes are at least partly based on technical security systems and other risk-reduction measures.

Disaster response development requires the cooperation of museum and security authorities. According to the representatives of the Police University College, it would improve the overall safety of heritage sites if the Finnish Heritage Agency were to visit regional police stations and inform the personnel of significant heritage sites situated in the region.[742]

Successful disaster response and heritage recovery is promoted by a functioning disaster organization that can make decisions quickly, enabling the purchasing of professional and material resources required by heritage recovery work. This increases the effectiveness of both the response and the recovery work. Quick decision-making increases the possibility of heritage recovery succeeding so that secondary damage can be prevented. Through the disaster cases, I observed that for the site owners the most important cooperation network

[742] Police University College 12.1.2012, specialist team interview.

in disaster and post-disaster situations comprised 1. museum authorities and security authorities (such as police, fire and rescue services, and the army); 2. subject matter specialists in heritage recovery; and 3. the local community. These cooperation networks affected the success of disaster response and heritage recovery work. They also affected the quality of the planning that took place after the disaster. Further development and strengthening of such cooperation networks in Finland would increase the overall preparedness of disaster response and heritage recovery work.

Currently, part of the disaster prevention at archeological sites takes place after the excavations. At archeological sites, the effects of vandalism are minimized by building an infrastructure that is difficult to destroy and, if it is destroyed, it is easy to rebuild with minimal costs. The aim is also to build infrastructure that does not draw people's attention. It has been observed that the removal of vegetation from an archaeological site often draws attention and may attract people who behave destructively.[743]

Sometimes the maintenance and conservation work on an archeological site has triggered destructive behavior. Before any decisions are made about the maintenance and conservation of an archeological site, a proper risk management plan should be conducted. Where conservation and maintenance cause a risk to an archeological site, leaving it untouched might be the best choice. The risk of vandalism is high, especially at archeological sites located in residential areas or where they simply are surrounded by many people. These risks at urban archeological sites cannot be removed and must be acknowledged.[744]

The documentation of cultural heritage in post-disaster situations is an important part of heritage recovery. Documentation and damage evaluation are needed by insurance companies and people who restore cultural heritage. It may be that there are no existing architectural drawings with all the details of historical buildings. Documentation is also needed so that parts of the damaged remains can be used in the restoration work. Documentation in the post-disaster phase can be divided into the technical investigations conducted after a fire or when a crime is suspected, and the heritage damage evaluation made by museum professionals, usually conservators.

8.4.1 Heritage recovery

In my disaster cases, heritage recovery was often based on the available resources and the cooperation networks. If the owner organization of the disaster site did not have any prepared material resources for disaster response and heritage recovery work, in the first stage of response and recovery a lot of time was spent acquiring the necessary personnel, materials, and equipment. During the period of heritage recovery, time could be spent manufacturing the equipment needed for the recovery work. During the disaster response and the first weeks of the

[743] The Finnish Heritage Agency, Department of Archeology 2.3.2011, themed interview.
[744] The Finnish Heritage Agency, Department of Archeology 2.3.2011, themed interview.

recovery process, there was often an acute need for heritage professionals. If these resources did not exist, the heritage recovery work was less effective from the perspective of damage prevention.

In a massive fire and water damage case where a diverse collection had been affected, air-drying proved to be too slow and ineffective a method. In Finland, successful disaster response and recovery work by a small heritage organization was often enabled by good cooperation networks, which resulted in response and recovery being conducted according to a plan volunteered by a museum professional. The lack of a heritage recovery plan and both material and personal resources usually caused delays in the actual heritage recovery work. As a result, the guidance for heritage recovery came from outside the owner organization and was often provided by museum professionals belonging to a cooperation network who volunteered to help the organization. Heritage professionals often provided voluntary guidance and help for only a limited time, for example in one case for three days.

The importance of using qualified heritage professionals in collection recovery can be seen in their ability to prevent or minimize secondary damage. Qualified heritage personnel and appropriate material and technical resources are often enough to guarantee that obviously in appropriate heritage recovery methods can be prevented, and secondary damage avoided or minimized.

In the 1990s and 2000s in Finland, the most common water damage recovery method was air-drying. In none of the disaster cases I studied were any other means of drying, such as freeze-drying, used. Good cooperation networks, involving heritage owners and museum professionals, were important background factors in successful heritage recovery processes.

In large-scale heritage disasters and accidents where the heritage owner did not have an emergency plan or instructions for heritage recovery, the spontaneous recovery plans did not always fit with the scale of the damage and the available resources. After the first stage recovery—drying—it sometimes took a couple of weeks before the damage evaluation was started.

The use of minimal financial and personnel resources during the first stage of the heritage recovery caused the work to proceed slowly. Delays in the heritage recovery work, especially after water damage, led to secondary damage such as molding. Ineffective disaster response was partly caused by the lack of adequate material or professional resources for the recovery process.

8.4.2 Cultural values

Unfortunately, the research data I used does not provide very clear answers to the questions of why and how people create and attach certain symbolic meanings to the researched heritage sites. The research data also does not provide any answers to the questions of how these symbolic meanings have perhaps changed between 1990 and 2010. However, the research data provides indicative information over certain areas of heritage values. These are: 1. the cultural values behind deliberate deterioration of cultural heritage, 2. how values influence the heritage owner's preparedness to heritage disasters, and 3. how

value evaluations influence the economic resources used in heritage and disaster management work.

The disaster cases show that cultural appreciation and heritage values had an impact on economic resourcing of cultural heritage management in Finland in the 1990s and 2000s. The cases where the site owners did not clearly identify the value of cultural heritage involved low amounts of economic resources both before and after the disaster. Identified cultural heritage value also impacted the success rate of disaster response and heritage recovery work. Economic resourcing influenced the cultural heritage owner's possibility to maintain the heritage in terms of basic collection management, such as documentation and emergency planning. Finally, the economic resources influenced the material and personnel resources of heritage management in disaster and post-disaster phases. These resources had a clear impact on disaster response and heritage recovery work. The researched disasters indicate that the oldest cultural heritage representing Finland's regional or national history was defined as a top priority in disaster response and heritage recovery work.

The data revealed that cultural heritage was evaluated after the disaster through its use-value and functionality. For example, the arson attack on a church was considered to cause significant economic loss for the parish through rebuilding costs. In these evaluations, a statement from the Finnish Heritage Agency on the cultural-historical value of the church played a significant role. The disaster response and heritage recovery work made it possible to identify cultural values related to my disaster sites. Old historic remains, religious institutions, and any cultural heritage that represented social power and wealth in Finland was appreciated. The cultural heritage involved in the researched disaster cases seemed to underline the uniformity of Finnish culture. The heritage that represented the dominant discourse in Finland was reconstructed or restored after the disaster. At those disaster sites where the cultural heritage was not clearly identified as nationally important by its owners, the preservation approach did not necessarily include full restoration. This was the case for example in the Kaivoksela Church arson case, where only less damaged heritage objects belonging to the church were preserved after the disaster. In the disaster response and heritage recovery processes overall, decisions on the disposal of cultural heritage were often made on the basis of its overall condition and use.

8.4.3 People's engagement

The analyzed disaster cases show that the importance of the heritage site for the local community inspired people to voluntarily participate in the recovery work either independently or through local associations. Sometimes these volunteers were heritage professionals. In the cases with limited financial resources for the heritage recovery work, the role of volunteers in preventing the destruction of the damaged cultural heritage was significant.

In the cases where no professional resources could be found to undertake the heritage recovery work, the employees of the memory institution worked around the clock during the first most important weeks of the process. In this

way, the heritage disasters and accidents also endangered the health of the site's employees.

In two of the studied heritage vandalism cases, three of the church arson cases and one accident-based fire, the information about the disaster came to the authorities from a person who was in some way engaged with the heritage site and informed the authorities about the incident after having detected the vandalism or fire. It is possible that public engagement with cultural heritage can increase its overall safety.

8.4.4 Authority guidance

The authority guidance provided by the police, fire and rescue services, and museum authorities were a vital source of information when the owners started to develop the safety policies of the heritage sites and collections. The interviews with the subject matter specialists revealed that both the security authorities (police and firefighters) and the memory institution authorities provided instructions for heritage owners upon request, both before and after the disasters. The councils of both the Evangelical Lutheran Church of Finland and the Orthodox Church of Finland provided statements and instructions on the protection of parish buildings and the management of heritage objects. The Finnish Heritage Agency has cooperated intensively with the other Finnish memory institutions in question regarding the safety of cultural heritage.

In post-disaster situations, the guidance from heritage authorities focused on the coordination of disaster response work and providing suggestions on how to make the work effective. For example, in the case of the Valvilla Wool Mill Museum archives fire, the textile and paper conservator of the Central Uusimaa Provincial Museum did not participate in the heritage recovery planning, but did later provide advice on how to improve the recovery process. The disaster response methods in this case were designed spontaneously by a voluntary paper conservator who lived near the disaster site.

When the research data was collected, the Finnish museum authorities and the regional museums did not have a stand-by consultation service that could have been used by the fire and rescue authorities in the initial stages of the heritage disaster response. The owners were responsible for the safety of the chosen response and heritage recovery methods used at the site. The organization that owns the heritage site either needs to have the knowledge required to ensure the safety of the disaster response and heritage recovery work, or it must acquire the know-how when disaster strikes to be able to consult the fire and rescue services. In disaster situations the guidance for the fire and rescue services has rarely come from outside the owner organization of the cultural heritage.[745]

[745] Eastern Uusimaa Fire Department operative unit 4.5.2011, specialist team interview.

8.5 Impact of disasters on the deterioration of cultural heritage

Both the material-technical features of cultural heritage and the type of disaster or accident determined what kind of damage disasters caused in cultural heritage. Also, the place where cultural heritage is situated is of importance in disaster situations.

Four types of damage were caused by the disasters discussed in my research: 1. vandalism-based; 2. arson- and accident-based fires; 3. explosion-based; and 4. accident-based water damage. In vandalism-based disasters the primary damage can be grouped under four different categories: breaking and tearing; modifying; spray-painting; and trashing the site. Only in the case of spray-painting can the deterioration continue and cause secondary cleaning-based damage. Accident-based fires and arsons caused primarily soot, smoke and even burning damage. Fire-based damage can cause chemical degradation through toxic burning gases and heat. First-stage fire extinguishing may cause humidity and water-based damage. Water damage can also cause mechanical damage, deformation, and molding if the disaster response and heritage recovery are not carried out properly.

The primary damage caused by explosions results from the shockwave. Explosions can break a building's constructions and display cases. They cause dents, scratches, and mechanical damage in heritage objects as a result of collapsing display cases. Burglar-protected display cases can reduce explosion-based damage. In the researched cases, accident-based water damage was caused by pipe leaks or rain-based floods. The primary damage caused by water damage was the humidifying and wetting of materials. Unsuccessful disaster response and heritage recovery work could lead to secondary damage such as mechanical damage, deformation, and molding of cultural heritage materials.

9 CONCLUSIONS

In my research, five factors influenced the direct and indirect threats faced by cultural heritage in Finland. These were: 1. deliberate deterioration; 2. human activity near cultural heritage site; 3. social segregation; 4. shortage of economic resources; and 5. natural forces. The source literature used in my research supported many earlier research findings on heritage disasters, especially in the cases of vandalism, arson, and water damage.

Because case studies do not create generalizable information, my research can only provide information about the topic in a particular socio-cultural context. My research provides information about the mechanisms and processes that influenced the heritage disasters under discussion. The results, no matter how valid, reliable, or trustworthy, are not reproducible because of contextual reasons. It is nevertheless possible that the results of my research are partly reproducible under similar conditions. Different philosophical approaches were used to develop the methodological approach for analyzing the research data. The chosen research methods affect the validity and reliability of the research. The subjectivity and the objectivity aspects of the research were examined to increase its reflexivity.

The research data indicates that from the perspective of risk categorization, urban and suburban heritage regions were significant. Cultural heritage in urban environments is a more likely target of deliberate damage. Also, human activities in urban environments near cultural heritage sites appear to be more likely to lead to accidents that endanger cultural heritage. Natural forces, especially storms, heavy rains, and floods, may cause water damage in underground depositories, especially in urban and suburban areas.

The research data revealed that churches in both small and large conurbation areas are at risk of being targets of church arson. It is possible that arson attacks occurring in smaller conurbation areas lead to more severe damage because of the response time of the fire and rescue services. Rapid disaster response and fire extinguishing are the best ways to minimize the damage arson causes to cultural heritage. In preventing arson-based damage, the most important security devices were automatic fire and burglar alarm systems. There

are certain measures that social and welfare services could use to prevent cultural heritage crimes.

One common feature of the researched accident-based disasters was suddenness. The cases also indicate that external factors such as human actions in and around heritage sites pose uncontrolled and barely manageable threats to cultural heritage. In contemporary Finland, human activities close to a place where cultural heritage is located create a more significant threat towards cultural heritage than threats based purely on natural forces. Currently, water damage caused by storms and floods appears to create the most common type of natural disaster-based threat to cultural heritage in Finland.

