

Siina Lepola-Lång

LEADERSHIP IN A CHANGING SECURITY ENVIRONMENT

Faculty of Management and Business
Master thesis
April 2020
Supervisor Sirpa Virta

ABSTRACT

Siina Lepola-Lång: Leadership in a changing security environment
Master Thesis
Tampere University
Master of Peace, Mediation and Conflict Research
April 2020
Supervisor: Sirpa Virta

We live in a world of constant change and today's organisations are operating in an environment that is complex, unpredictable and constantly changing. This requires certain features from management and leadership. Hierarchical and traditional management models may not be suitable for today's knowledge-based organisations and new models are needed.

Societies are facing global threats that are difficult to anticipate and have to respond to new challenges and developments. Complex and unpredictable situations determine the security policy environment today. Security environment itself is complex and includes wicked problems that are difficult to solve. This Administrative Sciences research and Master thesis will discuss management and leadership in the current safety and security context. The focus is on leadership in a complex security environment, using the framework of complexity theory and the comprehensive security concept. Research questions are the following: How to manage and lead in a changing and complex security environment and how to improve the current management practices and leadership models?

The research method is qualitative; the empirical data was collected through a series of semi-structured interviews and analysed by using content analysis framework and methodology. The interviewees were key experts in the field of security management and in such high positions that render their thoughts and experiences about management valid.

According to the results of this research, management practices could be developed to even more adaptive direction and giving more responsibility to networks and subordinates. New training models are needed especially related to the longer-term assessment of future directions. The results also speak for cooperation, networks and adaptive leadership.

Good leadership and management are especially needed in challenging situations. Organisations should focus more on resilience than control since full control in challenging circumstances is not possible. Complexity should be accepted as one feature of the operational environment as it occurs everywhere. Adaptive leadership could be a useful model for security management and provide the ability to see also the possibilities for learning and development in challenging situations.

Keywords: Complexity thinking, leadership, comprehensive security, management, security environment, security management

Table of contents

Appendix.....	4
1. INTRODUCTION.....	5
1.1 The Scope of this Research	7
1.2 Security challenges in Finland	8
1.2.1 Comprehensive Security	10
1.2.2 Challenges with Comprehensive Security	12
1.3 Research Goals and Questions	14
2. THEORETHICAL BACKGROUND	15
2.1 Complexity thinking.....	16
2.1.1 Adaptation.....	17
2.1.2 Emergence	19
2.1.3 Chaos and surprises	20
2.2 Managing complexity.....	20
2.2.1 Wicked problems	22
2.2.2 Working on the edge of chaos	24
2.3 Leadership in a complex environment	26
2.3.1 Complexity Leadership Theory	28
2.4 Definitions.....	30
2.5 Summary of the theoretical background	31
3. METHODOLOGY	33
3.1 Qualitative research.....	33
3.2 Interviews and data collection.....	35
3.3 Participants	37
3.4 Analysis.....	38
3.5 Source criticism and reliability.....	40
4. LEADERSHIP IN TODAY’S CHANGING SECURITY ENVIRONMENT.....	42
4.1 Security environment in Finland	42
4.2 The role of the European Union.....	44
4.3 Managing in changing security environment – making it strategic	46
4.3.1 Challenges.....	48

4.4 Skills and abilities of a leader.....	49
4.4.1 Features of a leader.....	50
4.4.2 Self-assessment.....	53
4.4.3 Training.....	55
4.5 Being prepared	56
4.6 Silos or cooperation - towards a more fruitful cooperation.....	58
4.7 Can management influence changes in the operating environment?	60
4.8 What could be said about the future?	62
5. DISCUSSION	64
5.1 Operating in a complex security environment	64
5.2 Managing security	65
5.3 Effective cooperation	66
5.4 Leadership in security management	67
5.5 Recommendations	69
6. CONCLUSION AND IDEAS FOR FUTURE RESEARCH	70
7. REFERENCE LIST.....	71

Figures

Figure 1: Theoretical background, p. 32

Pictures

Picture 1: The theoretical background for this research, p.16

Picture 2: Hermeneutic circle, p.35

Picture 3: Through the themes, the researcher aims at understanding the research subject, p.36

Picture 4: The collection and interpretation of the qualitative research material happen simultaneously, p.38

Appendix

Appendix 1: Interview request

Appendix 2: Interview questions

1. INTRODUCTION

We live in turbulent times where change is constantly present. The world changed drastically after the terrorist attacks in the United States in 2001 and these events have had enormous impacts on the international security environment during the last twenty years. In Finland, the safety environment transformed dramatically after the collapse of the Soviet Union in 1995. Joining the European Union in 1995 has not only opened new possibilities for international cooperation but also influenced the security environment in Finland. (Lonka, 2016)

The contemporary change processes today are increasingly complex, and the world is rapidly changing. (Kangas et al., 2019) In the world of interdependencies, global trends are part of Finland's operating environment and they involve both risks and threats. Anticipating and adapting to them can also create global opportunities. Megatrends such as climate change, demographic changes, accelerating urbanisation, migration, poverty, youth unemployment, food security, natural resource scarcity, and the changing nature of conflicts are some of the examples of today's intertwining issues. Epidemics and pandemics are also creating security threats. Changes in the security environment involve relatively new phenomena that can be described as hybrid activities. Overall, the early warning period of security threats is shorter than before, which poses challenges for decision-making and the readiness of the authorities to work, as well as smooth cooperation between them. (National risk assessment, 2018) Societies are facing global threats that are difficult to anticipate and they have to respond to new challenges and developments. Complex and unpredictable situations determine the security policy environment today. (Hyvönen & Juntunen, 2018)

This Administrative Sciences research and Master thesis will discuss management and leadership in the current safety and security context. The focus is on leadership in a complex security environment, using the framework of complexity theory and the comprehensive security concept. The research is topical as change is constantly present. The ability to manage it is one of the core competencies of a successful organisation today as the operating environment is becoming ever more complex. Globalisation, economic fluctuations, and technological innovations have drastically

changed the organisational landscape in the last twenty years. At the same time, new threats are rising; the world is becoming more dependent on information technology and this causes certain vulnerabilities. Our reality is in continuous change in ways that are not linear, nor predictable. (Hanen & Huhtinen, 2010)

On the other hand, many authors argue that the current research and discussion about management and leadership is outdated and is based on traditional bureaucratic and mechanic organisation models (Schneider & Somers, 2006). Thus, the lens of complexity theory has lately gained more importance on how organisations should be structured and changed (Burnes, 2014). Complexity thinking offers new tools also for Administrative Sciences and the organisations that operate in a complex environment. An example of the new administrative techniques is networks. (Branders, 2016, 222). In Administrative Sciences, Complexity thinking refers to the edge in the chaos theory where new windows of opportunity open (Lonka, 2017). Complexity thinking has its roots in biology and chemistry but is also used today in Social Sciences.

Today's organisations are evolving to be more knowledge-based open systems, and this requires new ways of organising and managing them. The Law of Requisite Complexity refers to this phenomenon by stating that it takes complexity to defeat complexity and organisations must increase their complexity to the level of the operational environment. (Uhl-Bien, Marion & McKelvey, 2007) In organisations, complexity is often experienced as pressure that disrupts current patterns and opens adaptive space. Typically, these pressures are for example a need for a novel solution, new partnership, conflicting perspectives or interdependencies. (Uhl-Bien & Arena, 2017)

Organisations are currently leading for adaptability, knowledge, and learning instead of control and efficiency which are more typical features for manufacturing functions. One framework for the new thinking in management is the Complexity Leadership Model which will be discussed in Chapter two (Theoretical framework). This model refers to leadership in dynamically changing networks of interacting agents where managers should enable informal network dynamics. (Uhl-Bien, Marion & McKelvey, 2007). "Understanding, developing and rewarding enabling leadership practice is critical for organisational success and survival in today's complex world" (Uhl-Bien & Arena, 2017).

The effects of today's multiple risks cannot be made to fit any simple model. Complex phenomena require leaders to possess new skills and knowledge to understand and operate with them. (Kangas et al., 2019) Old management models and bureaucracy do not necessarily work in security management. When we discuss security situations, they are often complex as they include many interlinked variables. One part we can observe now, one part later and one part never. The surprise effect is that we do not know in advance how different things affect each other in diverse situations. Leadership in these situations is about combining multiple perspectives. (Hanen, 2017, 26) Also new ways of leadership are needed in promoting security both as objective as well as subjective condition (Juntunen & Virta, 2019).

This introductory part briefly explained the background for this research. The next chapter will discuss in more detail the scope of this research, followed by discussion about the current security situation in Finland, the research goals and questions, and the structure.

1.1 The Scope of this Research

The objective of this thesis is to research management as a phenomenon in today's changing operational and security environment. The research focus is on management and leadership. The reason not to focus on one organisation only is to gain a wider understanding of the current trends in the security management field. This research is conducted by using the framework of complexity thinking and comprehensive security and combining theory and practice by interviewing key security management experts about their experiences.

As complexity is a multidisciplinary concept, this thesis combines earlier research from various fields. The theoretical framework is based on complexity theories, especially from the leadership perspective. The research method is qualitative; the empirical data is collected through a series of semi-structured interviews and analysed by using content analysis framework and methodology. To achieve a broader perspective, the research is conducted on various organisations. The interviewees are key experts in the field of security management and in such high positions that render their thoughts and experiences about management valid. They all work in management or expert positions in the government or civil society related to security management. Based on the results of

this research, recommendations will be proposed on how the management practices in security management could be developed. The presentation of the previous research aims to give the reader a description of the world of complexity thinking and current security management challenges and opportunities. Do the same phenomena appear among all the organisations involved in this research? This question will be answered by comparing the research results with previous domestic and international research.

The subject is relevant as today's societies and organisations are becoming more complex, but the current theories and discussion about management have become unhelpful in facing these challenges (Schneider & Somers, 2006). As mentioned earlier, the complexity framework offers new ways of thinking for management and leadership and new tools to administrative sciences as well. (Branders, 2016) These thoughts and ideas are also relevant in security management and can provide new tools and models for various types of organisations.