The researched disaster cases reveal that the means available for preventing heritage disasters can either be based on technical security systems or be of a more indirect variety, such as functioning social services, crime prevention programs, and education. Because it is possible that criminality against cultural heritage (larcenies, vandalism, and arson) share sociological conditions with other types of crimes, it is possible that allocating resources to crime prevention and social inclusion programs would also reduce crimes against cultural heritage.

The biggest risks to cultural heritage in Finland are not posed by natural hazards such as earthquakes or tornados, although floods, storms, and thunderstorms occurring in the wrong place at the wrong time may still cause catastrophic and severe damage to heritage sites and collections. My research data suggests that the biggest risk is likely to continue to be the result of individuals and small groups of people who suffer from social exclusion and end up directing their destructive behavior at cultural heritage.

My disaster cases indicate that it is possible to prevent or at least reduce the deterioration of cultural heritage in disaster situations through emergency planning and risk assessment work. In disaster situations, the secondary heritage damage depends on the used disaster response and heritage recovery methods. Planned disaster response and heritage recovery models make recovery more effective and minimized, or in some cases even prevent, the further deterioration of cultural heritage in both disaster and post-disaster situations.

Freezing and controlled air-drying methods were used in cases of water damage in the USA and Canada in the 1990s and 2000s. The operational disaster response and heritage recovery models were also well developed at the time in both countries. In Finland, there were no existing operational models for large-scale disaster response and heritage recovery work in the 1990s and 2000s. As a result, operational models were often made spontaneously on the basis of how easily material and personnel resources could be acquired. Air-drying entire water-damaged collections in the post-disaster phase was the most common response in the water damage cases discussed in my research. In only one case, that of the Finnish Literature Society Library, was cold storage used as a means to dry material in small quantities.

International research on disasters caused by natural hazards tend to concentrate on earthquakes, storms, and floods. In my research, the damage

caused by natural forces resulted from heavy rains and floods in urban environments. Based on my research data on the Finnish climate, storms and heavy rain-based floods represented the biggest natural disaster risk for cultural heritage in the 1990s and 2000s. Climate change may also increase natural force-based heritage disasters in Finland.

9.1 Deliberate deterioration of cultural heritage

Previous research on the deliberate deterioration of cultural heritage through vandalism or arson is linked to studies on the deliberate destruction of cultural heritage during armed conflicts and terrorist attacks. My disaster cases portray deliberately damaged or destroyed cultural heritage that one person or a small group of people choose to damage or destroy in peacetime society and in their own living environment.

It seems that vandalism aimed at cultural heritage challenges the existence of both memory institutions and cultural heritage. Although these actions have not always caused major damage to or the destruction of cultural heritage, they have modified and changed the physical appearance of heritage objects or sites. The researched vandalism and arson cases support Brian Graham and Peter Howard's observations that both insiders and outsiders play their part in the cultural heritage process. The question is, how memory institutions could also engage and provide services for people who belong to marginal social groups and have perhaps been excluded from society? How could cultural heritage become a less divisive manifestation of power and a more meaningful cultural mediator of the past for the people?

In the United Kingdom, the idea that memory institutions could have an important social role in combating social exclusion arose in the late 1990s, and the discussion has been ongoing around the roles of memory institutions in social exclusion prevention work.[746] People's individual experiences of social exclusion should be understood in order to help them.[747]

My research suggests that in cases where heritage sites have been intentionally damaged or destroyed, the triggering factor behind the acts is sometimes related to the obvious presence of institutional and authority powers at heritage sites. Although heritage sites and objects are perhaps not destroyed because they represent cultural heritage, the destruction is in some cases related to the individual person resisting and demonstrating against the nation state, its authorities, and institutions. The way heritage sites modify the environment, for example, may trigger criminal damage and vandalism against the site. The strong role of memory institutions and the authorities is present when archeological excavations are carried out, remains are restored and supported, when deteriorating vegetation is removed, and when the infrastructure for visitors is

[746] Newman 2005, 325.
[747] Newman 2005, 327.

built, for example. Activity that changes the appearance of a site has sometimes caused people to target heritage sites. It is not known whether a continuing vandalism problem indicates place-attachment features in the feelings of the person who repeatedly damages the same site. If this is the case, how could people be guided toward using their feelings more constructively?

The processes of displacement and social exclusion are present in the concept of collective memory. Whether or not people are represented in the official collective memory discourse, they are nevertheless present in the cultural heritage discourse.[748] This may mean that the deliberate destruction of cultural heritage represents a visible reaction toward the displacement. My disaster cases indicate an increase in individualism, the number of cultural conflicts, and the lack of collective engagement with cultural heritage. The responsibility of caring for cultural heritage currently lies side by side with the institutional bodies whose traditional role in the management and administration of heritage has been contested by individuals or small groups of people.

In Finland, participatory processes have not been used in conservation. Internationally, they have sometimes been used to achieve more sustainable conservation treatments. Participatory processes could be used to conserve vandalized cultural heritage sites. This might reduce the risk of the site being deliberately destroyed in the future.

9.2 Use of education and community involvement

It is difficult to show where and how cultural heritage education could be used in disaster prevention. The educational methods that could have an impact on disaster prevention may relate to questions of power relations. These are related to the overall level of heritage literacy skills and engagement with cultural heritage, which could be increased by providing more possibilities to influence the definition and management processes of cultural heritage.

Cultural heritage education can be used in heritage disaster prevention such as basic awareness-raising and projects in which members of local communities belonging to different age groups, especially children and young people, engage with cultural heritage. These participatory-based projects may increase the overall security of cultural heritage when the public is given a stakeholder position to cultural heritage. Education is needed to critically assess cultural heritage and its contexts. The training of museum professionals is needed to improve the emergency planning, disaster response, and heritage recovery work at heritage sites. Information on emergency plans and heritage recovery work should also be provided to heritage owners. Like Louise Grove, Suzie Thomas, and Adam Daubney concluded, it is however difficult to evaluate to what extent heritage crimes can be reduced as a result of increased community

[748] Buciek & Juul 2008, 105.

involvement.[749] However, my research data indicates that local communities and societies have had a significant role in informing vandalism and arson at heritage sites to museum and security authorities. Local people's engagement with cultural heritage have also led to their voluntary work in heritage recovery work after disasters.

9.3 Reliability and validity of the research

The reliability of the research has been evaluated through systematics. In qualitative research, systematics means that the entire research process, including the decisions made, are documented and revealed to the readers. I tried to increase the reliability of my results by systematically documenting the research process. The varying level of documentation caused limitations to the research data. The reconstructed image of the disaster cases is based on what the heritage site owners discussed during the interviews. The fact that the trial documents of only six of the cases were available affects the reliability of the results. Conclusions are valid because they were drawn using appropriate theoretical frames, research questions, and methods of analysis. The validity of the research is based on systematics and argumentation, supporting the conclusion that accurate research data was analyzed with proper means to fulfill the research objectives and questions. That four (1. themed interviews with disaster site owners (18 interviews regarding 19 disaster cases); 2. themed interviews with subject matter specialists (nine interviews); 3. the court documents of six disaster cases; and 4. Finnish crime statistics on criminal damage, attempted serious sabotage, and serious sabotage cases between 1990 and 2010) of the research data groups happen to represent primary information sources and with sources that are not based on each other increases the reliability and validity of the research.

Although the quantitative data could not provide clear answers as to why cultural heritage is being deliberately destroyed with the means of vandalism or arson, the data was able to support the research results that indicate that cultural heritage can represent one of many tempting targets of deliberate destruction for the offender. If more statistical data will be collected and analyzed in the future, more precise research results about the deliberate destruction of cultural heritage can perhaps be obtained.

The researched heritage disasters were approached from the perspective of the research data. The research results and the conclusions drawn are based on the observations made from the research data. Because no prior data or research on the topic existed, there is a risk that the inductive argumentation I had to utilize in the qualitative content analysis did not detect all the variables pertaining to the discussed cases. To minimize the risk, the argumentation was

[749] Grove & Thomas & Daubney 2018, 7.

based on a strong level of probability, making it unlikely that these conclusions will turn out to be false.

Both the answers to the research questions and the research itself succeeded to address the research problems. The greatest limitations that the research approach contained were related to the breadth of the data and the approach that contained several disasters and disaster types. Had the disaster cases focused on arson, vandalism, or accident-based heritage disasters and accidents, the research data would have been easier to analyze. On the other hand, the breadth of the data can also be a strength. Both the analysis and the results cover various kinds of heritage disasters and accidents. This increases the relevance of the research results.

9.4 Directions for further research

My research increases the knowledge about heritage disasters in Finland in the 1990s and 2000s and the disaster response and heritage recovery work related to these disasters. Valuable information was produced on church arsons, cultural heritage vandalism, and accident-based heritage disasters. My research also documents Finnish heritage disasters and accidents in the 1990s and 2000s. Through this documentation, it was possible to identify factors enabling successful disaster response and heritage recovery work. The research results can be used to develop heritage owners' emergency planning, risk management, disaster response, and heritage recovery work. This may increase the overall preparedness of a heritage site for disasters and accidents.

During the research process, five potential future research topics arose. These topics relate to:

- Cultural values behind deliberate deterioration of cultural heritage
- Church arsons
- Vandalism of heritage sites
- Cleaning of mold-contaminated heritage objects
- The statistical background factors of cultural heritage crimes

The research data I used did not provide clear answers to the questions of why and how the people who deliberately deteriorate cultural heritage create and attach certain symbolic meanings to the heritage sites. The research data also did not provide answers to the questions of how the researched heritage sites' symbolic meanings have perhaps changed between 1990 and 2010. Further research is needed to gain more reliable answers to questions relating to the cultural values behind deliberate deterioration of cultural heritage.

It is not known if the social exclusion of Finnish youth is also behind Finnish church arson attacks. To gain more reliable research results, further research on criminology and criminal psychology is needed. Based on my church arson and attempted church arson cases, boys set churches on fire in five cases and they did

this alone. In only one case was a church set on fire by two people and, in this case, they were girls. Special church arson prevention projects are needed to prevent further incidents in Finland.

Heritage sites, especially archeological sites, are threatened by deliberate deterioration and vandalism especially in urban environments. It is possible that those projects that increase the engagement of children and young people with cultural heritage in their own neighborhoods could prevent some people's destructive actions that are aimed at cultural heritage. Participatory-based conservation projects should be tested in maintaining those heritage sites that have suffered from continuous vandalism problems. Work such as the *Adopt a Monument* scheme could be used as a framework through which these projects could be organized. This cultural heritage education could perhaps be integrated into the national core curricula of the early childhood education and care, the pre-primary education, and the basic education of the Finnish education system. These participatory-based conservation projects should also include research on its impacts on the deliberate destruction of cultural heritage so that new measures could be developed for protecting cultural heritage, especially archeological heritage sites in urban areas.

Water damage challenges the long-term preservation of cultural heritage. The effective recovery measures of water-damaged cultural heritage should be researched further to develop more effective measures for recovering the collections. The cleaning and disinfection of mold-contaminated heritage collections seem to be particularly challenging tasks. It is possible that none of the current antimicrobial treatments eliminate fungal filaments entirely. The development of safer and more effective microbial disinfection treatments requires a deeper understanding of the biodeterioration processes of cultural heritage materials and the precise monitoring of the effects of antimicrobial treatments.[750]

My statistical data could not provide clear answers to the question of why deliberate heritage destruction has taken place in the regions in question. However, in my opinion the statistical data was able to support the research findings that indicate that cultural heritage can represent one of many tempting targets of deliberate destruction for offenders. The statistical data on crimes that relate to cultural heritage should be recorded annually by the police in the official crime statistics of Finland. If such data were to exist, it would enable more precise analysis of the background factors of the regions where cultural heritage crimes have taken place.

[750] Sterflinger & Piñar 2013, 9642.

YHTEENVETO (SUMMARY IN FINNISH)

Väitöstutkimukseni aiheena on kiinteän ja irtaimen kulttuuriperinnön suojelu onnettomuuksien pelastus- ja jälkihoitotöiden aikana. Tutkimukseni tarkastelee 19 tapausta, joissa kulttuuriperinnön suojelu-, pelastus- ja jälkihoitotyöt ovat olleet tarpeellisia. Tutkitut onnettomuudet ja tuhotyöt ovat sattuneet Suomessa vuosien 1990 ja 2010 välisenä aikana.

Käytetty tutkimusaineisto muodostuu neljästä tietolähteestä: 1) onnettomuuskohteiden omistajien teemahaastatteluista (18 haastattelua, 19 tapausta), 2) asiantuntijoiden teemahaastatteluista (9 haastattelua), 3) Suomen rikostilastoista vuosilta 1990–2010 ja 4) kuuden onnettomuuden oikeuskäsittelyjen tuomioasiakirjoista. Tutkimusaineiston analysoinnissa käytettiin laadullista sisällön analyysiä ja Atlas.ti 6.1 -tietokoneohjelmistoa. Tutkimuksen keskeiset käsitteet pohjautuvat kulttuuriperinnön tutkimuksen, konservoinnin, ennalta ehkäisevän konservoinnin ja riskien hallinnan osa-alueille.

Tutkimukseni tarkastelee kulttuuriperinnön säilyttämistä onnettomuustilanteissa monumentaalisen säilyttämisen (monumental preservation) näkökulmasta, jonka on esitellyt Michèle Cloonan. Cloonanin esittämä monumentaalinen säilyttäminen käsite kattaa ihmisyhteisöjen kiinteän ja irtaimen kulttuuriperinnön säilyttämisen. Tutkimukseni edustaa teoreettisesti nykyistä konservoinnin käsitettä (contemporary conservation theory), jonka on määritellyt Salvador Muñoz Viñas. Tutkimukseni lähestyy kulttuuriperinnön ylläpitoa ja säilyttämistä onnettomuustilanteissa käsitteellisellä menetelmällä, joka pyrkii etsimään keinoja onnettomuuksien estämiseen ja kulttuuriperinnön vaurioitumisen ehkäisemiseen onnettomuustilanteissa sekä pelastus- ja jälkihoitotöiden aikana.

Menetelmät, joita valitaan pelastus- ja jälkihoitotöihin voivat joko estää tai edesauttaa kulttuuriperinnön vaurioitumista. Kulttuuriset arvot vaikuttavat onnettomuuksien pelastus- ja jälkihoitotyön taloudelliseen resurssointiin. Kulttuuriperintökohteiden pelastussuunnitelmien sekä taloudellisten resurssien puuttuminen onnettomuustilanteessa aiheuttivat tehottomuutta pelastus- ja jälkihoitotöissä. Tämä saattoi johtaa etenkin vesivahinkotapauksissa merkittäviin toissijaisiin vaurioihin kuten homevaurioihin. Etukäteen suunnitellut toimintamallit sekä riittävät materiaali- ja henkilöstöresurssit loivat edellytykset onnettomuuksien jälkihoitotyössä onnistumiseen. Tällöin esineistön ja rakennusten vauriot saatiin pysymään vähäisinä.

Tutkimuksen pohjalta määriteltiin tekijöitä, jotka muodostivat suoria tai epäsuoria uhkia kulttuuriperinnölle. Näitä tekijöitä olivat: 1. tietoinen tuhoaminen, 2. ihmisten toiminta kulttuuriperinnön läheisyydessä, 3. sosiaalinen eriarvoisuus, 4. taloudellisten resurssien vähäisyys ja 5. luonnonvoimat. Tutkimustulokseni kulttuuriperintöonnettomuuksista ovat samansuuntaisia aikaisempien tutkimusten havaintojen kanssa ilkivallan, tuhopolttojen ja vesivahinkojen osalta.

Tutkimusaineiston pohjalta voi päätellä, että kulttuuriperinnön tietoinen tuhoaminen joko ilkivaltaisesti tai tuhopolttamalla muodostaa selvän uhan suomalaiselle kulttuuriperinnölle. Tämä tulisi ottaa huomioon kohteiden pelastussuunnittelussa ja omatoimisessa varautumisessa. Tehdyn tutkimuksen perusteella ei

voida selkeästi osoittaa syitä kulttuuriperinnön tietoiselle tuhoamiselle. Aineiston pohjalta näyttää kuitenkin siltä, että kulttuuriperintökohteiden tietoinen vaurioittaminen ja tuhoaminen saattaa liittyä instituutioiden ja viranomaisten näkyvän läsnäolon vastustamiseen julkisessa tilassa.

Tutkittujen tapausten pohjalta näyttää siltä, että sekä pienien että suurien paikkakuntien kirkot voivat olla tuhopolton kohteena. On kuitenkin mahdollista, että pienemmissä taajamissa tapahtuneet kirkkotuhopoltot johtavat suurempiin tuhoihin pelastuslaitoksen pidemmän valmiusajan vuoksi. Nopea onnettomuuksien pelastus- ja jälkihoitotyö osoittautuivat parhaiksi keinoiksi ehkäistä tuhopolton aiheuttamia vaurioita kirkkorakennuksissa. Kirkkotuhopolttojen vaurioiden ehkäisemisessä keskeisimmät tekniset turvallisuusjärjestelmät olivat automaattiset paloilmaisinlaitteistot ja murtohälytinjärjestelmät.

Yleinen piirre tutkituissa tapauksissa oli kulttuuriperintöä kohdanneen onnettomuuden äkillisyys. Ihmisen toiminta, kuten rakennus- ja tulityöt, kulttuuriperinnön läheisyydessä muodostaa vaikeasti hallittavissa olevia onnettomuusriskejä. Tutkimusaineistoni pohjalta saattoi todeta, että Suomen ilmastossa myrskyjen ja rankkasateiden aiheuttamat tulvat muodostivat suurimman luonnonvoimien aikaansaaman uhan 1990 ja 2000 -luvuilla. On mahdollista, että ilmastonmuutoksen myötä luonnonvoimien aiheuttamien onnettomuuksien riski suurenee.

Tutkimuksen perusteella voidaan todeta, että keinot, joita voidaan käyttää kulttuuriperintöonnettomuuksien ehkäisemisessä voivat joko perustua teknisiin turvajärjestelmiin tai epäsuorin menetelmiin kuten toimivaan sosiaali- ja terveydenhuoltoon, rikostenehkäisyohjelmiin ja kulttuuriperintökasvatukseen. Yksittäisten kulttuuriperintökohteiden riskienhallintasuunnitelmien lisäksi tarvitaan laajempaa paneutumista kulttuuriperinnön suojelutyöhön.

Kulttuuriperintökasvatus voi tarjota keinoja onnettomuuksien ennalta ehkäisemiseen. Näitä kasvatuksellisia menetelmiä voivat olla joko yleistä tietoisuutta lisäävät tiedotuskampanjat tai projektit, joissa paikallisyhteisöjen eri ikäryhmät, etenkin lapset ja nuoret osallistetaan huolehtimaan oman asuinalueensa kulttuuriperinnöstä. Paikallisyhteisöjä osallistavat kulttuuriperintöprojektit voivat lisätä kulttuuriperintökohteiden yleistä turvallisuutta, jos paikallisyhteisöille annetaan selkeä rooli kohteiden henkisessä omistajuudessa.

Suomessa kulttuuriperinnön konservoinnissa ei tavallisesti ole käytetty paikallisyhteisöjä osallistavia prosesseja. Kansainvälisesti paikallisyhteisöjä osallistavia konservointiprosesseja on käytetty pitkäkestoisempien konservointitulosten aikaansaamisessa. Paikallisyhteisöjä osallistavia konservointiprosesseja olisi mahdollista käyttää enemmän myös Suomessa ilkivaltaisesti tuhottujen kulttuuriperintökohteiden ylläpidossa. Tämä voisi vähentää kohteiden tietoisen tuhoamisen riskiä tulevaisuudessa.

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ATTACHMENTS

Attachment 1. Questions for the semi-structured themed interviews with heritage site owners (in Finnish; in Swedish for Hammarland Parish; translation in English below)

Onnettomuuskohteiden omistajien haastattelukysymykset

Yleiset kysymykset I:

1. Kuvailkaa omin sanoin organisaationne kulttuuriperintökohteessa toteutuneen onnettomuuden kulku.
2. Kuinka nopeasti kiinteän ja irtaimen kulttuuriperinnön pelastustöihin onnettomuustilanteen jälkeen päästiin?
3. Kuinka nopeasti tieto onnettomuudesta tavoitti organisaationne oman henkilöstön?
4. Kuinka nopeasti konservointi- tai museoalan asiantuntijat olivat pelastustöitä tekevän henkilöstön käytettävissä kiinteän ja irtaimen kulttuuriperinnön pelastustöitä koskevissa kysymyksissä?
5. Millaisia menetelmiä pelastusviranomaiset käyttivät kiinteän ja irtaimen kulttuuriperintönne pelastustöissä?

Yleiset kysymykset II:

1. Mitkä olivat toteutuneen onnettomuuden ensisijaiset kiinteän ja irtaimen kulttuuriperinnön kokoelmille aiheuttamat vauriot tai vaurioitumisen uhat?
2. Minkälaisia kokoelmavaurioita onnettomuuden pelastustyöt aiheuttivat välittömästi onnettomuuden aikana tai tilanteen jo rauhoituttua?
3. Millaisia mahdollisia irtaimen tai kiinteän kulttuuriperinnön kokoelmavaurioita onnettomuuden jälkihoitotyö aiheutti kokoelmillenne?
4. Osasiko organisaationne ennakolta varautua toteutuneen kaltaiseen onnettomuuteen?

Riskien kartoittaminen ja hallintamenetelmien suunnittelu:

1. Onko toteutunut onnettomuus vaikuttanut organisaationne työmenetelmiin kulttuuriperintökokoelmiinne kohdistuvien riskien kartoittamisessa?
2. Vertailkaa riskien kartoittamisen menetelmiä ennen onnettomuutta ja sen jälkeen?
3. Onko toteutunut onnettomuus vaikuttanut organisaationne riskien hallintamenetelmien suunnitteluun?
4. Vertailkaa organisaationne riskien hallintamenetelmien suunnittelua ennen ja jälkeen toteutuneen onnettomuuden?

Toimitilojen ja toiminnallisten puitteiden suojaaminen:

1. Onko toteutunut onnettomuus vaikuttanut organisaationne valmiuksiin ylläpitää kulttuuriperintökokoelmianne aikaisempaa paremmin erilaisissa kriisi ja poikkeustiloissa?

Kokoelmien suojaaminen:

1. Onko toteutunut onnettomuus vaikuttanut kulttuuriperintökokoelmienne pelastussuunnittelutyöhön
2. Vertailkaa organisaationne valmiuksia kulttuuriperintökokoelmienne onnettomuuksien jälkeiseen pelastustyöhön ennen ja jälkeen toteutuneen onnettomuuden?

Organisaation turvallisuusjohtaminen:

1. Onko toteutunut onnettomuus vaikuttanut organisaationne turvallisuusjohtamiseen?
2. Mitkä henkilöstöryhmät osallistuvat turvallisuuskysymysten suunnitteluun organisaatiossanne?
3. Ovatko turvallisuuskysymykset osa organisaationne säännöllistä strategia ja budjettisuunnittelua?

Turvallisuusasioiden jatkuva suunnittelu:

1. Tehdäänkö organisaatiossanne säännöllisesti kulttuuriperintökokoelmiin kohdistuvien riskien kartoittamistyötä?
2. Arvioidaanko organisaatiossanne säännöllisesti käytössä olevien riskien hallintamenetelmien toimivuutta?
3. Onko kulttuuriperintökokoelmiinne kohdistuvien riskien hallinnan suunnittelu osa organisaationne toimintojen arkea?

Intervjufrågor för Hammarland församling

Allmänna frågor I

1. Beskriv med egna ord förloppet av en i er organisations kulturarvsmål skedd olycka.
2. Hur snabbt efter olyckssituationen kom räddningsarbeten av fast och löst kulturarv igång?
3. Hur snabbt nådde kunskapen om olyckan den egna personalen i er organisation?
4. Hur snabbt var konserverings- eller museibranschens experter till personalens som gjorde räddningsarbeten förfogande gällande frågor av fast och löst kulturarvs räddningsarbeten.
5. Hurdana metoder använde räddningsmyndigheterna i räddningsarbeten av ert lösa och fasta kulturarv?

Allmänna frågor II

1. Vilka var primära skador eller hot av skada till fast och löst kulturarvssamlingar tillfogade av skedda olyckor?
2. Hurdana skador orsakade räddningsarbeten till samlingar omedelbart under olyckan eller då situationen redan lugnat sig ner?
3. Hurdana möjliga skador till era samlingar av fast eller löst kulturarv orsakade eftervårdsarbetet?
4. Kunde er organisation i förväg vara beredd på en sådan olycka som skedde?

Kartläggning av risker och planering av kontrollmetoder

1. Har den skedda olyckan påverkat arbetsmetoderna i er organisation gällande kartläggning av riskerna som riktar sig mot kulturarvssamlingar?
2. Jämför kartläggning av risker före olyckan och efter den.
3. Har den skedda olyckan påverkat planeringen av kontrollmetoderna för risker i er organisation?
4. Jämför planering av kontrollmetoder för risker i er organisation före och efter den skedda olyckan.

Skyddandet av verksamhetsutrymmen och verksamhetsmässiga ramar:

1. Har den skedda olyckan påverkat er organisations beredskap att uppehålla era kulturarvssamlingar bättre än tidigare i olika kris- och undantagsfall?

Skyddandet av samlingar:

1. Har den skedda olyckan påverkat räddningsplaneringsarbetet av era kulturarvssamlingar?
2. Jämför beredskapen av räddningsarbetet efter olyckor beträffande kulturarvssamlingar i er organisation mellan före och efter skedda olyckan.