1.2 Security challenges in Finland

The security environment itself can be seen as a complex system in which the theories of complexity thinking occur. The key elements of a complex system are for example interconnectivity and interactions, which make it difficult to anticipate its future developments. (Branders, 2016, 134). Security is a core function of the state and the state has been given power over territory and people. There are different forces sustaining both external and internal security. Security can be defined as being secure. Safety is closely related to security, but it has more connections to physical conditions. Moreover, security issues are often dealt with exceptional measures. (Juntunen & Virta, 2019)

Finland is closely tied to changes in the global operating environment, both in its positive and negative aspects. The global megatrends and regional development are directly reflected not only in Finland's international position but also in the well-being and safety of Finland's citizens. Examples of international threats are authoritarian and semi-authoritarian governments and fragile governments around the world that restrict the functioning of democratic institutions and undermine fundamental freedoms and human rights, freedom of expression and the use of social media. The

overall development for the democratic government has been nevertheless very positive, millions of people around the world have improved their lives and poverty has fallen due to increased access to education, increased life expectancy, and technological development. However, developments have been uneven. The prioritisation of national interests and the traditional rhetoric of power politics have returned to international relations. The capacity of international institutions seems to be lagging behind the expectations of both states and individuals. Inequality and exclusion are the greatest underlying security threats behind crime. (National risk assessment, 2018)

The physical capacity of Finns has been in recession since the 1970s. If the trend continues, poor physical performance increases the risk of exclusion and weakens labour productivity and increases the cost of medical care. This has a direct negative impact on the performance of the military defence. Finnish society is becoming pluralistic due to the combined effects of several factors. Differences between generations in lifestyles are growing. International ideological communities and subcultures are present in Finland via information networks. The role of authorities is changing, and power is being redistributed differently. Fragmentation of values can lead to increased confrontation and conflicts between different groups. (National risk assessment, 2018)

The safety environment in Finland today is naturally largely influenced by the European Union (EU). As a member of the EU, Finland is committed to the EU's common policies. The European Security Strategy in 2003 highlighted the changing and complex security environment where new threats are present. It emphasised the importance of the EU as a global security player and coordinator of the battle against security threats. The strategy was updated in 2009 and security balance and goals to achieve European security interests were added. It further stressed the importance of the United Nations (UN) and the role of Europe as a leader in the revival of multilateralism. In 2010, the European Union's internal security strategy was published, emphasising security as part of the quality of life and European values. The objective was towards a common, comprehensive European security model. The same strategy addressed the measures needed to complete the revision of the security and defence policy report. The aim was to pay more attention to the interdependence of security issues, to identify the issues that threaten vital functions, and to lay the foundations for crisis management and preparedness for society both in normal and in exceptional circumstances. (Branders, 2016, 78)

The Security Strategy for Society 2017 is a Government Resolution that unifies the national principles of preparedness and directs the overall preparedness of the administrative sectors in Finland. The first part of the strategy sets out a cooperation model for comprehensive security, which is based on preparing and acting in various disturbances in Finland. The strategy defines the vital functions of the society and that its continuity must be guaranteed in all circumstances and at all levels of operation. The second part of the strategy guides the preparedness of government branches and defines the tasks and responsibilities of the government ministries' preparedness. (The Security Committee, 2018)

1.2.1 Comprehensive Security

Comprehensive security politics are part of the development of the societal security field in Europe. Societal security is a new approach to security in Social Sciences. The concept refers to the necessary conditions that permit a society to retain and cherish its fundamental values and identity. Comprehensive security has replaced the concept of broad security and is the main concept and policy approach of societal security in Finland. It covers national security, cyber security and resilience. (Virta & Branders, 2016)

In Finland, the comprehensive security model is a framework and model for collaboration. In this model, actors share and analyse security information, plan and work together. The framework outlines the responsibilities of different actors (government, authorities, non-governmental organisations, and business sectors). Foresight is an important part of the preparatory work to be able to respond to the security challenges of the future and prevent them. The Security Strategy has been developed in co-operation with various parties as comprehensive security measures are taken jointly with authorities, businesses, organisations, and citizens. Each of the administrative sectors is responsible for the implementation of the strategy in accordance with their respective competencies. Follow-up of implementation and cooperation is coordinated by the Security Committee in cooperation with ministries' preparedness officers. The Security Committee coordinates comprehensive security together with the Ministry of Defence. The Committee follows the developments of the Finnish society and its security environment and coordinates proactive preparedness.

“The preparedness of the Finnish society is executed with the principle of comprehensive security, which entails the safeguarding of vital functions of the society in a joint effort with the authorities, business sector, civic organisations, and the citizens. The Security Committee assists the Government and the ministries in matters about comprehensive security. The committee has a secretariat at the Defence Ministry with expert representation from different administrative branches and security operators.” (Ministry of Defence)

Building on comprehensive security has emphasised a coordinating approach to meet the challenges of a changing security environment. According to the Security and Defence Policy Report, the most important challenge for comprehensive security is the increase of global and national interdependencies. The security environment has become more uncertain in a short time and this development calls for different strategies. Challenges are caused by the deliberation of new threats and disagreements on prioritising them. Rapidly changing and globally operating environment requires a broad-based approach. (Branders, 2016, 106-107)

Comprehensive security can include the total security measures that simultaneously promote the maintenance and resilience of a stable and peaceful society. It is an ongoing process at the societal level which seeks to protect communities from immediate threats and to safeguard the basic needs of individuals. With the expansion of the security concept, traditional threats have diminished, and new threats have risen including terrorism, organised crime, fires, environmental problems, and epidemics. (Branders, 2016, 71, 185) Comprehensive security can be seen as a wicked problem: uncontrolled changes in the security environment, serious threats to safety, causalities, and vulnerability of the society (Lonka, 2017).

The Finnish foreign and security policy is characterised by unpredictable and rapid changes. The threats to society are dynamic, cross-border and transformative. Identifying the threats and their effects is difficult and this makes the operational environment complex. Preparedness refers to a very concrete set of actions that are taken as precautionary measures in the face of potential disasters. The vital functions are essential for a functioning society to be maintained in all situations. These include management, international and EU functions, defence, internal security, economy, infrastructure and security of supply, population capacity and services, and crisis tolerance. Leadership creates the foundation for securing other functions. It requires clear

responsibilities and roles, situation picture, crisis communication, sharing information, continuity management of operations, and cooperation. (The Security Committee, 2018)

Certain kinds of new threats are rapidly growing such as hybrid operations. The Security Strategy for Society defines hybrid operations as activities that are pursued through a variety of complementary means and by exploiting the weaknesses of the target to achieve certain goals. Finland is also a subject to the hybrid influence, which can undermine the stability of society in new and unpredictable ways. One of the main goals of this type of action is to influence political decision-making. Cyber environment and social media provide a platform for governmental and non-governmental organisations that, in addition to pursuing to obtain information, seek to influence the internal affairs of the target country. (Security Strategy for Society, 2017; National risk assessment, 2018)

1.2.2 Challenges with Comprehensive Security

Security itself as a phenomenon is complex. Not everything can be predicted just by increasing information, the future is unknown and reshaped continuously. (Hanan & Huhtinen, 2011) Also, the concept of comprehensive security itself is complex and controversial. Comprehensive security consists of the comprehensive security concept as well as overall national defence, but a complete and all-inclusive concept of comprehensive security is difficult to be defined. For example, Hanan states that the concept of comprehensive security is analytically unclear and complex. (Hanan, 2017, 154). His idea is shared by Branders who indicates that comprehensive security is unclear as a concept, it has no shared meaning and does not cover all aspects of security. It is therefore difficult to set objectives for its implementation and to allocate resources. Systemic control is missing, and the structures should be more flexible. Branders suggests that comprehensive security should be defined as the total security measures that promote the maintenance and resilience of society and not just the prevention of identified threats. It should tackle new challenges in a new way; by developing cooperation at many different levels. To survive, comprehensive security must be a learning phenomenon, an evolving and adaptive complex system. It must constantly adapt and evolve according to changes in the operating environment. (Branders, 2016)

Security at its best is the result of systemic success. The division between external and internal security is not meaningful, as security issues that require comprehensive solutions are international. Key themes related to security today are globalisation, unpredictability, and rapid change. These are complex problems. Because of the complexity, it is difficult to anticipate which matter, or an ability of a society or organisation is essential to their future situations. General preparedness, including resilience and cooperation, are therefore significant. In organising security activities in a society, it is important to organise cooperation between different functions to solve complex situations. (Hanen, 2017, 154) Traditional ways of understanding security and promoting it require new thinking. The security field is harder to perceive when the boundaries between internal and external security and the states are dispersed. Shapes, nature, and prioritisation of threats cause disagreements and it may be difficult to perceive threats in the overall process. (Branders, 2016, 107)

Laitinen discusses security as a post-modern phenomenon. Traditionally security has been seen as the order and control that is maintained by a state. The post-modern way to understand security is that it cannot be predicted or controlled. Threats to security are not only related to other states and areas but defining the other (for example the enemy) is more complex today than previously in history. We should think about security from a more global perspective. The foreign dimension of security policy refers to the security concerning other states and internal dimension to the security of the citizens and the ability of a society to function in emergency conditions (Laitinen, 1999, 120)

Comprehensive security is difficult to manage as it does not have one central point or centre. (Branders, 2016, 135) However, it is defined by hierarchical procedures. Organising occurs inside organisations, where complexity decreases as the structuring of the internal and external operating environment and increased cooperation create significance. There exists no one solution to organisational structure or organising in general. (Hanen, 2017, 154) Branders suggest that overlapping structures should be avoided and guidance should be centralised. At the moment shared content planning is missing and the structures should be more agile and the strategic guidance clearer. The monitoring of achievements is unclear and too much focus is on preparedness. According to her, the citizens and joint discussion are poorly taken into consideration while developing the Comprehensive security model. (2016)

1.3 Research Goals and Questions

This research is focusing on two main questions. Firstly, it will look into finding the most relevant management practices in today's changing and complex security environment. Secondly, the focus is on how the current management practices and leadership models could be improved. The research questions were modified during the research process, which is typical for qualitative research (Eskola & Suoranta, 1998). The final research questions are the following:

Research question 1: How to manage and lead in a changing and complex security environment?

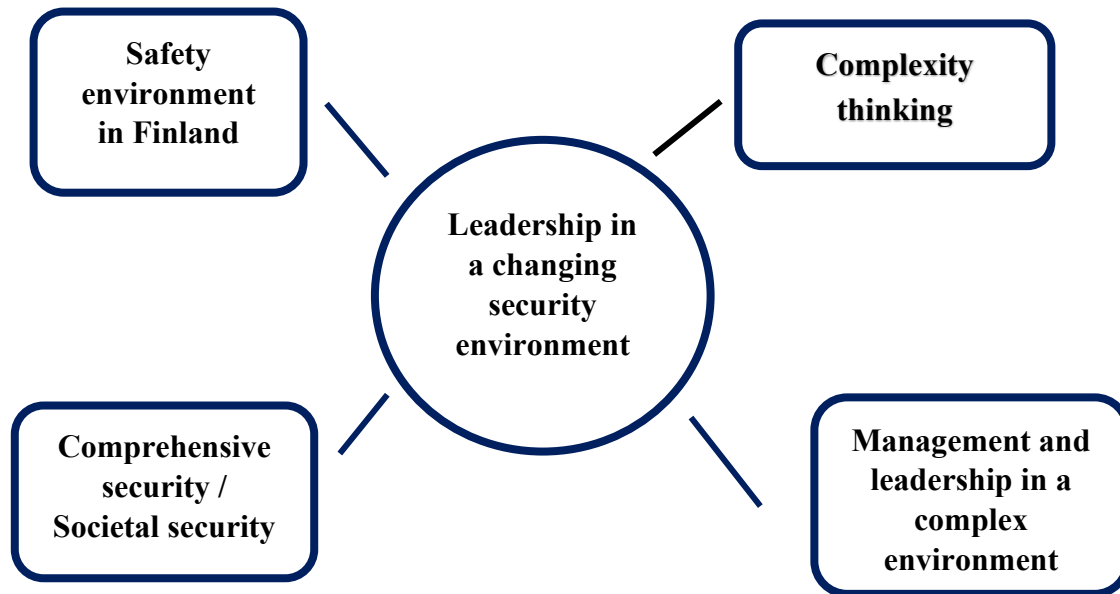
Research question 2: How to improve the current management practices and leadership models?

The first part of the thesis covered the introduction, focus, and objectives for this research. The next part will present the theoretical background and discuss earlier research and theories related to complexity thinking. Chapter 3 continues with the methodology used in this research. The following part will present the analysis and recommendations. The final part discusses the conclusions, recommendations and some thoughts for future research in this field.

2. THEORETHICAL BACKGROUND

The theoretical background consists of two theoretical perspectives: the broader societal security and comprehensive security framework, which involves complexity thinking and change management, especially in the operating environment of complexity and wicked problems and phenomena. Societal security as a broad framework for security research is multidisciplinary with concepts largely from the tradition of international relations. Societal security is used in many studies and research programs in the same sense as comprehensive security, which is a holistic concept in research. (Virta & Branders, 2016)

This literature review is divided into five chapters. The first part will discuss the theoretical background of Complexity thinking in general. Chapter 2.2 will continue about complexity from the management perspective, followed by chapter 2.3 about leadership in a complex environment. After the leadership discussion, the theoretical background will be finalised by definitions of the most relevant concepts in chapter 2.4.



Picture 1: *The theoretical background for this research*

2.1 Complexity thinking

Complexity thinking has been a focus of international academic interest for decades, however in Finland, it has gained only recently more importance. It is a multidimensional scientific framework where concepts are emerging, and its theoretical field is wide. Complexity thinking has references to various theories as it is multidisciplinary. Its origins can be seen in Natural Sciences such as Biology, Physiology, Chemistry, and Mathematics, as well as in Social Sciences. (Vartiainen et al., 2013; Hanen, 2017)

Complexity theories are an umbrella for several theories, ideas, and research programs (Burnes, 2007). Ideas and concepts from Complexity sciences have slowly gained popularity also in Social sciences and Public Management (Gerrits & Marks, 2015). One classic way to define complexity is, for example, Simon's definition from 1962: a complex system is made up of a large number of parts that have many interactions (Anderson, 1999). The organisation's contingency theory since the 1960s is an early way of understanding complexity. The theoretical perspective about complexity

stabilised in the 1990s although it has been linked to management research since the 1980s. (Hanen, 2017, 143)

One universal definition of complexity does not exist. Complexity studies comprise of complexity research and complexity thinking. The interest in complexity research is the living and transforming part of the system, the derivative of system theory. (Hanen, 2017, 115) Complexity refers to both organisation as well as their operational environment (Anderson, 1999). The concept of complexity can be described also as rich interconnectivity. When things interact, they change one another in ways that are often unexpected and irreversible. This is the difference between complex and complicated. Complicated systems also have many parts that interact, but they do not change one another while interacting. Furthermore, a complex system cannot be decomposable in its original parts. (Uhl-Bien & Arena, 2017)

According to *Niclas Luhmann*'s functional separation theory, the environment is always more complex than the system operating in it. Through functioning systems, we can delimitate and reduce complexity. Complexity is a situation that holds more opportunities than can be actualised. (Hanen, 2017, 143) Complexity can be seen everywhere: it occurs when networked interactions allow events to link up and create unexpected outcomes. In this kind of environment, adaptive responses are required. An organisation that can operate as a complex adaptive system enables an adaptive space, or, in other words, the contexts and conditions that enable networked interactions to foster the generation of new ideas and learning. (Uhl-Bien & Arena, 2017)

2.1.1 Adaptation

One central feature of complexity is adaptation. Complexity refers to a particular type of system with the ability to adapt. Elements of this system adapt to the environment and other elements. A system can be defined as a collection of interacting elements that produce together a form of system-wide behaviour. (Brusset et al., 2016, 21) In traditional Complexity sciences, the basic unit of analysis is called the *Complex Adaptive System* (CAS). These are networks that bring together interdependent agents who interact and are bonded together by a common goal or need. Their structure changes and hierarchies overlap, and they are linked with other CASs in dynamic

interactive networks. These units emerge naturally in social systems and are able to solve problems creatively and adapt quickly. In these types of systems, the order is emergent, the system's history is irreversible, and the future is unpredictable. (Uhl-Bien, Marion & McKelvey, 2017)

The coordination of CAS comes from informal emergent constraints imposed by interdependent relations (auto-coordination) and from external constraints such as environmental restrictions and administrative controls. (Uhl-Bien, Marion & McKelvey, 2017) Complex behaviour can be examined through the regularity that emerges from interactions of individuals connected in a Complex Adaptive System (Anderson, 1999). Two key dynamics that make complex system adaptive are conflicting and linking up. Conflicting is the tension caused by the different needs, values, and preferences of people within an organisation. Linking up happens when people have enough common perspective to combine ideas and efforts that trigger novelty. (Uhl-Bien & Arena, 2017) Self-organisation refers to the processes in which the systems change without a visible change. A complex system organises, regulates and maintains itself without needing an internal or external managing agent. (Brusset et al., 2016, 47)

Complexity thinking is interested in the interconnections within a system; how elements interact, and how this interaction develops the system so that it has new capacities that would not exist within the individual elements. (Brusset et al., 2016, 21) Complexity thinking can provide added value when studying dynamic situations such as security. Hanen interprets complexity as the variables being combined and not possible to be viewed separately. A situation is dynamic and constantly changing. (Hanen, 2017, 131).

Non-linearity in complexity thinking refers to the characteristics in which outputs are not proportionate to inputs, they are asymmetrical. These are also referred to as indirect or unintended consequences. Non-linearity cannot be reduced to something simpler, for example, rules or set of laws that help to predict behaviour. This element distinguishes complex systems from linear or mechanical systems. Non-linearity creates the space for new creations and is a precondition for emergence, self-regulation, and adaptation. (Uhl-Bien, Marion & McKelvey, 2017)

2.1.2 Emergence

The creation of a new order is called emergence when agents in a network create something that did not previously exist. This happens through the actions where new things or ideas can be achieved. It refers to the process of interaction that produces the system's properties and how the behaviour of systems emerges from the interaction of its parts. It is often spontaneous, and the new behaviour cannot be predicted. This is especially the case in social systems where new social patterns are constantly created and destroyed. Emergence is the nonlinear suddenness that describes a change in complex systems. When emergence forms a previously unknown solution to a problem or a new unanticipated outcome, learning and creativity occur. The CAS adapt rapidly and creatively to environmental changes or internal demand. The emergence in complexity thinking suggests that processes raise new kinds of situations and contexts. (Vartiainen et al., 2013; Uhl-Bien, Marion & McKelvey, 2017)

As previously mentioned, the behaviour of a complex system is difficult to predict as it is nonlinear (Anderson, 1999). Emergence requires certain kinds of conditions within an organisation. One of these is the free flow of information as it allows agents to find each other and link up a common need or purpose to which they can create adaptive responses. Another condition is pressure as the agents act to loosen up a system for change which can create windows of opportunity. (Uhl-Bien & Arena, 2017) Emergence is a key concept when analysing complex systems. Another way to define emergence is as the structural properties of systems that emerge from repeated interactions of agents acting on local rules with incomplete information and responding to feedback from other agents and their environment. (Gerrits & Marks, 2015)

Information is one of the essential concepts of complexity and an interaction tool inside an organisation and between an organisation and the environment. It is the energy that maintains a social system without which the system ceases to exist. Poorly controlled information flow leads to more complexity. There can be too much information, it can be distributed to the wrong parties or it can be a new, still undefined issue in an organisation. In the functional framework of a surprising complex situation, operators change their activities in line with environmental change, as well as positive and negative feedback. (Hanan, 2017, 174-178)

2.1.3 Chaos and surprises

Edward Lorenz launched the term butterfly effect, which is used in chaos theory to describe how small changes to a seemingly unrelated thing or condition (also known as an initial condition) can affect large, complex systems. (Vartiainen et al., 2013, 52) According to this theory, new opportunities become available when an organisation operates on the edge of chaos. This leads to a situation that can be referred to as a window of opportunity. Organisational uncertainty arises from the uncertainty of the surrounding society, the lack of predictability, and the dependencies of the parts of the organisation. Full control of any kind of operation is not possible, and surprises must be prepared for. (Hanen, 2017, 143)

A complex, surprising situation can also be called a black swan, which can create a situation that is extremely challenging to manage. A complex situation also challenges anticipation and prevention of a situation as our ability to perceive ever-changing interactions is limited. One central focus of interest in the complexity management research is in the moment when a surprising event takes place. That moment will change everything, and completely new dimensions will be introduced. The way a leader works after the surprise is decisive. The complexity theories are interested in how to interpret unexpected situations and phenomena where the cause and effect relationships are difficult to perceive. An organisation is also dependent on its earlier choices and history. This is defined as path dependency. The past of an organisation always affects its future developments. (Hanen, 2017, 115) After introducing the complexity thinking, the next chapter will focus in more detail in the process of managing complexity.

2.2 Managing complexity

Even though complex situations are difficult to anticipate and manage, management is the most important tool to control complexity. However, there exists no one method of management or organisation structure that would work in all situations. Organisations are complex systems that need to operate on the edge of chaos in order to survive and need to respond continuously to changes in their environment. This is done by the process of spontaneous self-organising change.