Säkerhetsledning av organisation

1. Har skedd olycka påverkat säkerhetsledningen i er organisation?
2. Vilka personalgrupper deltar i planeringen av säkerhetsfrågor i er organisation?
3. Är säkerhetsfrågor en del av er organisations regelbundna strategi- och budgetplanering?

Fortlöpande planering av säkerhetsärenden:

1. Kartlägger man regelbundet i er organisation kulturarvssamlingars risker?
2. Bedöms regelbunden funktionsduglighet för ibrukvarande kontrollmetoder av risker?
3. Är planering av kontroll av risker riktade sig mot era kulturarvssamlingar en del av er organisations verksamhets vardag?

Interview questions for accident site owners

General questions I:

1. In your own words, describe the course of the accident at your organization's cultural heritage site.
2. How quickly was the rescue work on the immovable and movable cultural heritage achieved after the accident?
3. How quickly did the information about the accident reach your organization's own staff?
4. How quickly were conservation or museum experts available to rescue personnel on issues related to the rescue of immovable and movable cultural heritage?
5. What methods did the rescue authorities use to rescue your immovable and movable cultural heritage?

General questions II:

1. What were the primary damages or threats of damage to the collection of immovable and movable cultural heritage caused by the accident?
2. What kind of collection damage did the emergency rescue work cause immediately during the accident or after the situation had calmed down?
3. What kind of possible damage to the collection of movable or immovable cultural heritage was caused by the aftercare of the accident?
4. Did your organization know in advance to prepare for an accident like the one that happened?

Risk evaluation and design of management methods:

1. Has the accident affected your organization's working methods for evaluating the risks to your cultural heritage collections?
2. Compare risk evaluation methods before and after the accident.
3. Has the accident affected your organization's design of risk management methods?
4. Compare your organization's risk management design before and after the accident.

Protection of business premises and operational framework:

1. Has the accident affected your organization's ability to maintain your cultural heritage collections in different crisis and emergency situations?

Protecting collections:

1. Has the actual accident affected the rescue planning work of your cultural heritage collections?
2. Compare the capacity of your organization for the post-accident rescue work of your cultural heritage collections before and after the accident.

Organization security management:

1. Has the actual accident affected the safety management of your organization?
2. Which staff groups are involved in security planning at your organization?
3. Are security issues part of your organization's regular strategy and budget planning?

Continuous security planning:

1. Does your organization regularly carry out risk evaluation work on cultural heritage collections?
2. Is the effectiveness of the risk management methods in place at your organization regularly assessed?
3. Is risk management planning for your cultural heritage collections part of the day-to-day operations of your organization?

Attachment 2. Questions for the themed interviews with subject matter specialists / Fire and rescue services (in Finnish; translation in English below)

Asiantuntijoiden teemahaastattelut / Pelastusviranomaiset

Haastattelun teema: Palomiesten ammatilliset valmiudet suojella kulttuuriperintöä onnettomuustilanteissa?

Yleiset kysymykset I:

1. Mikä on näkemyksenne Suomessa työskentelevien palomiesten ammatillisista valmiuksista kulttuuriperintökokoelmien suojelu-, pelastus-, evakuointi- ja jälkihoitotyö toteuttamisessa erilaisissa onnettomuustilanteissa (vesivahingot, luonnonkatastrofit, räjähdysonnettomuudet ja tulipalot)?
2. Mistä arvioitte nykyisen valmiustason johtuvan?
3. Millä tavoin palomiesten ja muiden pelastustoimintaan keskeisesti osallistuvien henkilöiden koulutuksessa tai täydennyskoulutuksessa on kiinnitetty huomiota kulttuuriperinnön yhteiskunnalliseen merkitykseen sekä kulttuuriperintökokoelmien suojelu-, pelastus-, evakuointi- ja jälkihoitotyöhön onnettomuustilanteissa?
4. Millä tavoin palomiesten ja muun pelastushenkilöstön koulutusta on pyritty kehittämään kulttuuriomaisuuden suojelun osalta?

Yleiset kysymykset II:

1. Kuvailkaa omin sanoin kulttuuriperintökohteissa käytettyjä pelastustyön erityismenetelmiä vuosina 1990-2010 (vesivahingot, luonnonkatastrofit, räjähdysonnettomuudet ja tulipalot).
2. Millaisia kokemuksia näiden työmenetelmien käytöstä on ollut kulttuuriperintökohteiden ja -kokoelmien kannalta?
3. Millaisia vaikutuksia näille työmenetelmillä on ollut kulttuuriperintökokoelmille (ensisijaiset ja toissijaiset kokoelmavauriot)?
4. Pystytäänkö mielestänne pelastustöissä nykyisellään Suomessa huomioimaan kulttuuriperintökohteiden erityispiirteet pelastustyön menetelmiä valittaessa?
5. Pystytäänkö pelastustöiden toteuttamisessa käyttämään ja valitsemaan kulttuuriperinnön ennaltaehkäisevään konservointiin ja kokoelmavaurioiden minimointiin tähtäävät työmenetelmät? - Jos pystytään niin miten?
6. Mitä muuta tahtoisitte kertoa pelastustoimen mahdollisuuksista huomioida työskentelyssään kulttuuriomaisuuden suojeluun liittyvät kysymykset?

Expert thematic interviews/Rescue authorities

Interview theme: Professional capacity of firefighters to protect cultural heritage in the event of an accident

General questions I:

1. What is your view on the professional skills of firefighters working in Finland in carrying out protection, rescue, evacuation and aftercare work for cultural heritage collections in various accident situations (water damage, natural disasters, explosions and fires)?
2. What do you think is the current level of preparedness?
3. In the training or further training of firefighters and other persons involved in rescue operations, how has attention been paid to the social significance of cultural heritage and to the protection, rescue, evacuation and aftercare of cultural heritage collections in the event of an accident?
4. What efforts have been made to improve the training of firefighters and other rescue personnel in the protection of cultural property?

General questions II:

1. In your own words, describe the specific rescue methods used at cultural heritage sites between 1990 and 2010 (for situations such as water damage, natural disasters, explosions and fires).
2. What experience has there been with the use of these working methods in terms of cultural heritage sites and collections?
3. What impact have these working methods had on cultural heritage collections (primary and secondary collection damages)?
4. Do you think that rescue workers in Finland are currently able to consider the special features of cultural heritage sites when choosing rescue work methods?
5. Is it possible to use and choose working methods for the preventive conservation of cultural heritage and the minimization of damage to collections in the implementation of rescue work? If so, how?
6. What else would you like to say about the possibilities of rescue work to consider issues related to the protection of cultural property?

Attachment 3. Questions for the themed interviews with subject matter specialists / Police (in Finnish; translation in English below)

Asiantuntijoiden teemahaastattelut / Poliisi

Haastattelun teema: Poliisin ammatilliset valmiudet suojella kulttuuriperintöä varkauksilta, ilkivallalta ja tuhotöitä?

Yleiset kysymykset I:

1. Mikä on näkemyksenne Poliisin resursseista ja valmiuksista suojella ennakoivasti kulttuuriperintökohteita ja –kokoelmia rikoksilta kuten varkauksilta, ilkivallalta ja tuhotöiltä?
2. Mistä arvioitte nykyisen valmiustason johtuvan?
3. Mistä mielestänne johtuu tietoinen kulttuuriperintöön kohdistuva rikollisuus: eriteltynä vastaus 1. varkaudet, 2. ilkivalta ja 3. tuhotyöt?
4. Millainen mielestänne on kulttuuriperinnön omistajien roolin varkauksia, ilkivaltaa ja tuhotöitä ehkäisevässä työssä?
5. Millä tavoin poliisien koulutuksessa tai täydennyskoulutuksessa on kiinnitetty huomiota kulttuuriperinnön yhteiskunnalliseen merkitykseen sekä kulttuuriperintökokoelmien suojelua koskeviin kysymyksiin?
6. Millä tavoin poliisien koulutusta on pyritty kehittämään kulttuuriomaisuuden suojelun osalta?
7. Mitä muuta tahdotte kertoa Poliisien ammatillisista valmiuksista Kulttuuriperintöön kohdistuvien rikoksien torjunnassa?

Yleiset kysymykset II:

1. Kuvailkaa omin sanoin millaista kulttuuriperintöön kohdistuva rikollisuus on ollut Suomessa vuosina 1990-2010 (esim. varkaudet, ilkivalta ja tuhotyöt).
2. Mihin suuntaan mielestänne kulttuuriperintöön kohdistuva rikollisuus on Suomessa menossa?
3. Miten mielestänne voitaisiin ehkäistä tehokkaimmin Suomessa kulttuuriesineiden varkauksia?
4. Miten mielestänne voitaisiin ehkäistä tehokkaimmin Suomessa kulttuuriperintöön kohdistuvaa ilkivaltaa?
5. Miten mielestänne voitaisiin ehkäistä tehokkaimmin Suomessa kulttuuriperintöön kohdistuvat tuhotyöt?
6. Mitä muuta tahtoisitte kertoa pelastustoimen mahdollisuuksista huomioida työskentelyssään kulttuuriomaisuuden suojeluun liittyvät kysymykset?

Expert thematic interviews/Police

Interview theme: The professional capacity of the police to protect cultural heritage from theft, vandalism and destruction

General questions I:

1. What is your view on the police's resources and capacity to proactively protect cultural heritage sites and collections from crimes such as theft, vandalism and destruction?
2. What do you think is the current level of preparedness?
3. What do you think is the cause of deliberate crime against cultural heritage: 1. theft, 2. vandalism or 3. destruction?
4. What do you think is the role of heritage owners in preventing theft, vandalism and destruction?
5. How has the social significance and protection of cultural heritage collections been addressed in police training or in-service training?
6. How has police training been developed with regard to the protection of cultural property?
7. What else do you want to say about the professional capacity of the police in the fight against cultural heritage crime?

General questions II:

1. In your own words, describe what kind of crime against cultural heritage was committed in Finland between 1990 and 2010 (e.g., theft, vandalism and destruction)?
2. In what direction do you think crime against cultural heritage is going in Finland?
3. How do you think theft of cultural objects could be most effectively prevented in Finland?
4. What do you think is the most effective way to prevent vandalism against cultural heritage in Finland?
5. What do you think is the most effective way to prevent destruction of cultural heritage in Finland?
6. What else would you like to say about the possibilities of rescue work to consider issues related to the protection of cultural property?

Attachment 4. Questions for the themed interviews with subject matter specialists / Social and criminal psychology (in Finnish; translation in English below)

Asiantuntijoiden teemahaastattelut / Sosiaali- ja kriminaalipsykologinen näkökulma

Haastattelun teema: Kulttuuriperintöön kohdistuvien rikoksien ennalta ehkäisemisen mahdollisuudet?

Yleiset kysymykset I:

1. Mistä mielestänne johtuu tietoinen kulttuuriperintöön kohdistuva rikollisuus: eriteltynä vastaus 1. varkaudet, 2. ilkivalta ja 3. tuhotyöt?
2. Millaiset motiivit ovat käsityksenne mukaan taustalla kulttuuriperintöön kohdistuvassa rikollisuudessa: eriteltynä vastaus 1. varkaudet, 2. ilkivalta ja 3. tuhotyöt?
3. Millaiset psykologiset tekijät mielestänne lisäävät tai vähentävät kulttuuriperintöön kohdistuvaa rikollisuutta? Eriteltynä vastaus 1. varkaudet, 2. ilkivalta ja 3. tuhotyöt?
4. Millaiset sosiaaliset tekijät mielestänne yhteiskunnassamme lisäävät tai vähentävät kulttuuriperintöön kohdistuvaa rikollisuutta? Eriteltynä vastaus 1. varkaudet, 2. ilkivalta ja 3. tuhotyöt?
5. Millaiset yhteiskunnalliset tekijät Suomessa lisäävät tai vähentävät kulttuuriperintöön kohdistuvaa rikollisuutta? Eriteltynä vastaus 1. varkaudet, 2. ilkivalta ja 3. tuhotyöt?
6. Mitä muuta tahdotte kertoa Kulttuuriperintöön kohdistuvan rikollisuuden erityispiirteistä?

Yleiset kysymykset II:

1. Kuvailkaa omin sanoin millaista kulttuuriperintöön kohdistuva rikollisuus on ollut Suomessa vuosina 1990-2010 (esim. varkaudet, ilkivalta ja tuhotyöt).
2. Mihin suuntaan mielestänne kulttuuriperintöön kohdistuva rikollisuus on Suomessa menossa?
3. Voidaanko mielestänne kulttuuriperintöön kohdistuvaa rikollisuutta ehkäistä: eriteltynä vastaus 1. varkaudet, 2. ilkivalta ja 3. tuhotyöt?
4. Millaisin psykologisin tekijöin mielestänne voitaisiin ehkäistä kulttuuriperintöön kohdistuvaa rikollisuutta? Eriteltynä vastaus 1. varkaudet, 2. ilkivalta ja 3. tuhotyöt?
5. Millaisia sosiaalisia rakenteita tukemalla mielestänne yhteiskunnassamme voitaisiin ehkäistä kulttuuriperintöön kohdistuvaa rikollisuutta? Eriteltynä vastaus 1. varkaudet, 2. ilkivalta ja 3. tuhotyöt?
6. Millaisin yhteiskunnallisin tekijöin ja/tai rakentein Suomessa voitaisiin ehkäistä kulttuuriperintöön kohdistuvaa rikollisuutta? Eriteltynä vastaus 1. varkaudet, 2. ilkivalta ja 3. tuhotyöt?