(Burnes, 2007) An organisation should be built with resilience and balance on the edge of chaos in a situation where it is possible to direct resources toward discovery and development. In chaotic situations, there can occur a violation of traditional planning, decision making, and problem-solving methods. (Vartiainen et al., 2013) When organisations are complex systems, management and change take on new dimensions. The belief that order and control are essential to achieve objectives should be redressed by managing in new and changing contexts and addressing self-organising processes. (Burnes, 2007)

Instead of pure randomness from the complexity point of view, chaos can be seen as a different form of order. Chaos and order are the twin attributes of dynamic and non-linear complex systems. Hidden order might be found beneath the chaos. Complex systems operate between the edge of chaos that exists between order and disorder. They keep changing continuously as they do not settle into a stable equilibrium but do not fall apart either. It could be estimated that creativity and growth are at their optimal when a complex system operates on the edge of chaos. Society can act in complexity with objectives, as things are differentiated. Individual parts control the problems of their area very well, and thus, the order spreads to a complex system. However, in a surprising situation, someone must act as a linker. (Hanan, 2017, 154)

One tool to manage complexity is organising: creating an order, combating abnormalities, simplifying things and connecting people and things. A situation should be given a meaning, it should be named and limited, and interaction should be seen as a broader process than just exchanging information. (Hanan, 2017, 156)

An organisation can work best in a complex environment by making itself more complex. The environment of a social system is always more complex than the system itself. An organisation should face the complexity of the environment because it cannot be closed as a system. An organisation should maintain relationships with the environment in order to be able to react. Resilience is one of the means for adding complexity within an organisation. A resilient organisation is sensitive to changes in the environment. (Hanan & Huhtinen, 2011) When managing complexity, it is essential to understand the contextuality and dynamism of the operating environment. An organisation cannot be prepared for everything, so it must be flexible and resilient. Maintaining various relationships will help the organisation to be resilient and able to operate in

unpredictable situations. (Hanen, 2017, 175-176) One key concept in complexity management is the wicked problems which will be discussed in more detail in the following chapter.

2.2.1 Wicked problems

The concept of wicked problems is based on Horst J. W Rittler's idea. They are part of the complexity field and closely related to security management. Wicked problems are problems that are difficult to identify and understand as they are vibrant and variable. Compared to the wicked problems, the “tame problems” are unambiguous and an understanding of their characteristics is easily reached. Thus, they rarely cause conflicts. This type of problem is not necessarily easy, but the nature of the problem-solving make them simple, through a straightforward problem retrieval process that goes from top to bottom. Firstly, information is collected, then analysed and a solution is formed based on this information. (Vartiainen et al., 2013, 19)

The wicked problems are often socio-cultural, and they cannot be solved in a purely rational manner. In complexity thinking, six features can be attached to wicked problems:

- *Weighing the solution options help to understand the problem itself.* Handling the problem and finding alternative solutions form an interactive process. The solutions proposed are modified or entirely new ones are created.
- *The solutions are not final.* There is no clear end to the problem-solving, but instead, the methods for this process can be further developed. This process is described as coping with the demands of the wicked problems instead of solving them.
- *The solutions are not correct or false.* There are no correct or false solutions to these types of problems, but the objective is to find the best possible solution which various stakeholders can understand differently.
- *The problems are unique and new.* They are described by specificity although common features can also be observed.
- *The procedures are unique.* Problems cannot be solved mechanically, and it is difficult to predict the results of the problem-solving.

- *There exist several solutions.* There are many options for solutions that are not possible to be considered accurately during the problem-solving process. Solution options are limited for example; by resources, difficulty level, and objectives. (Vartiainen et al., 2013, 22-26)

Existing management models alone cannot solve wicked problems, because reform needs are often seen as tame problems without realising the complexity of the society and the organisation.

Complexity occurs especially in expert organisations because their activities are characterised by ambiguity. In order to succeed, organisations need to adapt to complexity, identify the wicked problems and opportunities, and prepare for surprises and changes caused by complexity.

(Vartiainen et al., 2013, 38)

A non-linear problem-solving model has been developed to solve wicked problems. When defining the problem and finding solutions, it is worthwhile to emphasise the interaction. Problem-solving is not a phase in the process but a continuous part of the process. The problem-solving does not end up in finding the solution but continues as a learning process. (Vartiainen et al., 2016, 39)

Wicked problems spring from the multiplicity of the organisation's operations and structure; the fragmentation. The opposite of fragmentation is collective intelligence, that is, all the creativity and intelligence that can be used to handle a wicked problem. Collective intelligence is generated when people understand the content and the meaning of a problem in a similar way. Fragmentation arises when people have a different understanding of the nature of a problem.

Fragmentation can be divided into three categories:

1. Technical complexity emerges from the interaction or the lack of it between different technologies and techniques.
2. Social complexity is not directly part of wicked problems themselves but rather the network coping with them. It is influenced by the number of people and the disunity of the network. Social complexity includes, for example, strategic and institutional uncertainty. Strategic uncertainty rises from various actors and stakeholders in an organisation who may have different views on the problem and its solutions. Institutional uncertainty involves dealing with a problem at various levels, such as organisational, social, and international levels.

3. The nature of a wicked problem involves the informational dimension of a problem that causes fragmentation through cognitive uncertainty. This is due to a lack of knowledge and lack of understanding. (Vartiainen et al., 2013, 31-35)

The best solution to wicked problems is cooperative leadership, which is aiming at the benefit of the entire organisation. The costs and benefits are shared among the various players and problem-solving also needs to be extended beyond organisational boundaries. (Vartiainen et al., 2013, 43)

An organisation or an individual as a member of it, cannot operate without communicating with its operational environment. Communication influences an organisation and its members, which again shapes the environment in which the organisation operates. This explains why an organisation's environment is unstable and changing. In complexity thinking, this communication can be described through the following concepts:

- Connectivity and interdependence refer to the phenomena when decisions or actions of an individual influence the actions and decisions of another actor. This requires a situation in which the actors are connected through information, actions or resources.
- In Common evolution, the development of an organisation is based on communication. It does not only adapt to its environment, but also modifies it. The changes inside an organisation or between organisations cannot be demerged. (Vartiainen et al., 2013, 70)

2.2.2 Working on the edge of chaos

Through constant changes in the operational environment, organisations have to balance between chaos and order. This process is often referred to as working on the edge of chaos which can be described through the following concepts:

- Feedback loops: In Complex adaptive systems, information is exchanged between the actors and their operational environment. The interactions between the agents and their environment create feedback loops in which the feedback can be either positive or negative.

- Living present refers to a situation in which an organisation cannot achieve a stable situation. The current situation is a link between the past and the future.
- Through the positive feedback loops, an organisation can move far from the balance. This process can be described in more detail through the attractors - the things attracting the organisation, either positive or negative. For example, the current situation within an organisation can be an attractor.
- While being far from balance, an organisation faces crossroads, also called the bifurcation points which increase when approaching chaos. Crossroads refer to situations in which the organisation can change its operations. Complexity thinking highlights the opportunities created by these crossroads.
- A situation with plenty of crossroads can be called a space of possibilities. (Vartiainen et al., 2013; Gerrits & Marks, 2015)

The future will probably bring various situations that cannot be controlled or planned. Also, it is not possible to give universal models on how to operate in a complex environment. However, some operating principles can be given:

- Wicked problems inside an organisation should be accepted as they are. This can lead to a situation in which a wicked problem becomes an asset, instead of a burden.
- A butterfly should be left to fly free as the behaviour of an organisation or society cannot always be predicted. The constant change should be accepted as a natural or even a vital condition.

- Complexity thinking encourages to strive for the best possible situation instead of perfection. While aiming for the best possible solution, new paths of opportunities can be opened.
- It should not be assumed to know a solution to a problem beforehand but instead face it as a unique situation. Individuals and organisations tend to treat similar-looking problems in similar manners. However, even if a situation looks familiar, beneath the surface it might be completely different. A box of old tools might not work, thus wicked problems should not be faced routinely.
- Those in managing positions should also be able to admit they are not always right.
- Doors should be kept open as management based on authority is not usually a working method to face wicked problems. (Vartiainen et al., 2013, 87-89)

The two main themes of complexity management are 1) reducing complexity - making simplistic interpretations, and 2) adapting to a situation, and abstraction of complexity – an organisation develops its ability to act in multiple interactions and cooperates in many directions while exploiting complexity and developing itself to be more flexible. (Hanen, 2017, 174)

2.3 Leadership in a complex environment

Adaptive leadership: “Emergent change behaviours under conditions of interaction, interdependence, asymmetrical information, complex network dynamics, and tension”. (Uhl-Bien, Marion & McKelvey, 2007)

As mentioned earlier, according to the academic management discussion, many of the current models are out of date. The world is changing rapidly, and technological revolution and globalisation are driving organisations towards more complex competitive landscapes. Today’s organisations are based on knowledge, and rapid production of information and innovation are

critical for survival. This causes new challenges for management and leadership which are key factors in how these challenges can be met. Leadership should not be described as an act of an individual as it is a complex interplay of many interacting forces. (Uhl-Bien, Marion & McKelvey, 2007) The use of complexity theory is suitable for leadership research as it is based on a combination of several simultaneously affecting factors, where anticipating different aspects is difficult or even impossible (Hanan, 2017, 115).

A complex internal and external environment of organisations poses specific requirements for management. Organisations function in an operating environment where multiple variables and contexts intertwine, and where the cause and effect ratios are unclear. In a complex situation, several different components interact with each other and leadership should enable interaction and collaboration. (Hanan, 2017, 135). Last century leadership models focusing on management from top to bottom drew heavily on bureaucracy. As they are suitable for certain types of organisations, for example in heavy industries, the knowledge-oriented organisations of today need something different. In complexity thinking, leadership is based on a paradigm that frames leadership as a complex interactive dynamic from which adaptive outcomes emerge. (Uhl-Bien, Marion & McKelvey, 2007)

Tom Hanan has done his doctoral thesis about Complexity theory and leadership, called *Faced with the Unexpected – Leadership in Unexpected and Dynamic Situations: An Interpretation Based on Complexity theory*. In his research, Hanan builds a framework about leadership in unexpected and dynamic situations. His findings suggest that the most important ways to manage complexity are 1) diversifying the range of actions, 2) group processes and 3) finding the right balance between mechanic and organic ways of dealing with a situation. (2017)

The complexity aspects of leadership can be divided into three subsections:

1. *Concentration in strategic processes* and changes where complexity is seen as a positive opportunity for change.
2. *Defining Organisations as Complex Adaptive Systems*. (CAS). In this definition presented earlier in Chapter 2.3, two or more components interact with each other or with the environment. Behaviour is modified or adapted based on the interaction obtained through the feedback loops. Operators have a certain formula for work (schema).

3. *A Complexity and Leadership Approach*. The effects of internal and external complexity on the organisation's operations require a new perspective on leadership. Traditional management is based on a mechanical or bureaucratic organisation. This traditional top-down management does not work in a complex situation, as the members of an organisation interact with each other, including the leader as a part of the interaction process. (Hanen, 2017, 147)

However, an organisation cannot function merely mechanically or spontaneously. Instead, there are situation-specific operations where things are controlled by management. Complex systems also need hierarchy and structure, but these elements are emergent and self-organised as the system adapts and evolves to the changes in its environment. Complex systems are often open, and interactions take place across their boundaries with other systems and the environment. (Hanen, 2017, 175) Complex systems evolve in ways that are unique and cannot be repeated or reversed (Gerrits & Marks, 2015).

2.3.1 Complexity Leadership Theory

Uhl-Bien, Marion, and McKelvey suggest a framework of Complexity Leadership Theory for Complex Adaptive Systems (CAS) that enables learning, creativity and adaptive capacity of knowledge-based organisations. The Complexity Leadership Theory is based on the dynamic capabilities of CAS. The theory explores and identifies the strategies and behaviours that enable organisational creativity, learning, and adaptability. (2017)

Three main leadership roles according to this model are 1) administrative leadership, 2) enabling leadership and 3) adaptive leadership. Often these three various types are interlinked within an organisation. Enabling leadership is a unique leadership type introduced by complexity thinking. In the complexity leadership framework, the role of operational leaders is to convert emergent ideas into the structures and systems of an organisation. Entrepreneurial leadership is the creation and development of new ideas that will help an organisation to adapt to pressures or capitalise on opportunities. Enabling leadership operates in between entrepreneurial and administrative leadership. It enables the creation of adaptive space that feeds and fuels emergence and helps to initiate novelty, change, and innovation. (Uhl-Bien & Arena, 2017)

The three leadership types of Complexity Leadership Theory in more detail:

1. Administrative leadership is grounded in traditional, bureaucratic notions of hierarchy, control, and alignment. This type of leadership style includes formal managerial roles that plan and coordinate activities for accomplishing organisation's goals effectively and efficiently.
2. Enabling leadership structures conditions for creative problem solving, learning and adaptability. It facilitates the flow of knowledge and creativity from adaptive structures to administrative structures.
3. Adaptive leadership is a generative dynamic that underlies emergent change activities. Adaptive, learning and creative actions emerge from the interactions of CAS as they try to adjust to various tensions.

These three leadership types are intertwined in a way that is referred to as entanglement – a dynamic relationship between the formal top-down administrative forces and the informal, complexly adaptive emergent forces. (Uhl-Bien, Marion & McKelvey, 2007)

The informal dynamic of Complexity Leadership theory is embedded in the context and refers to the nature of interactions and interdependencies among agents and environments. The leadership and the CASs are constructed in and from this context. There is a difference between a leader and leadership. A leader is a person who acts in ways that influence the outcomes and dynamics produced by adaptive leadership. Adaptive leadership occurs in emergent, informal adaptive dynamics within an organisation as administrative leadership focuses on formal acts that coordinate and structure organisational activities also called the bureaucratic functions.

Complexity leadership occurs in adaptive challenges rather than technical problems which are typical for today's knowledge-based organisations. These challenges require new ways of behaviour, learning, and innovation. This is the difference between management and leadership development as the management development involves the application of proven solutions to known problems and leadership development focuses on learning ways out of problems that could not have been predicted. (Uhl-Bien, Marion & McKelvey, 2007) This is why it is suitable for research about management in complex and unpredictable situations such as security management.

2.4 Definitions

The following chapter summaries the definitions of the main concepts of this research.

Complexity: Includes both complexity research and complexity thinking. The interest in complexity research is the living and transforming part of the system, the derivative of a system theory. (Hanen, 2017, 115) Interweaving is a synonym to complexity. (Hanen and Huhtinen, 2011)

Complex Adaptive System (CAS): These are networks that bring together interdependent agents who interact and are bonded together by a common goal or need. (Uhl-Bien, Marion & McKelvey, 2017)

Complexity leadership theory is a leadership theory for Complex Adaptive Systems (CAS) that enables learning, creativity and adaptive capacity of knowledge-based organisations. (Uhl-Bien, Marion & McKelvey, 2017)

Comprehensive security model: A cooperation model that is described in the Security Strategy for Society, a document presenting the basic principles of preparedness in Finnish society. In this cooperation model, the actors involved share and analyse security-related information and plan and practice things together. Foresight is an important element of preparedness action: it helps to respond to any future security threats and prevent them. (The Security Committee, 2018)

Emergence is the process of interaction that produces the system's properties and how the behaviour of systems emerges from the interaction of its parts. It refers to the actions through which new things or ideas can be achieved. It is often spontaneous, and the new behaviour cannot be predicted. (Vartiainen et al., 2013; Uhl-Bien, Marion & McKelvey, 2017)

Leadership: Leadership is the ability of an individual or a group of individuals to influence and guide followers or other members of an organisation. (Uhl-Bien, Marion & McKelvey, 2007)

Wicked problems: Problems that are difficult to identify and understand as they are vibrant and variable. (Vartiainen et al., 2013)

2.5 Summary of the theoretical background

The following matrix defines the summary of the theoretical framework and its key theories. These include Complexity thinking, Wicked problems, Societal security, Complexity, Complexity Leadership theory and security.

Theory	Author	Summary of key findings and interpretations
Complexity thinking	Burnes, 2007 Hanen, 2017 Vartiainen et al., 2013	Complexity theory refers to various theories as it is multidisciplinary. Origins can be seen in natural sciences such as biology, physiology, chemistry, mathematics, and social sciences. Complexity theories are an umbrella for several theories, ideas, and research programmes.
Complexity leadership theory	Uhl-Bien, Marion, and McKelvey, 2007	Complexity Leadership Theory for Complex Adaptive Systems (CAS) enables learning, creativity and adaptive capacity of knowledge-based organisations. Identifies the strategies and behaviours that enable organisational creativity, learning, and adaptability.

Security	Juntunen & Virta, 2019	Security is a core function of a state while a state has been given power over territory and people. There are different forces sustaining both external and internal security. Security can be defined as being secure.
Societal security	Virta & Branders, 2016	A broad framework for security research that is multidisciplinary with concepts largely from the tradition of international relations. Used in many studies and research programs in the same sense as comprehensive security.
Wicked problems	Vartiainen et al., 2013	Wicked problems are problems that are difficult to identify and understand as they are vibrant and variable. The wicked problems are often socio-cultural, and they cannot be solved in a purely rational manner.

Figure 1: Theoretical background

The next part of this thesis will discuss and present the methodology used in this research.

3. METHODOLOGY

This research uses qualitative research methods as they are the most suitable for this type of research. The data is collected by semi-structured theme interviews and content analysis is used for the analysis of the data. The next section will first discuss qualitative research in general, followed by the information about the interviews, more details about the analysis and finally some words about the source criticism and reliability of the research.

3.1 Qualitative research

The objective of science is to describe, explain and understand reality. Science should be characterised by criteria such as objectivity, systematisation, criticality, independence, and impartiality. Scientific information must be well-justified. (Puusa & Juutinen, 2011, 11) Science refers to both the results of the research as well as the overall research process. Science aims at finding solutions to old as well as new problems and is expected to produce new information through systematic methods. (Aaltola & Valli, 2015, 15)

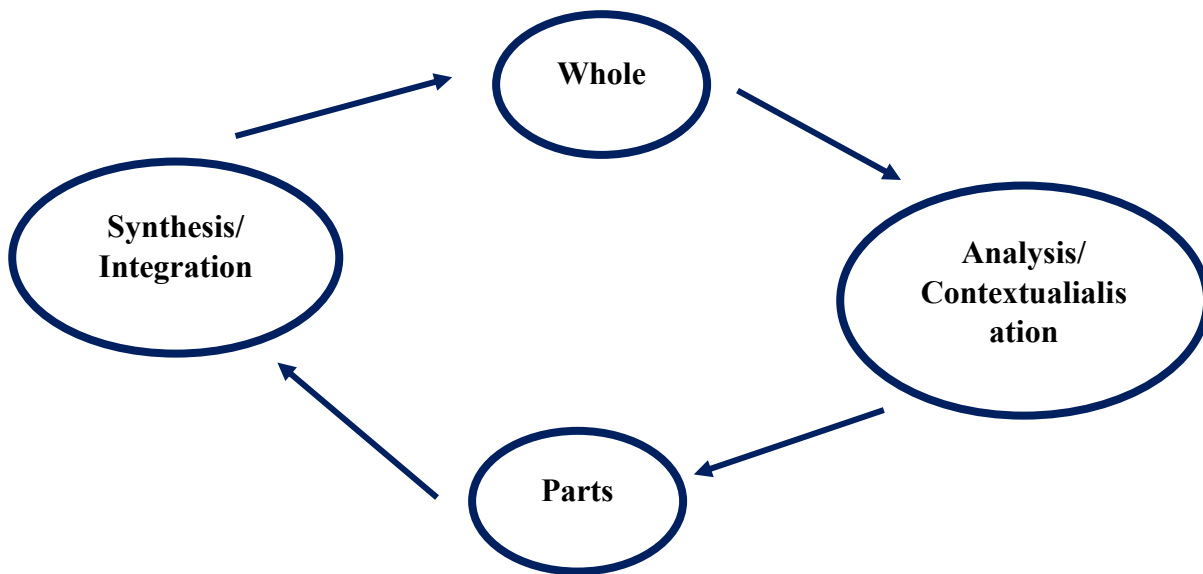
The methodology for this thesis is based on qualitative research. Qualitative research has become more common in Organisational Sciences since the 1970s. Qualitative research is important as many of its subjects are abstract and arise in communication between persons. All phenomena cannot be explained through mathematical formulas. (Puusa & Juuti, 2011, 31) Qualitative research aims at findings without using quantitative methods as it is more based on words and sentences than numbers. (Kananen, 2017, 35) As management and leadership are about communications and people, qualitative research was chosen for this thesis. As the object of this research is to investigate management as a phenomenon, quantitative research would not be suitable.

Qualitative analysis is constructed in two steps, reducing observations and solving the mystery while these two are nevertheless being interlinked. The research material is observed from one point of view and attention is paid only on the matters that are relevant according to the research

questions and the theoretical background used. The number of categories of observations is again reduced by combining them by finding common nominators or traits between them. The second step in qualitative research is solving the mystery and interpreting the results. (Alasuutari, 1999, 40-44)

Qualitative research is subjective. The research focus is on individual cases and in the research, it is essential to emphasise the perspective of the individuals and their interaction with the researcher. Individual experiences are important, and the task of the researcher is to provide a theoretically meaningful interpretation of the phenomenon which is under investigation. (Puusa & Juuti, 2011, 47-48) The researcher should also be able to see behind the observations, meaning, that things are not always what they seem (Alasuutari, 1999, 81).