Expert thematic interviews/Social and criminal psychological perspective

Interview theme: Possibilities for the prevention of cultural heritage crimes

General questions I:

1. What do you think is the cause of deliberate crime against cultural heritage: 1. theft, 2. vandalism or 3. destruction?
2. What do you think are the underlying motives for cultural heritage crime: 1. theft, 2. vandalism and 3. destruction?
3. What psychological factors do you think increase or decrease cultural heritage crime: 1. theft, 2. vandalism and 3. destruction?
4. What social factors do you think increase or decrease cultural heritage crime in our society: 1. theft, 2. vandalism and 3. destruction?
5. What social factors in Finland increase or decrease crime against cultural heritage: 1. theft, 2. vandalism and 3. destruction?
6. What else do you want to say about the specificities of cultural heritage crime?

General questions II:

1. In your own words, describe what kind of crime against cultural heritage was committed in Finland between 1990 and 2010 (e.g., theft, vandalism and destruction).
2. In what direction do you think crime against cultural heritage is going in Finland?
3. Do you think that crime against cultural heritage can be prevented: 1. theft, 2. vandalism and 3. destruction?
4. What psychological factors do you think could be used to prevent cultural heritage crime: 1. theft, 2. vandalism and 3. destruction?
5. What kind of social structures do you think could be used to prevent cultural heritage crime in our society: 1. theft, 2. vandalism and 3. destruction?
6. What social factors and/or structures could be used to prevent cultural heritage crime in Finland: 1. theft, 2. vandalism and 3. destruction?

Attachment 5. Questions for the themed interviews with subject matter specialists / Heritage authorities (in Finnish; translation in English below)

Asiantuntijoiden teemahaastattelut / Kulttuuriperintöviranomaiset

Haastattelun teema: Viranomaisohjaus kulttuuriperintökokoelmien suojelu-, pelastus-, evakuointi- ja jälkihoitotyössä?

Haastateltavat tahot, joihin lähetetty haastattelupyyntö:
1. Museovirasto: Museoviraston kehittämisyksikkö ja/tai Museoviraston Rakennushistorian osasto
2. Valtion taidemuseo: Kehys
3. Kansallisarkisto
4. Kansalliskirjasto
5. Suomen evankelisluterilaisen kirkon kirkkohallitus
6. Ortodoksinen kirkkomuseo

Yleiset kysymykset I:
1. Kuvailkaa omin sanoin organisaationne roolia kulttuuriperintökokoelmien suojelu-, pelastus-, evakuointi- ja jälkihoitotyön ohjaamista ja ohjeistamista koskevissa asioissa.
2. Kuinka pitkään organisaationne on antanut kulttuuriperintöön ja kokoelmien suojeluun liittyviä ohjeita toimintakentällänne?
3. Onko viranomaisohjauksen kehittäminen ollut suunnitelmallista ja säännöllisesti päivittyvää vai ovatko käytännön onnettomuuksista nousseet kehittämistarpeet johtaneet ohjaustoiminnan kehittämiseen?
4. Kuinka usein keskimäärin organisaationne pyrkii tiedottamaan kokoelmien suojeluun liittyvistä asioista toimialueensa kulttuuriperintökokoelmien omistajia?
5. Kuinka usein ja millaista palautetta saatte toimialueenne kulttuuriperintökokoelmien omistajilta antamistanne kokoelmien suojeluohjeista?
6. Onko saatu palaute johtanut ohjeistusten muuttamiseen?

Yleiset kysymykset II:
1. Kuinka paljon organisaationne antamat ohjeet ja suositukset ottavat kantaa käytännön tason kokoelmien suojelu-, pelastus-, evakuointi- ja jälkihoitotyön menetelmiin?
2. Onko pelastustyön ohjeissa huomioitu ennaltaehkäisevän konservointiin ja kokoelmavaurioiden minimointiin tähtäävät työmenetelmät?
3. Mitä muuta tahtoisitte kertoa organisaationne kulttuuriomaisuuden suojeluun liittyvästä viranomaisohjauksesta ja sen painotuksista?

Expert thematic interviews/Cultural heritage authorities

Interview theme: Authority guidance in the protection, rescue, evacuation and aftercare of cultural heritage collections

Organizations to whom the interview request was sent:
1. Finnish Heritage Agency: The Development Unit and/or Department of Building History
2. Finnish National Gallery: FRAME
3. The National Archives of Finland
4. The National Library of Finland
5. Church Council of the Evangelical Lutheran Church of Finland
6. Orthodox Church Museum

General questions I:
1. In your own words, describe the role of your organization in guiding and instructing the protection, rescue, evacuation and aftercare of cultural heritage collections.
2. For how long has your organization provided guidance on cultural heritage and the protection of collections in your field?
3. Has the development of regulatory guidance been planned and regularly updated, or have development needs arising from practical accidents led to the development of guidance?
4. On average, how often does your organization seek to inform the owners of the cultural heritage collections in your area of issues related to the protection of collections?
5. How often and what kind of feedback do you receive on the collection protection guidelines you give to the owners of the cultural heritage collections in your area?
6. Has the feedback received led to a change in the guidelines?

General questions II:
1. To what extent do the instructions and recommendations given by your organization take a position on practical methods for the protection, rescue, evacuation and aftercare of collections?
2. Do the rescue instructions consider working methods aimed at preventive conservation and minimizing collection damage?
3. What else would you like to say about your organization's guidance on the protection of cultural property and its priorities?

Attachment 6. Statistical data used in ordered analysis/Population

TABLE 3 Table prepared and given to Aki Niemi for figure making[751]

Population in Finland between years 1990 and 2010

Year	Entire Finland	Helsinki	Vantaa	Jyväskylä	Kotka	Lempäälä	Maarianhamina	Mikkeli	Porvoo	Sastamala	Turku
1990	4998478	492400	154933	103921	56634	14564	10263	54404	41930	27085	159180
1991	5029002	497542	157274	105037	56515	14767	10310	54742	42361	27171	159403
1992	5054982	501514	159213	106233	56462	14892	10338	54982	42649	27200	159916
1993	5077912	508588	161103	107103	56267	15106	10406	55198	42868	27102	160390
1994	5098754	515765	164376	108471	56087	15272	10429	55386	43050	26954	162370
1995	5116826	525031	166480	109657	55903	15395	10418	55563	43315	26785	164744
1996	5132320	532053	168778	111099	56009	15386	10399	55472	43656	26593	166929
1997	5147349	539363	171297	112353	55769	15568	10408	55424	43791	26506	168772
1998	5159646	546317	173860	113478	55551	15705	10534	55303	44142	26387	170931
1999	5171302	551123	176386	114848	55238	15964	10492	55212	44616	26358	172107
2000	5181115	555474	178471	116519	54846	16331	10488	55222	44969	26195	172561
2001	5194901	559718	179856	118380	54768	16761	10609	55074	45403	26016	173686
2002	5206295	559716	181890	119620	54622	17098	10632	54908	45730	25857	174618
2003	5219732	559330	184039	121245	54618	17397	10626	54826	46217	25865	175059
2004	5236611	559046	185429	122974	54759	17733	10712	54760	46793	25863	174824
2005	5255580	560905	187281	124205	54838	18248	10780	54728	46982	25847	174868
2006	5276955	564521	189711	125221	54607	18702	10824	54719	47404	25848	175354
2007	5300484	568531	192522	126546	54679	19271	10902	54521	47832	25893	175286
2008	5326314	576632	195397	128028	54694	19753	11005	54440	48227	25813	175582
2009	5351427	583350	197636	129623	54775	20178	11123	54435	48599	25746	176087
2010	5375276	588549	200055	130816	54824	20588	11190	54455	48768	25764	177326

The population of Finland and the regions where heritage vandalism cases have occurred between 1990 and 2010.

[751] Statistics Finland 2015, database. http://tilastokeskus.fi/til/oik.html

Attachment 7. Statistical data used in ordered analysis/Criminal damage crimes

TABLE 4 Table prepared and given to Aki Niemi for figure making[752]

Criminal damage crimes reported by Police in 1990-2010 (vahingontekorikokset)

Year	Entire Finland	Helsinki	Vantaa	Jyväskylä	Kotka	Lempäälä	Maarianhamina	Mikkeli	Porvoo	Sastamala	Turku
1990	46835	7193	2103	835	716	80	313	382	322	171	1984
1991	47123	7897	2114	834	648	79	298	335	341	214	1985
1992	43618	6847	1685	834	842	96	286	356	310	163	2026
1993	41939	6317	1389	862	841	63	269	273	295	238	1904
1994	42206	6032	1459	867	821	72	303	316	338	153	1923
1995	42393	6143	1438	1030	794	75	299	392	294	161	1927
1996	41218	6201	1524	1091	697	68	232	331	435	154	1890
1997	40693	6899	1523	958	646	56	214	309	380	163	1788
1998	41761	6842	1809	976	569	103	264	382	315	176	1916
1999	44924	8185	2214	925	550	112	265	349	363	163	1678
2000	50465	8983	2820	1136	655	92	246	314	352	190	1928
2001	47401	8105	2553	1086	700	75	204	367	366	176	1971
2002	46297	8451	2347	1068	669	86	292	347	374	166	1789
2003	48360	8451	2347	1068	669	86	292	347	374	166	1789
2004	50213	10012	2482	1022	658	108	239	411	403	185	1964
2005	50304	9034	2449	996	671	129	236	414	399	166	2381
2006	48360	8520	2372	1097	571	102	224	409	400	169	2066
2007	53875	9519	2860	1372	606	102	262	388	590	141	2551
2008	56566	11337	3218	1496	725	110	241	547	571	152	2286
2009	50709	8881	2628	1269	636	108	231	491	506	141	2060
2010	49160	11117	2703	1290	515	104	188	436	423	153	1804

Criminal damage crimes recorded by the police.

[752] Statistics Finland 2015, database. http://tilastokeskus.fi/til/oik.html

Attachment 8. Statistical data used in ordered analysis/Serious sabotage crimes

TABLE 5 Table prepared and given to Aki Niemi for figure making[753]

Serious sabotage crimes reported by Finnish police in 1990-2010

Year	1. Entire Finland	1. Helsinki	1. Vantaa	1. Jyväskylä	1. Kotka	1. Lempäälä	1. Maarianhamina	1. Mikkeli	1. Porvoo	1. Sastamala	1. Turku
1990	559	76	34	9	7	1	0	10	0	5	16
1991	589	69	40	10	5	6	1	7	11	12	19
1992	491	35	30	13	4	4	0	10	2	2	12
1993	468	25	14	9	4	0	1	9	1	3	6
1994	484	38	20	8	10	0	3	9	1	0	12
1995	546	55	35	7	12	1	3	7	2	1	18
1996	743	76	35	18	9	2	1	19	14	9	19
1997	705	59	33	22	9	1	1	5	9	7	15
1998	653	57	49	4	9	3	5	3	17	4	27
1999	574	47	31	13	10	2	3	2	12	2	46
2000	579	44	31	9	6	3	3	8	0	0	16
2001	520	29	23	20	11	0	3	8	12	1	27
2002	490	27	16	14	8	0	1	2	6	2	25
2003	502	22	26	11	3	0	0	1	7	0	31
2004	426	11	10	6	2	1	2	4	7	2	30
2005	394	19	9	4	3	1	4	3	23	0	18
2006	366	15	14	7	19	0	2	4	4	2	20
2007	356	13	16	9	4	0	1	2	10	1	30
2008	380	19	9	9	6	2	1	0	3	0	24
2009	330	13	7	8	9	2	1	2	1	0	26
2010	264	12	9	3	3	2	0	8	5	1	21

Serious sabotage crimes recorded by the police.