The objective of qualitative research is to describe, understand, and give meaning to phenomena and understand them profoundly. Qualitative research is describing and deductive which means that the research is aiming from the general level to more specific cases. The research process proceeds hermeneutically. The researcher enters a dialogue with the material available from the research topic point of view. In a hermeneutic circle, the researcher approaches a gradual interpretation. Both the study's entirety and its parts are important. The various processes of the hermeneutical research process are overlapping, and the researcher moves back and forth between the various stages before writing the research report. (Puusa & Juuti, 2011, 42-43)



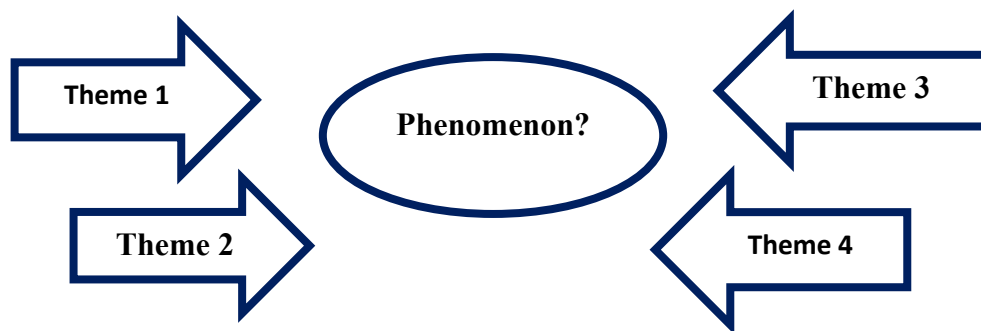
Picture 2: *Hermeneutic circle* (Puusa & Juuti, 2011, 42-43)

3.2 Interviews and data collection

The theoretical framework defines what kind of research material should be collected and how it should be analysed or vice versa (Alasuutari, 1999, 83). Interviews are the most common method to collect research material for qualitative research. They are interactive and both parties always influence each other. A thematical interview is a conversation between two people, in which the researcher has decided beforehand the themes that will be discussed. The themes are usually very common for the interviewee and form the subject of the conversation. The researcher will form a framework of questions related to the subject to be discussed with the informant. (Kananen, 2017, 88-97) The empirical material for this research is collected by semi-structured interviews with questions based on the literature review and the main themes found in the theoretical background.

Through the theme interviews, the researcher aims at understanding the researched phenomena. The interest is on the given person and their actions that the researcher then tries to understand through

the interview questions. A question and an answer create a little piece of understanding and open new questions. Dichotomic questions that can be answered to with simple “yes” or “no” answers should be avoided and broader questions starting with “how” or “describe to me” used instead. (Kananen, 2017, 92-94) Research questions may become more specific before or during data collection (Aalto & Valli, 2012, 59). An interview is like a puzzle in which the answers are part of the whole. While doing interviews, careful consideration should be done regarding the questions. To be able to get a more holistic picture, another round of interviews would give the researcher more profound information. For the scope of a Master thesis, this is often not possible due to the limitation of time. (Kananen, 2017, 92-94) In this research, only one round of interviews was conducted.



Picture 3: *Through the themes, the researcher aims at understanding the research subject (Kananen, 2017, 90)*

While conducting interviews, participants’ answers as such are not the results for the research as theoretical argumentation is also required. The researcher also needs a research method. (Alasuutari, 1999, 82) Through the analysis of the answers, the researcher builds a holistic picture and an understanding of the subject. The small details are used to build the bigger picture. The interview questions are planned according to the research problem. The subject can include some sensitive information, so it is important that the interviews can be done in a confidential atmosphere and participants cannot be identified. The interview situation includes two parties in which it may be possible that the informant can produce information that does not reflect the reality. It might also

happen that information is modified according to the situation. Also, the words and sentences can be understood in different ways as they are not unambiguous. Non-verbal communication can tell a different story than the words used. The interviewing situation is communication between two parties in which the informant tells about his experiences to the researcher. The researcher should be able to create an atmosphere of confidence by a respectful and interested attitude so that the informant feels that he can speak freely. The interviewer should not question the answers nor share his own opinions. (Kananen, 2017, 89-91)

3.3 Participants

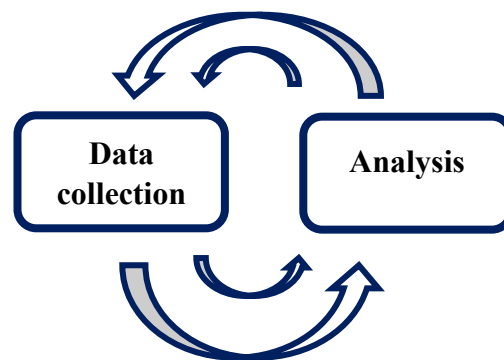
During this research process, a careful selection of participants for the interviews was done through personal search as well as discussions with experts on the security management field. The interviewees were found by doing online research and through professional networks. The interview request (Appendix 1) was sent to twenty-one people and all together sixteen replies were received. Finally, twelve interviews were arranged through these contacts and one more informant was found during the interview process. The research material was collected through thirteen semi-structured interviews. Similar semi-structured questions were used in all the interviews (Appendix 2). Ten interviews were done in face-to-face meetings, one through e-mail and two through Skype. The interviewees represent twelve various organisations, both governmental and non-governmental organisations, and the interviews were also conducted on their premises.

The organisations represented were four ministries, two non-governmental organisations, two educational institutes, two governmental institutes, and two municipalities that work with security management related themes. The interviewees all work in high-level positions as specialists or managers and are experts on security management with long careers related to security. The interview situations were open and conversational and pre-planned questions provided background support. Situations varied widely according to the interviewees. In some cases, the interviewee spoke openly about the subject and there was no need to ask further questions. In others, a more active role as an interviewer was needed. Interviews varied in length, with some lasting more than an hour, and with others, thirty minutes seemed sufficient. The feedback about the research was

overall very positive, and the number of interviews was higher than what was expected. Thus, the amount of research material was extensive.

3.4 Analysis

The research material collection and its analysis alternate in cycles. Beforehand it is not possible to say how many rounds of analysis are needed as it is defined by the amount and quality of the research material. In qualitative research, the researcher tries to find a solution to the research problem. The first phase in the analysis is to collect the research material. After the information collection, the material is transcribed and processed to text format. The next phase is to classify the research material according to certain themes. (Kananen, 2017, 130-132)



Picture 4: *The collection and interpretation of the qualitative research material happen simultaneously. (Kananen, 2017, 130-132)*

Qualitative research looks at the research data collected as a whole. There are two stages in the analysis, reducing the observations and solving the mystery. In practice, these overlap closely. At the stage of reducing observations, the material is examined from some theoretical-methodological point of view. Attention is paid to the issues relevant to the theoretical framework and the research

questions. In the second step, observations made from the data are eliminated by combining them into either a smaller set or a single observation. (Alasuutari, 2001, 38-41)

Research problems are transformed and deepened as the researcher's preconceptions enlarge and develop. Some questions might not seem relevant anymore and new points of view are found. Different meanings can be found in the same research material and different assumptions and interests cause researchers to relate their research in different ways. The goal for the researcher is to be aware of their own understanding of the subject. Part of this is always subconscious but a researcher should strive to understand one's prejudices and preunderstanding. (Aaltola & Valli, 2012, 57-58)

While interpreting the results, the material obtained from the research is compared with previous research and literature. The more research available, the more reliable the results. However, scientific research can never achieve complete certainty. (Alasuutari, 2001, 44-48) In scientific research, mere observations cannot be regarded as results in themselves, but rather as guides to deeper observations. Of course, mere observations can also have interesting value in themselves and cannot be completely distinguished from the results. However, the observations made in the study are examined from only one perspective, which is determined by the theoretical framework of the subject under study. (Alasuutari, 2001, 78-79)

According to Tuominen and Sarajärvi (2009), a certain amount of material can be used to find the theoretical basic pattern of a subject. The saturation point is reached when the same things begin to recur in the data and, for the research problem, for example, the interviewees no longer produce significant new information. (89-90) The researcher needs to be very clear about what to look for before he or she can evaluate the saturation of the material. On the other hand, there are no specific rules regarding the size of qualitative research material. The purpose of the material is to help the researcher to develop an understanding of the phenomenon being studied. (Eskola and Suoranta, 1998)

The analysis of empirical data in qualitative research is data driven. It articulates themes that have been interpreted as relevant to the phenomenon under study. An attempt is made to comprehensively address the data, suggesting that the phenomenon under study is part of a larger context. In addition, the specific features of the investigated events are discussed. The analysis of

the data should not be left to the final stage of the research, but it can be developed already during the process. The aim is to find meaningful fundamental themes in the collected material.

(Kiviniemi, 2010) The analysis provides a clear summary of the material and aims to produce new information on the subject being studied (Eskola and Suonranta, 1998, 138).

After completing the interviews, this research process included the transcription of the data collected in which the recorded interviews were converted into text for easier processing during the analysis phase. The written material of almost two hundred pages required a few readings before the themes began to emerge. The analysis was conducted by dividing the material into certain themes that started to rise from the expert's interviews. These included the security situation in Finland, the role of the European Union, managing in a changing security environment, leadership, preparedness, cooperation, the operational environment, and the future. The relevant material according to these themes was under closer analysis and other material not so relevant to the themes was left out at this point. Differences and similarities between the interviews were compared and common patterns and content formulated and analysed. The material was compared with previous research and connections to the theoretical background made. The analysis was then written according to these themes, the research questions answered, and recommendations made. The research process was finalised with thoughts about future research.

3.5 Source criticism and reliability

The results of scientific research have to be reliable. In qualitative research, this can be problematic as unambiguous instructions for testing the reliability do not exist. (Kananen, 2017, 173) Source criticism is an essential part of the analysis. The researcher should indicate how consistent the material is and are whether the participants are reliable. (Alasuutari, 1999, 95) The essential thing in reliability is that the conduction of the research is well-planned ahead and done according to the rules of science. Every step of the research should be documented and justified, and the research material collected should be stored well. (Kananen, 2017, 178) A researcher should describe in detail how the research material was collected and how the conclusions were made, and report this in written format. Theories and interpretations must be clearly distinguished from direct observation and informants' statements. (Aaltola, Valli, 2012, 63)

This research was planned beforehand and proceeded carefully one step at a time. Every step was documented, and careful consideration paid to follow strictly scientific and academic rules. The high number of interviews make the results quite reliable thus the participants were selected to get as much information as possible from different types of organisations in the security management field.

The following part will present the most relevant results and analysis of the subject.

4. LEADERSHIP IN TODAY'S CHANGING SECURITY ENVIRONMENT

As explained in the previous sector, the information collection for this research was done by interviewing all together thirteen experts in the field of security management. The wide range of organisations represented different views on security management to document a wide array of interpretations and opinions concerning current security management issues. The following section will present the main findings and results. The experts are referred to as "E1", "E2" and so forward according to the sequence of the interviews.