[753] Statistics Finland 2015, database. http://tilastokeskus.fi/til/oik.html

Attachment 9. Statistical data used in ordered analysis/Attempted serious sabotage crimes in disaster regions and the whole of Finland

TABLE 6 Table prepared and given to Aki Niemi for figure making[754]

Attempted serious sabotage crimes reported by Finnish police in 1990-2010

Year	2. Entire Finland	2. Helsinki	2. Vantaa	2. Jyväskylä	2. Kotka	2. Lempäälä	2. Maarianhamina	2. Mikkeli	2. Porvoo	2. Sastamala	2. Turku
1990	237	47	3	1	1	0	0	2	0	1	13
1991	183	22	13	0	4	0	1	1	1	2	12
1992	151	18	7	5	1	0	2	3	0	1	7
1993	168	13	7	3	3	0	0	3	1	0	5
1994	179	28	8	4	8	0	0	3	0	1	3
1995	173	19	8	2	3	1	0	2	2	1	7
1996	167	17	7	2	15	0	1	3	1	1	2
1997	204	17	3	2	9	0	0	0	2	0	5
1998	179	19	9	2	1	1	0	0	5	1	6
1999	182	20	7	2	2	0	0	0	1	1	9
2000	227	28	10	8	2	0	2	3	0	2	11
2001	201	19	8	4	4	0	1	1	2	1	7
2002	212	19	13	1	3	0	0	1	5	0	10
2003	206	20	12	0	4	1	0	1	2	1	7
2004	182	7	7	3	1	0	2	1	0	0	17
2005	170	15	7	3	3	0	1	3	4	4	3
2006	179	15	2	2	7	1	0	3	4	1	7
2007	185	15	3	5	4	2	0	0	3	1	24
2008	208	18	0	8	1	3	0	4	5	1	11
2009	175	14	3	1	1	2	0	2	0	2	10
2010	159	17	4	3	2	2	0	1	0	4	10

Attempted serious sabotage crimes recorded by the police.

754 Statistics Finland 2015, database. http://tilastokeskus.fi/til/oik.html

Attachment 10. Statistical data used in ordered analysis/Population in six disaster regions and six reference regions

TABLE 7 Table prepared and given to Aki Niemi for figure making[755]

Population in six disaster regions and six reference regions between years 1990 and 2010

Year	Vantaa	Reference 1: Espoo	Jyväskylä	Reference 2: Kuopio	Porvoo	Reference 3: Loviisa	Lempäälä	Reference 4: Akaa	Sastamala	Reference 5: Hämeenkyrö	Turku	Reference 6: Tampere
1990	154933	172 629	103921	93 960	41930	16 970	14564	16 048	27085	9 511	159180	172 560
1991	157274	175 670	105037	94 944	42361	16 934	14767	16 096	27171	9 505	159403	173 797
1992	159213	179 054	106233	95 783	42649	16 856	14892	16 201	27200	9 616	159916	174 859
1993	161103	182 647	107103	96 439	42868	16 676	15106	16 142	27102	9 677	160390	176 149
1994	164376	186 507	108471	97 184	43050	16 517	15272	16 038	26954	9 676	162370	179 251
1995	166480	191 247	109657	97 835	43315	16 347	15395	15 986	26785	9 736	164744	182 742
1996	168778	196 260	111099	98 207	43656	16 219	15386	15 924	26593	9 722	166929	186 026
1997	171297	200 834	112353	98 713	43791	16 075	15568	15 840	26506	9 806	168772	188 726
1998	173860	204 962	113478	98 906	44142	16 022	15705	15 857	26387	9 881	170931	191 254
1999	176386	209 667	114848	99 115	44616	15 920	15964	15 954	26358	9 904	172107	193 174
2000	178471	213 271	116519	99 109	44969	15 833	16331	15 945	26195	9 897	172561	195 468
2001	179856	216 836	118380	99 658	45403	15 712	16761	16 022	26016	9 915	173686	197 774
2002	181890	221 597	119620	99 991	45730	15 659	17098	16 117	25857	9 939	174618	199 823
2003	184039	224 231	121245	100 381	46217	15 633	17397	16 269	25865	10 009	175059	200 966
2004	185429	227 472	122974	100 610	46793	15 668	17733	16 324	25863	10 089	174824	202 932
2005	187281	231 704	124205	100 844	46982	15 683	18248	16 422	25847	10 186	174868	204 337
2006	189711	235 019	125221	101 056	47404	15 749	18702	16 586	25848	10 238	175354	206 368
2007	192522	238 047	126546	101 375	47832	15 765	19271	16 738	25893	10 276	175286	207 866
2008	195397	241 565	128028	101 989	48227	15 694	19753	16 837	25813	10 327	175582	209 552
2009	197636	244 330	129623	102 656	48599	15 549	20178	16 858	25746	10 436	176087	211 507
2010	200055	247 970	130816	103 333	48768	15 595	20588	17 012	25764	10 489	177326	213 217

Population of six disaster site regions and six reference regions.

[755] Statistics Finland 2015, database. http://tilastokeskus.fi/til/oik.html

Attachment 11. Statistical data used in ordered analysis/Criminal damage crimes in six disaster regions and six reference regions

TABLE 8 Table prepared and given to Aki Niemi for figure making[756]

Criminal damage crimes reported by Police in 1990-2010 in entire Finland and six disaster regions compared with nearby six reference regions (vahingontekorikokset)

Year	Entire Finland	Vantaa	Reference 1: Espoo	Jyväskylä	Reference 2: Kuopio	Lempäälä	Reference 4: Akaa	Porvoo	Reference 3: Loviisa	Sastamala	Reference 5: Hämeenkyrö	Turku	Reference 6: Tampere
1990	46835	2103	1 547	835	1 177	80	164	322	205	171	72	1984	1 432
1991	47123	2114	1 323	834	964	79	128	341	118	214	77	1985	1 442
1992	43618	1685	1 270	834	998	96	126	310	147	163	74	2026	1 264
1993	41939	1389	1 238	862	1 054	63	142	295	133	238	77	1904	1 262
1994	42206	1459	1 260	867	944	72	153	338	131	153	59	1923	1 333
1995	42393	1438	1 343	1030	976	75	111	294	104	161	74	1927	1 284
1996	41218	1524	1 488	1091	985	68	109	435	168	154	64	1890	1 237
1997	40693	1523	1 619	958	833	56	114	380	140	163	80	1788	1 327
1998	41761	1809	1 648	976	861	103	89	315	152	176	78	1916	1 493
1999	44924	2214	1 585	925	827	112	102	363	138	163	89	1678	1 956
2000	50465	2820	2 139	1136	1 001	92	153	352	119	190	94	1928	1 734
2001	47401	2553	2 293	1086	919	75	122	366	117	176	88	1971	1 645
2002	46297	2347	1 961	1068	893	86	122	374	122	166	72	1789	1 665
2003	48360	2347	2 166	1068	900	86	124	374	141	166	67	1789	1 773
2004	50213	2482	2 053	1022	979	108	158	403	101	185	65	1964	1 955
2005	50304	2449	2 302	996	929	129	124	399	145	166	35	2381	2 120
2006	48360	2372	1 907	1097	1 073	102	92	400	114	169	64	2066	2 343
2007	53875	2860	2 262	1372	981	102	136	590	182	141	52	2551	2 275
2008	56566	3218	2 114	1496	926	110	150	571	139	152	76	2286	2 156
2009	50709	2628	1 949	1269	1 066	108	104	506	134	141	77	2060	1 971
2010	49160	2703	1 887	1290	994	104	134	423	132	153	67	1804	2 419

Criminal damage crimes of six disaster site regions and six reference regions recorded by the police.

[756] Statistics Finland 2015, database. http://tilastokeskus.fi/til/oik.html

Attachment 12. Statistical data used in ordered analysis/Serious sabotage (1.) and attempted serious sabotage (2.) crimes in Vantaa and its reference region Espoo

TABLE 9 Table prepared and given to Aki Niemi for figure making[757]

Serious sabotage and sabotage attempt crimes in disaster region and its nearby reference region: Vantaa and Espoo

Year	1. Vantaa	2. Vantaa	Reference 1: 1. Espoo	Reference 1: 2. Espoo
1990	34	3	13	12
1991	40	13	10	5
1992	30	7	33	9
1993	14	7	26	9
1994	20	8	32	4
1995	35	8	35	10
1996	35	7	19	5
1997	33	3	34	14
1998	49	9	30	10
1999	31	7	18	7
2000	31	10	20	7
2001	23	8	24	8
2002	16	13	19	14
2003	26	12	27	11
2004	10	7	46	14
2005	9	7	12	12
2006	14	2	14	7
2007	16	3	15	6
2008	9	0	25	18
2009	7	3	10	11
2010	9	4	5	4

Serious sabotage (1.) and attempted serious sabotage (2.) crimes recorded by the police in Vantaa and its reference region Espoo.

[757] Statistics Finland 2015, database. http://tilastokeskus.fi/til/oik.html

Attachment 13. Statistical data used in ordered analysis/Serious sabotage (1.) and attempted serious sabotage (2.) crimes in Jyväskylä and its reference region Kuopio

TABLE 10 Table prepared and given to Aki Niemi for figure making[758]

Serious sabotage and sabotage attempt crimes in disaster region and its nearby reference region: Jyväskylä and Kuopio

Year	1. Jyväskylä	2. Jyväskylä	Reference 1: 1. Kuopio	Reference: 2. Kuopio
1990	9	1	20	2
1991	10	0	17	5
1992	13	5	9	4
1993	9	3	15	6
1994	8	4	7	2
1995	7	2	11	2
1996	18	2	3	1
1997	22	2	6	1
1998	4	2	3	1
1999	13	2	2	2
2000	9	8	6	1
2001	20	4	2	3
2002	14	1	2	3
2003	11	0	0	1
2004	6	3	3	1
2005	4	3	1	1
2006	7	2	5	1
2007	9	5	0	2
2008	9	8	5	3
2009	8	1	4	1
2010	3	3	1	0

Serious sabotage (1.) and attempted serious sabotage (2.) crimes recorded by the police in Jyväskylä and its reference region Kuopio.

[758] Statistics Finland 2015, database. http://tilastokeskus.fi/til/oik.html

Attachment 14. Statistical data used in ordered analysis/Serious sabotage (1.) and attempted serious sabotage (2.) crimes in Lempäälä and its reference region Akaa

TABLE 11 Table prepared and given to Aki Niemi for figure making[759]

Serious sabotage and sabotage attempt crimes in disaster region and its nearby reference region: Lempäälä and Akaa

Year	1. Lempäälä	2. Lempäälä	Reference: 1. Akaa	Reference: 2. Akaa
1990	1	0	0	0
1991	6	0	1	0
1992	4	0	0	0
1993	0	0	5	1
1994	0	0	5	2
1995	1	1	0	0
1996	2	0	1	0
1997	1	0	3	0
1998	3	1	3	0
1999	2	0	1	2
2000	3	0	4	1
2001	0	0	0	0
2002	0	0	6	0
2003	0	1	7	1
2004	1	0	0	0
2005	1	0	1	0
2006	0	1	1	1
2007	0	2	1	0
2008	2	3	0	1
2009	2	2	2	1
2010	2	2	1	2

Serious sabotage (1.) and attempted serious sabotage (2.) crimes recorded by the police in Lempäälä and its reference region Akaa.

[759] Statistics Finland 2015, database. http://tilastokeskus.fi/til/oik.html

Attachment 15. Statistical data used in ordered analysis/Serious sabotage (1.) and attempted serious sabotage (2.) crimes in Porvoo and its reference region Loviisa

TABLE 12 Table prepared and given to Aki Niemi for figure making[760]

Serious sabotage and sabotage attempt crimes in disaster region and its nearby reference region: Porvoo and Loviisa

Year	1. Porvoo	2. Porvoo	Reference: 1. Loviisa	Reference: 2. Loviisa
1990	0	0	4	1
1991	11	1	4	0
1992	2	0	2	1
1993	1	1	6	0
1994	1	0	4	2
1995	2	2	7	1
1996	14	1	3	0
1997	9	2	3	1
1998	17	5	7	0
1999	12	1	4	0
2000	0	0	4	0
2001	12	2	2	3
2002	6	5	5	2
2003	7	2	4	1
2004	7	0	0	1
2005	23	4	2	0
2006	4	4	2	1
2007	10	3	0	0
2008	3	5	0	0
2009	1	0	2	0
2010	5	0	0	2

Serious sabotage (1.) and attempted serious sabotage (2.) crimes recorded by the police in Porvoo and its reference region Loviisa.

[760] Statistics Finland 2015, database. http://tilastokeskus.fi/til/oik.html

Attachment 16. Statistical data used in ordered analysis/Serious sabotage (1.) and attempted serious sabotage (2.) crimes in Sastamala and its reference region Hämeenkyrö

TABLE 13 Table prepared and given to Aki Niemi for figure making[761]

Serious sabotage and sabotage attempt crimes in disaster region and its nearby reference region: Sastamala and Hämeenkyrö

Year	1. Sastamala	2. Sastamala	Reference: 1. Hämeenkyrö	Reference: 2. Hämeenkyrö
1990	5	1	0	0
1991	12	2	2	1
1992	2	1	0	0
1993	3	0	0	0
1994	0	1	0	1
1995	1	1	1	0
1996	9	1	1	0
1997	7	0	0	1
1998	4	1	0	0
1999	2	1	0	0
2000	0	2	0	1
2001	1	1	1	0
2002	2	0	2	0
2003	0	1	0	0
2004	2	0	0	0
2005	0	4	0	0
2006	2	1	1	0
2007	1	1	0	0
2008	0	1	0	0
2009	0	2	0	0
2010	1	4	2	1

Serious sabotage (1.) and attempted serious sabotage (2.) crimes recorded by the police in Sastamala and its reference region Hämeenkyrö.