4.1 Security environment in Finland

Changes in the international operating environment such as terrorism, climate change, and information influencing also have many effects on Finland's domestic development. They bring new uncertainties to the security of society. Today's threats are dynamic, cross-border and transformative. Disruption refers to a threat or an event that endangers vital life in society or its strategic tasks and requires management by authorities, closer collaboration, and communication between actors. Identifying threats and evaluating their effects has proven challenging. Monitoring and analysing changes in the operating environment and maintaining anticipation capabilities is imperative. (National risk assessment, 2018)

Building on comprehensive security has emphasised the application of a coordinating approach to meet the challenges of a changing security environment. According to the Security and Defence Policy Report, the most important challenge of comprehensive security is the increase of global and national interdependencies. The security environment has become more uncertain in a short time and this development calls for different strategies. (Branders, 2016, 106-107) The first subject of discussion during the interviews with the security management experts was the current security situation in Finland and how it has changed during the last ten years. Almost all the interviewees saw drastic changes in Finland's security environment during this period. Significant events and changes mentioned were Russia's current policy and the events in Ukraine, the United States

politics, climate change, hybrid threats, and digitalisation. Overall according to them, the international situation has intensified. The overthrow of Crimea was a decisive change in the way of thinking that military cooperation can move forward, and such conflicts remain behind. Experts also mentioned how after the last wars, Finnish society became aware of the need to be prepared. The preparedness was guided by the thought that something can happen. Today the events of the world come close. Although everything in Finland might be well, the security environment affects all the countries in some ways.

E2: “The importance of the cyber and hybrid issues is growing; we have not previously considered them to this extent. Terrorism, which was not discussed before, has now clearly emerged as one of the people's concerns. There is a change in people’s thinking that what happens elsewhere can happen to us.”

The two most important current security concerns raised in the interviews were influencing through information and hybrid threats. Influencing through information is an activity where information is produced, edited or restricted to change the perception or activity of the subject through the information environment. Influence seeks to systematically confuse and obscure public debate and the boundary between truth and lies. Influence may also be exercised by a state’s strategic activities. Its purpose is to undermine the ability of a society to function, as well as its confidence in its authorities and the government. Different types of propaganda have always been used, especially in conflict situations. Influencing through information takes place all over the world and Finland is no exception. It typically targets the media, citizens and political decision-makers, a particular nationality and people living in other countries with ties to Finland. (National risk assessment, 2018) Many of the experts also suggested that hybrid as such is not a new issue, but only the package of how it is designed has changed. Cyber and hybrid threats come in quite a different form allowing the threats to come from anywhere as these threats are becoming more global. Different interdependencies have increased within society; vital functions are all tied to the digitalised world where a particular threat may come from.

E3: *“The spectrum has diversified from traditional threats (military) to cyber and hybrid, but they are new names for the same things. This phenomenon has existed since the Trojan horse. The goals are the same, but the means have diversified.”*

Informants agreed that the operating environment has become more complex. Complexity - at least the awareness of the security environment's complexity - in the sense of interconnection has increased. Rapidity also characterises changes in the security environment and the fact that a phenomenon might not be considered as a security threat first. Constant change is present, and this means that the concepts also have had to be modified. Overall, the experts saw that digitalisation has made things more complicated and faster.

Even though Finland is generally seen as a neutral player in international politics, situations can develop quickly and affect societies in many ways. The international situation and things happening in the world today can be seen more rapidly in Finland than ever before. Experts indicated for example that terrorism was not previously discussed to this extent, but it has now clearly emerged as one of the general public's concerns. There is also a change in people's thinking that what happens elsewhere can happen to us. Work should be done to promote the work of security institutions and its co-operative actors in Finland, as statistics support the fact that Finland is still a safe society. Within the country, the inequality and polarisation of society change the general sense of security. According to the informants, insecurity is experienced differently today than before. They also raised concerns that it is not enough to communicate through facts that Finland is safe if people do not feel that way, as a sense of security is more about feelings than cold facts.

4.2 The role of the European Union

The safety environment in Finland today is largely influenced by the European Union (EU). The European Security Strategy in 2003 highlighted the changing and complex security environment with new threats. It emphasised the importance of the EU as a global security player and coordinator of the battle against security threats. (Branders, 2016, 78) The central role of the European Union related to Finland's security environment was the next subject of discussion during

the interviews. The security experts underlined that Finland is connected to world politics, security policy and discussions on these topics through the European Union. They saw the EU as the main international environment and context in which Finland operates, and underlined that what is happening in the other EU Member States also affects Finland. The highest decision-making body is the EU and it brings with it more standards and control structures.

According to some of the informants, the EU produces a certain type of security environment where the EU has the performative power, but the hard security performance is nevertheless flagged under the North Atlantic Treaty Organisation (NATO). The fact that Finland is not part of the NATO as most of the other EU countries, is reflected in the security world. The EU and the NATO were seen as two separate players with different resources and influence. According to some of the experts, Finland's security in the EU comes from being part of the 500 million people and a group with a lot of influence, politically and economically. Others said that the EU as such does not affect our security environment in any way. But as Finland is part of Europe, there exists for example joint decision-making, political decision-making, and common solutions for energy supply – these again are sources for intelligence and influence. Some stated that the EU is creating common structures, but how it affects the security environment, is harder to judge.

E11: "At the end of the day, we are pretty much on our own as a non-allied country."

Most of the informants analysed that a small country like Finland benefits from being part of a larger entity like the European Union. Some thought that Finland has a big neighbour country that brings certain challenges. The world politics in the current state are also in a controversial phase with elements of a trade war and the EU not speaking with one voice. Finland, too, can be tied to conflict or crisis as part of the EU. By its magnitude, Finland benefits from being part of the EU through certain mechanisms and the market, concluded one of the security experts. The role of the EU in security cooperation is important as the world is global, and there must be various channels to share information within Europe as the resources in Finland are scarce. According to the experts, it would not be possible to create an overall security picture without the EU networks. Being part of the EU also brings certain obligations. As Finland is part of the EU, it cannot refuse what that has

been decided by the EU bodies in Brussels. For example, if it is decided to set up a joint force, then Finland cannot refuse from participating. Overall, according to the interviews, the EU is stabilising the security environment in some ways but bringing new threats as well.

E12: *“Part of our independent decision-making has moved to Brussels and it is useless to cry and long for that.”*

4.3 Managing in changing security environment – making it strategic

Managing in a changing security environment is complex and this complexity refers to both organisations as well as their operational environment (Anderson, 1999). The security environment is constantly changing, and as many participants of this research indicated, unpredictable and sensitive. In the security sector, there exists a lot of interconnectivity inside various organisations and between them. The changes caused by these interactions are sometimes surprising and unexpected. (Uhl-Bien & Arena, 2017) Management is a tool to anticipate, control and prepare for these surprises. The environment for security management is complexed and things are changing rapidly. New challenges are rising, and this requires new tools and expertise from the managers. The following topics of conversation with the experts were the overall challenges and management in a changing security environment.

E13: *“We need to be prepared. For example, the situation ten years ago that we should be able to be prepared for all problems and prevent all threats and minimise the risks, this is not possible today.”*

Some of the experts saw Finland as quite traditional in security management; things might be done conventionally and there are certain difficulties to accept that the world is constantly changing. They called for understanding that there exist various ways to manage and it must be accepted, that

there may be different solutions to problems. This requires thinking outside of the box. Some experts estimated that not everyone knows they are managing comprehensive security or the whole and lead only a certain operative part of the area without the overall picture. Complexity occurs especially in expert organisations because their activities are characterised by ambiguity. The organisations represented by the interviewees were all expert organisations. In order to be successful, these types of organisations need to adapt to complexity, identify the wicked problems and opportunities and prepare for surprises and changes caused by complexity. (Vartiainen et al., 2013, 38)

E13: *“Security leaders might have the weakness of staying in search of the perfect security solution or the world when they should be able to surf on top of the risks and manage that big ocean.”*

While discussing management, the interviewed managers recommended that the target group which is managed, need to view management as acceptable, understandable and achievable. The importance of confidence was imperative: Security and cooperation are so sensitive that in the field of security one cannot lose that confidence even for the first time. One issue highlighted in the discussions was preparedness, as the society needs to be prepared for different kinds of crises and disruptions. The concept of comprehensive security has developed Finland’s common preparedness, but they still exist a few reservations among certain actors. The security managers have the opportunity for open discussion in collaborative forums, but the question is how to build common ground and guidelines together in fruitful cooperation.

However, the security management situation has changed in the last 10 years. The experts gave an example of this changed situation that today it is not possible to be prepared for all problems, prevent entirely threats and minimise the risks. Instead, more attention should be on the detection and resilience of threats and disruptions to recover from challenging situations. Resourcing security management and getting it to a sufficient level requires a lot of work. In many organisations, control and prevention still exist. Nevertheless, in security management today, one should also be able to reject the idea of security that everything can be controlled. According to the interviews, when managing in a complex security environment, it is essential to understand the conceptuality and

dynamism of the operating environment. An organisation cannot be prepared for everything and it must maintain flexibility and resilience. Cooperation and open communications with various stakeholders will help an organisation to be resilient and able to operate in unpredictable situations. (Hanen, 2017, 175-176)

4.3.1 Challenges

An organisation can best work in a complex environment by making itself more complex as the operational environment of a social system is always more complex than the system itself. An organisation should face the complexity of the environment because it cannot work as a closed system. An organisation will thus be able to maintain relationships with the environment and to be able to react. Resilience is one of the means of adding complexity. An organisation cannot be prepared for everything, so it must be flexible and resilient. Maintaining various relationships will help an organisation to be resilient and able to operate in unpredictable situations. (Hanen, 2017, 175-176) The following topic in the interviews were the overall challenges in security management with complexity mentioned as one of them.

Interviewees commented that overall challenges in security management are growing, with the number of things to be reacted to and the overall complexity increasing. Issues are not simple, variables that come from different directions increase the challenges and the workload of preparedness. Another challenge was seen in the pace in which the world is moving today. Disruptions and crises occur more rapidly than ever before and can go from much smaller issues to interdependencies. In security management, one needs to be prepared for new threats all the time. A security organisation can no longer guarantee safety, but safety comes from the people, their situational awareness and understanding. According to the experts, people can be educated and instructed, but not everything can be prepared for, the human element always remains. Various threats are getting closer to individual employees through networks and other tools. Things need to be addressed a little earlier than before and security should be involved in every matter. Even though the importance of security has risen, the field was seen as being under-resourced.