[761] Statistics Finland 2015, database. http://tilastokeskus.fi/til/oik.html

Attachment 17. Statistical data used in ordered analysis/Serious sabotage (1.) and attempted serious sabotage (2.) crimes in Turku and its reference region Tampere

TABLE 14 Table prepared and given to Aki Niemi for figure making[762]

Serious sabotage and sabotage attempt crimes in disaster region and its nearby reference region: Turku and Tampere

Year	1. Turku	2. Turku	Reference: 1. Tampere	Reference: 2. Tampere
1990	16	13	19	0
1991	19	12	16	2
1992	12	7	17	3
1993	6	5	16	4
1994	12	3	14	2
1995	18	7	14	8
1996	19	2	10	1
1997	15	5	20	6
1998	27	6	13	3
1999	46	9	25	10
2000	16	11	27	5
2001	27	7	14	7
2002	25	10	27	8
2003	31	7	23	6
2004	30	17	19	10
2005	18	3	23	2
2006	20	7	19	9
2007	30	24	30	6
2008	24	11	20	8
2009	26	10	12	15
2010	21	10	32	7

Serious sabotage (1.) and attempted serious sabotage (2.) crimes recorded by the police in Turku and its reference region Tampere.

[762] Statistics Finland 2015, database. http://tilastokeskus.fi/til/oik.html

Attachment 18. Aki Niemi's figure illustrating the number of criminal damage crimes in Jyväskylä, its reference region Kuopio, and the whole of Finland.

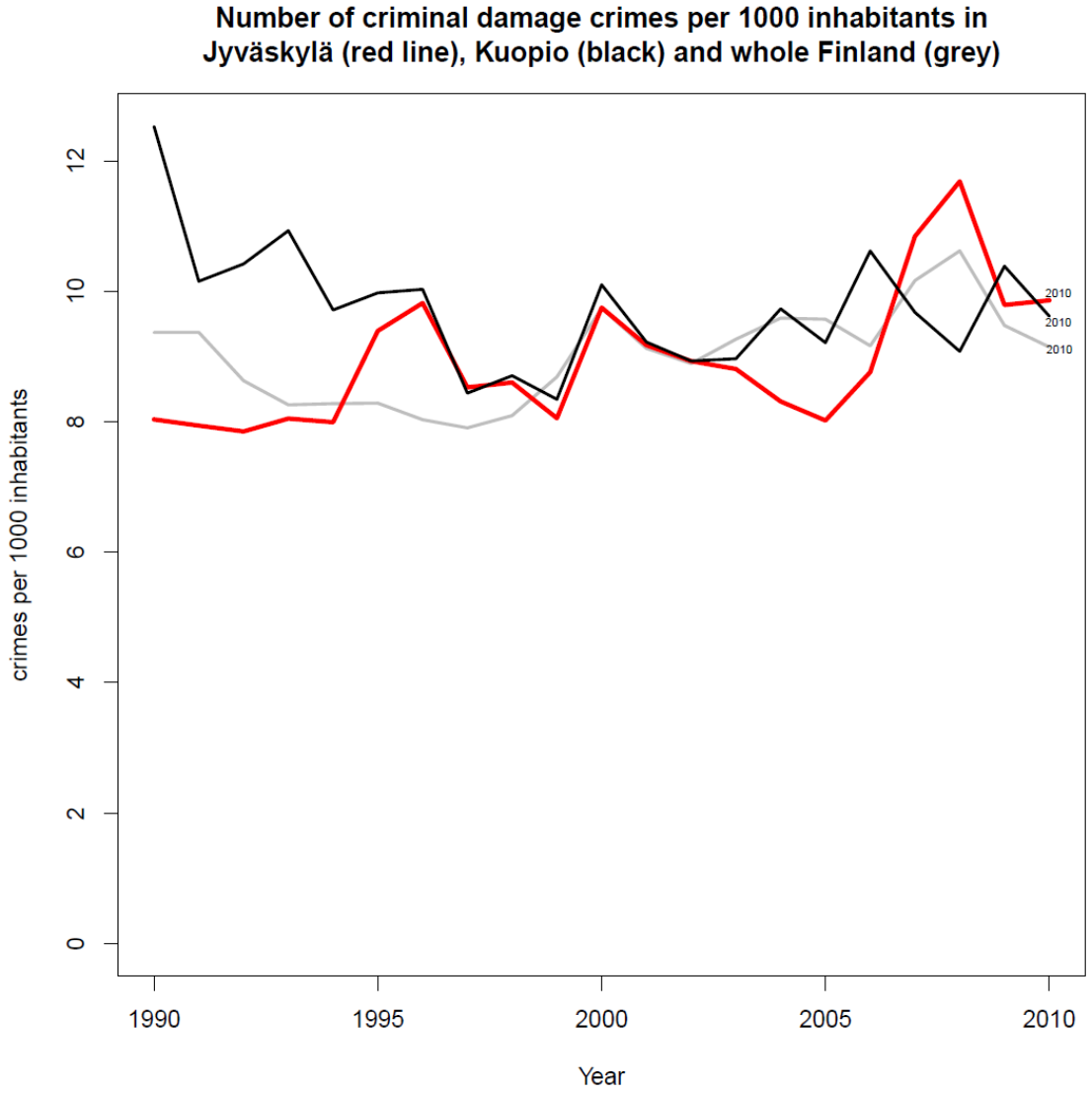

FIGURE 43 The number of criminal damage crimes in Jyväskylä, its reference region Kuopio, and the whole of Finland.[763] Figure: Aki Niemi 2017.

[763] Statistics Finland 2015, database. http://tilastokeskus.fi/til/oik.html

Attachment 19. Aki Niemi's figure illustrating the number of criminal damage crimes in Turku, its reference region Tampere, and the whole of Finland.

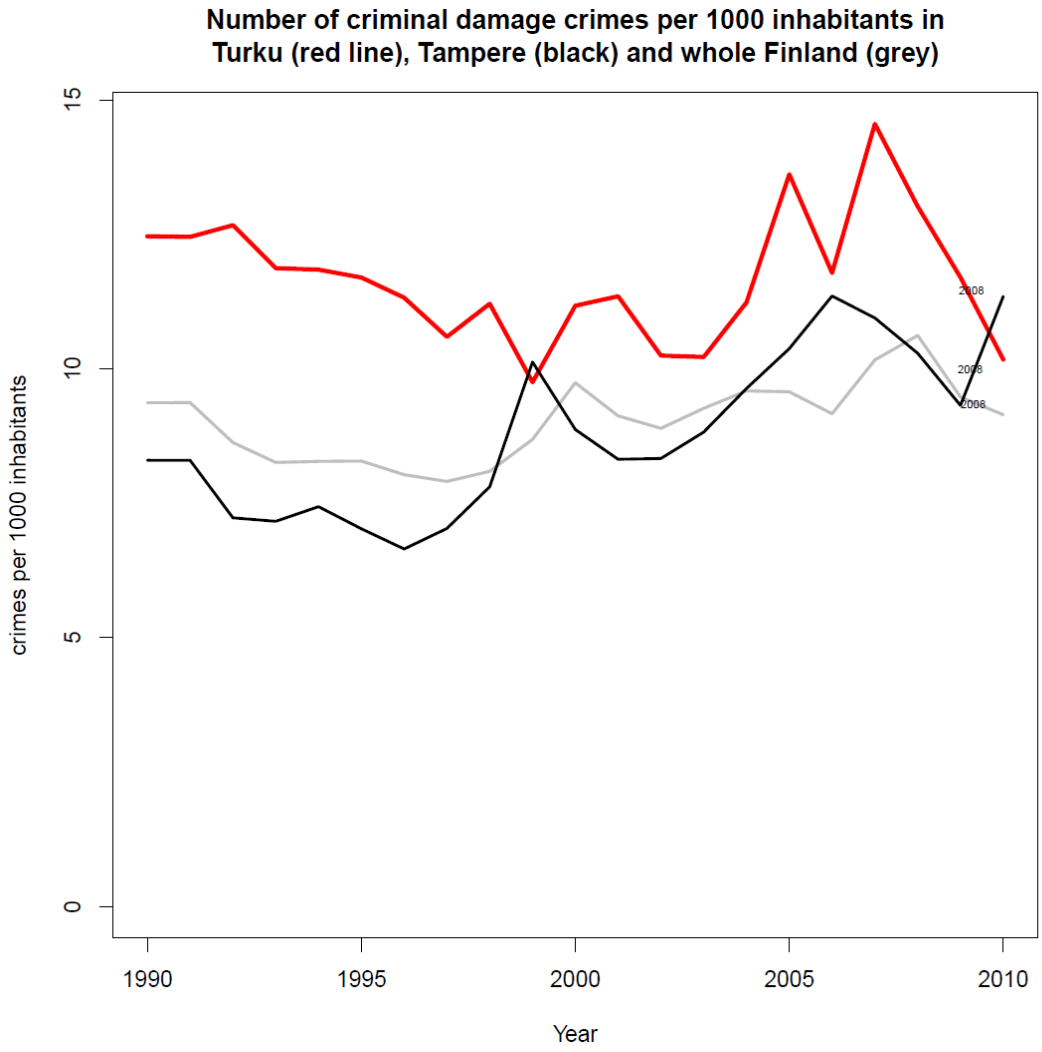

FIGURE 44 The number of criminal damage crimes in Turku, its reference region Tampere, and the whole of Finland.[764] Figure: Aki Niemi 2017.

[764] Statistics Finland 2015, database. http://tilastokeskus.fi/til/oik.html

Attachment 20. Aki Niemi's figure illustrating the number of attempted serious sabotage crimes in Lempäälä, its reference region Akaa, and the whole of Finland.

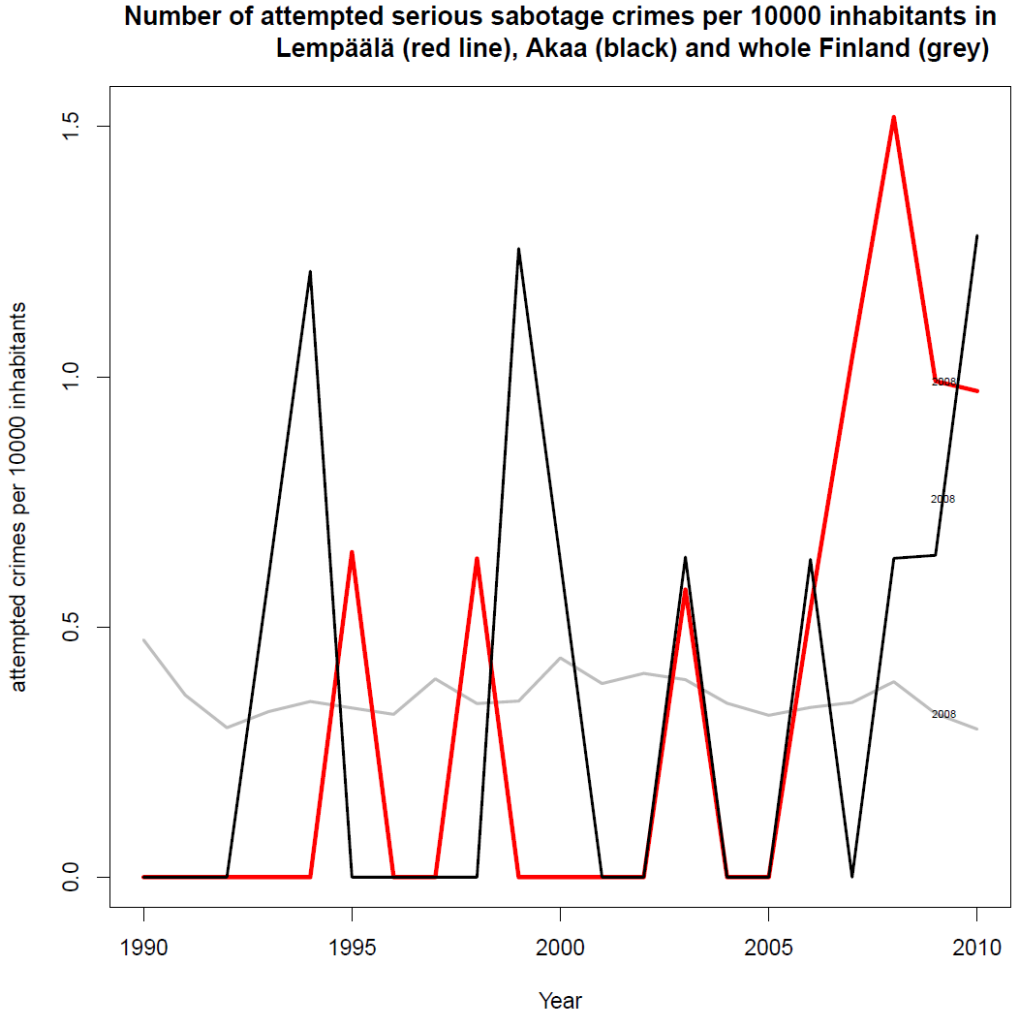

FIGURE 45 The number of attempted serious sabotage crimes in Lempäälä, its reference region Akaa, and the whole of Finland.[765] Figure: Aki Niemi 2017.

[765] Statistics Finland 2015, database. http://tilastokeskus.fi/til/oik.html

Attachment 21. Aki Niemi's figure illustrating the number of serious sabotage crimes in Sastamala, its reference region Hämeenkyrö, and the whole of Finland.

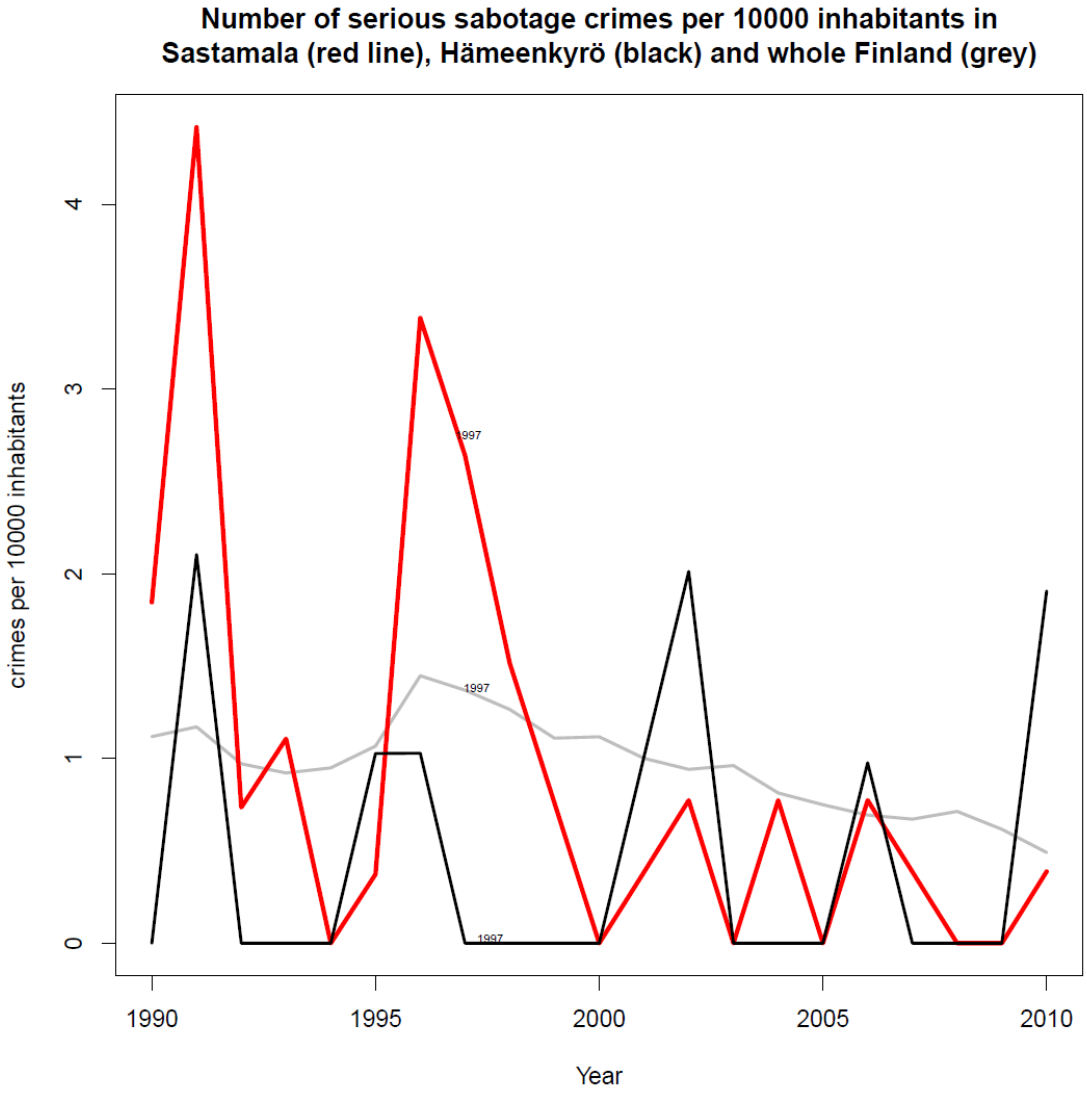

FIGURE 46 The number of serious sabotage crimes in Sastamala, its reference region Hämeenkyrö, and the whole of Finland.[766] Figure: Aki Niemi 2017.

[766] Statistics Finland 2015, database. http://tilastokeskus.fi/til/oik.html

Attachment 22. Aki Niemi's figure illustrating the number of serious sabotage crimes in Porvoo, its reference region Loviisa, and the whole of Finland.

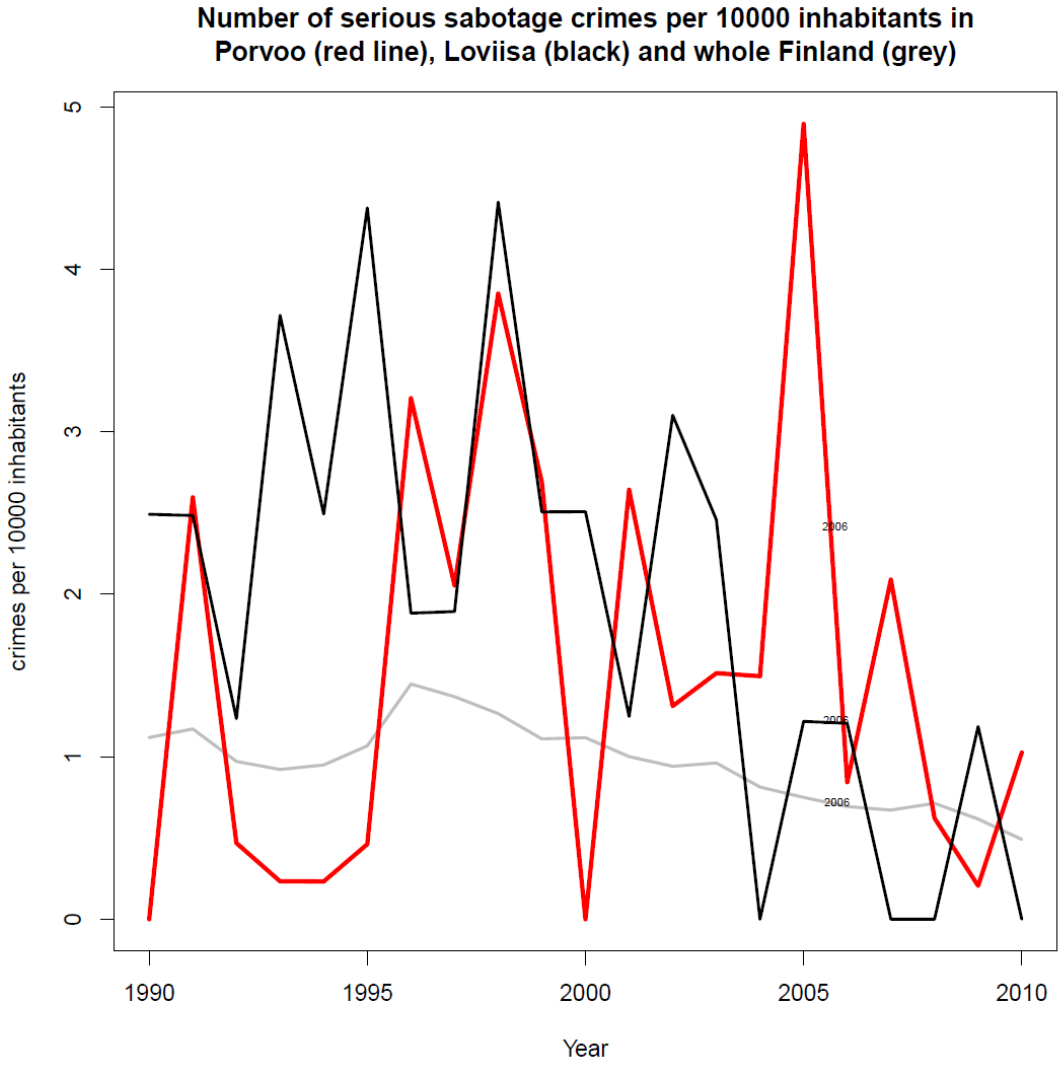

FIGURE 47 The number of serious sabotage crimes in Porvoo, its reference region Loviisa, and the whole of Finland.[767] Figure: Aki Niemi 2017.

[767] Statistics Finland 2015, database. http://tilastokeskus.fi/til/oik.html

Attachment 23. Aki Niemi's figure illustrating the number of serious sabotage crimes in Vantaa, its reference region Espoo, and the whole of Finland.

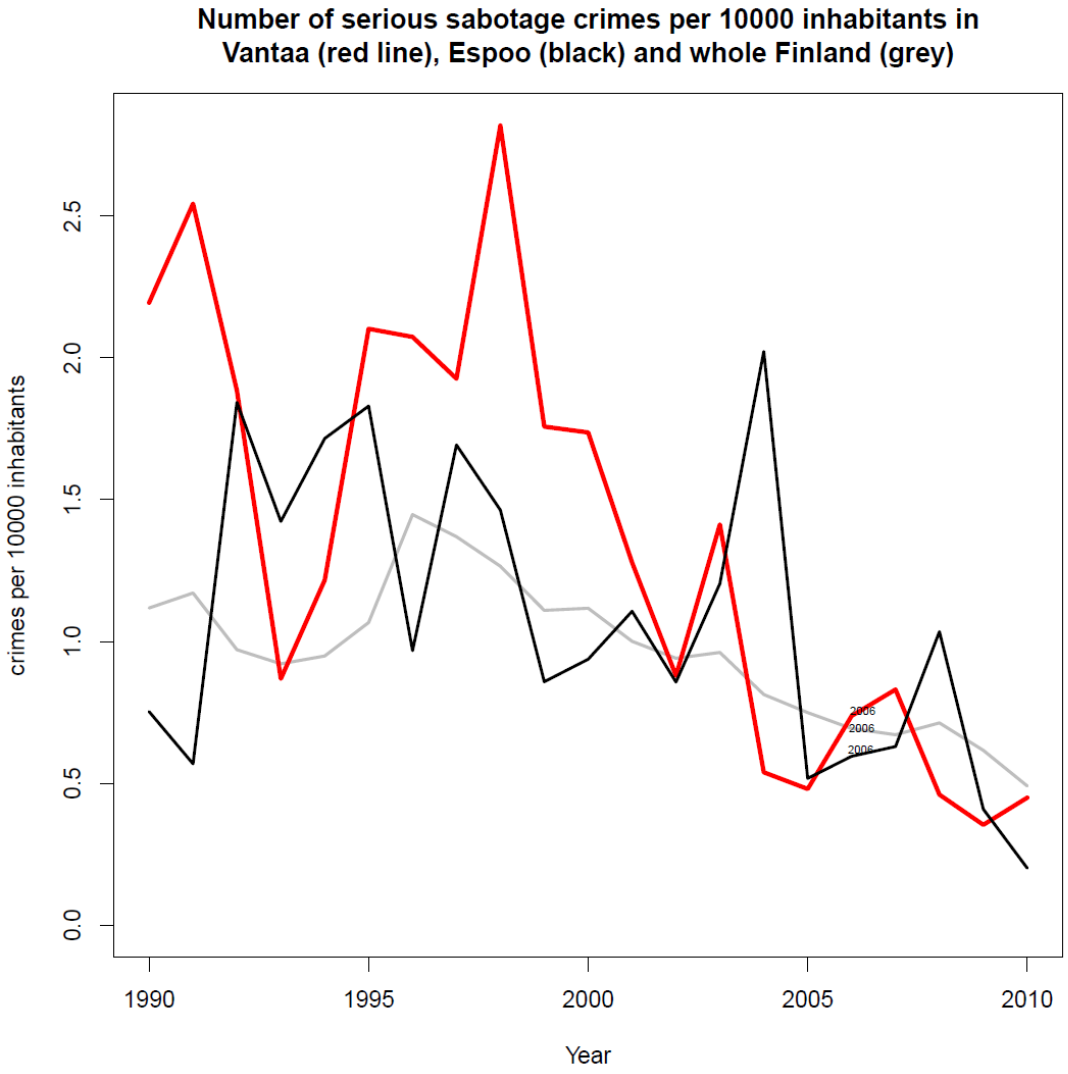

FIGURE 48 The number of serious sabotage crimes in Vantaa, its reference region Espoo, and the whole of Finland.[768] Figure: Aki Niemi 2017.

[768] Statistics Finland 2015, database. http://tilastokeskus.fi/til/oik.html