4.4 Skills and abilities of a leader

According to Niklas Luhmann's functional separation theory, the environment is always more complex than the system operating in it. Through functioning systems, we can delimitate and reduce complexity. Complexity is a situation that holds more opportunities than can be actualised. (Hanen, 2017, 143) Complexity can be seen everywhere: it occurs when networked interactions allow events to link up and create emerging and unexpected outcomes. In this kind of environment, adaptive responses are required. An organisation that can operate as a complex adaptive system enables adaptive space - the contexts and conditions that allow networked interactions to foster the generation of new ideas and learning. One key feature for creating these conditions is leadership and it was also discussed with the experts during the interviews. (Uhl-Bien & Arena, 2017)

Vartiainen et al. highlighted that the best solution to wicked problems such as security issues is co-operative leadership that is aiming at the benefit of the entire organisation. The costs and benefits are shared among the various players and at the same time, problem-solving also needs to be extended beyond organisational boundaries, which is often done in security management. (2013, 43) According to the experts in this research, communication is leadership and leadership is mostly about communication. Security management was seen as fully organisation-related, always targeted at a certain group of people and the operational environment. Everyone should be involved and invited. Leadership should be done diplomatically, with good personal relationships, being professional in all circumstances, even in situations with tough pressures. Informants elaborated that one should be able to look at things not only from one administrative sector as security threats do not follow divisions. People always create both challenges and opportunities for leadership. The questions raised were how to develop expertise and recruit the right people, and what is the accurate expertise in a certain situation and how to identify it.

E6: *“A leader should know how to play the game, understand the field and then play it. Overall, security must be transmitted through management.”*

In security management, people come from various backgrounds and the experts saw the field slowly moving from hard military culture to more cooperation and humanity. Working with security requires a wide range of people from basic workers to leaders. Also, the experts called for a certain level of academic professionals in the field, not just “the brisk men - mentality”. They described how, in the past, security managers were mostly military officers or previous police officers which led into a hard security culture with bars for windows and locks for doors. Today’s leadership requires a new way of thinking: A clear vision must exist, and experience is useful, but it does not prepare for security architecture. A manager must be able to handle large entities and rarely succeeds without understanding the whole of the issues. If the entity is not in control, then micromanaging might be put in place instead. There are changes in the air: terror and hybrid action are rising, and this requires dynamism from leadership.

E1: *“Work is not done just at the office desk. We need to be active and have network operators and search for new ideas and signals”*

4.4.1 Features of a leader

Managing in a complex environment requires certain kinds of features from the leader. According to the results of this research, one key feature is flexibility, and another is communication and networking skills. One of the experts described it as the cooperative know-how, which can be defined as the manager's ability to understand the partners' needs and then trying to reach a common goal to achieve synergies. It might require a change in mentality as the most challenging cooperation partners need the most attention to build trust and understanding. A common ground should be found even though not all information can be shared. Transparency is important to a certain extent but in security management, not everything can be open. A leader must tolerate uncertainty as, during a crisis, it is even more difficult to get an accurate picture of the situation. In a situation of uncertainty, one must be able to lead. According to the interviews, a manager should have a certain level of humanity, an ability to listen, have their feet on the ground, take responsibility for decisions, and think well in advance. Good leadership is especially necessary in challenging circumstances. Other features mentioned were rigidity and assertiveness, emotional

intelligence, and patience. A leader should first have a proper vision and a common goal and then think about how to achieve it. In security management, expert leadership is even more important, to be able to pay attention to the skills of different professionals and to be able to use these skills.

E7: “My vision of leadership is that it makes other people do their best and commit and get excited about their work.”

Overall, the discussion about leadership led to a fruitful conversation with the informants. All of them had a lot to say about the features and requirements for good leadership. Leadership itself is becoming more and more complex. Threats are interdependent and it is not always possible to know, which issue or where something is rising. The question is also about what kind of new skills for management are needed when identifying and tackling problems that require extensive expertise. Informants said that leaders need to understand what security means in each context, and what kind of security implications one’s decision-making has. A leader should have a good and a comprehensive picture, a solid knowledge of the preparedness and vision of the direction, a desire to rise from one’s silo to the outside and to investigate things from a helicopter perspective. A leader also needs to have a wide-ranging view, understand the needs of their partners, have eyes open and understand that the future will not be similar as the past twenty years. Overall, one should be able to look into the future and be brave to think how for example new technologies can support the security field and its management. Lots of tolerance and acceptance would be needed about the fact that the world is not ready, in order not to get stuck on individual things, as well as readiness to see what could be learned and in which direction the organisation should be going. One model for security management could be the cooperative leadership model, which is aiming at the benefit of the entire organisation. In this model, the costs and the benefits are shared among the various players and the problem-solving extended beyond organisational boundaries. (Vartiainen et al., 2013, 43)

E7: *“It is no longer enough to shut down the fire. In addition, people and their know-how also need to be managed.”*

The chaos theory described how small changes to a seemingly unrelated thing or condition can affect large, complex systems. This is especially true in security management where the organisations sometimes operate on the edge of chaos, especially in crises. As full control of operations is not possible, surprises must be prepared for. (Hanan, 2017, 143) The experts highlighted that one method for this could be risk assessment, thinking about possible threats beforehand, making estimates, and assessing them: to what extent is a risk tolerated and what are the actions? An organisation has to have an ability to withstand a crisis and a leader must be able to see around the corner. It requires agility and being proactive rather than being reactive. This is where a working cooperation was considered as a necessity: a manager must be able to work with others and identify the most important players.

Experts also mentioned how a leader should participate in expert networks and care for them. In complexity, things can stumble upon a small matter and a leader should have the big picture. Focusing on disturbances in normal conditions creates the ability to act in more serious situations. A manager should have the reactive components in order through continuity planning and preparedness, keep the machine moving, be able to see where the threat is coming from and still be surprised. The informants described how this process requires situational awareness and understanding, networking, sharing knowledge, duplicating best practices, adopting them, and being humble enough to understand the process. It could be seen also about solving wicked problems which is a continuous process. The problem-solving does not end up in finding the solution but continues as a learning process. This is especially true in security management, where a certain level of uncertainty always remains. (Vartiainen et al., 2016, 39)

E3: *“Many things are all about communications. It often crashes because we are silent, and the media fill the vacuum. Alternatively, something negative goes out.”*

According to the managers and experts in this research, stakeholder networks are important, but the most important stakeholder is one's own team. If leaders only pay attention to their clients, they might undervalue the abilities of their own organisation. It is important that there are some policies, goals and priorities, and it is clear in which way the action is directed. One should strive to influence the operating environment knowing that not everything can be controlled. The official authorities do not create security, but every member of the organisation does.

4.4.2 Self-assessment

The interviewees described their leadership style as communicative, cooperative and trusting. Most of them had at least a few subordinates and many had gone through a management evaluation. Some key qualities among them were found. Even though the security management field can sometimes be seen as hierarchical with army-based management style prevailing, the results speak for cooperation, listening and sharing responsibility.

E1: *"I would say that your footwork is very important and that you go to the people, this work is not done by e-mails."*

The experts felt that in security management experience and knowing the right people are helpful as it is easier to go straight to business without needing to do the warm-up cycle. Critical networks need to be identified and used, committees and forums have proven to be functional. In these silo-free zones, one can think freely and reach a common understanding. Humility is needed as impatience does not work. The managers must operate in certain political realities and need know-how about the democratic machinery functions.

One expert mentioned how she asks questions, listens and talks to people before making decisions, and is ready to try new things if someone explains why there would exist a better solution. Another mentioned how he trusts people and gives responsibility, freedom, and rights, and tries to be calm and lead. Communication was one of the key areas mentioned, talking to everyone and appreciating

diversity, knowing how people are doing. Cooperation is also needed, putting things into practice with the help of others. A manager should also be able to familiarise himself in-depth about various issues.

E7: “Especially in the security sector when we deal with confidential information, sharing with colleagues is easier when we know each other at least at the surface level, so we can trust each other.”

Those managers that had been through an evaluation, were mainly identified as coaching leaders. These types of managers do not necessarily believe in authoritarianism and telling people what to do, but instead in being humane and empathetic. According to the experts, a good manager should listen, give realistic goals and support the subordinates in achieving them, encourage, give positive feedback, and create a good atmosphere for the team and be genuinely interested in people’s life outside of work. Expert leaders should let people know that they are cared about, and that help will be provided in tight situations, as this helps in building trust. One cannot succeed alone, especially with issues being as challenging as they are today. On the other hand, some mentioned how in certain situations leadership must be taken, especially if one does not hold a management title. And sometimes the manager may not be the best expert but must trust the subordinates. A good leader selects for himself more qualified subordinates with knowledge on the given sector and provides them with the resources, opportunities and a space to do the job.

The informants mentioned how working in security management brings certain requirements. When practicing for preparedness, clear roles should be taken upon. A manager should have the ability to foresee things, to adjust and balance, and change directions when necessary. Wisdom after the events is always easier than beforehand. The best experts should notice when something comes in and catch up on it. Some of the interviewees said that the military leadership was somehow easier where you grew into a certain role. Overall, new developments can be seen in security management: instead of trying to control everything, the focus is more on enabling security solutions. The final decision is on individuals, and not on the security manager, who can only give an estimate of what is likely to go wrong. This is well in-line with the adaptive leadership model.

4.4.3 Training

While discussing the current possibilities in security management and training, the need for development in this area became obvious. There are certain high-quality programs and degrees existing about security (for example Safety and Security Management in Tampere University, Safety management program at Aalto University Professional Development, Security and Risk Management at the Laurea University of Applied Sciences), but they are divided between many institutions and do not necessarily communicate with each other. The experts recommended that the security management training field could be somehow coordinated so that the concepts would be the same and different actors would not have different perceptions of things. Also adding networked, frontier-bound collaboration was mentioned. Comprehensive training and courses should bring security actors together to share problems with different actors. One positive example mentioned was the National Defence Course that gathers people in high positions to share knowledge and understand how certain mechanisms work. Another program that received compliments was the Aalto University Security Management Degree Program which was described as an excellent networking and collaboration course. On the other hand, some experts estimated that there are several security managers in Finland who do not have an academic degree at all. A right kind of a university degree with a strong emphasis on preparedness and digital security should exist in the field.

E5: *“Some coordination would be interesting so that the content would be the same.”*

As discussed previously, when leading in the world of security, not only the hard know-how matters are important, but also for example sensitivity, collaborative skills, and adaptation were among the things mentioned by the experts. Overall, educating and developing oneself as a leader was seen important. The experts believed good management skills can be taught, especially excellent interpersonal skills that are needed as the work is done by people. In addition, criticality and ability to argue were mentioned, as well as extensive problem-solving abilities, as it is largely what management is about. A manager should understand different orientations to be able to achieve the

most rational use of expert knowledge. One should be agile and adaptive and change to another profession if necessary. Suitable teaching methods were also called for and analysis on how to get the message through by various means.

E6: *“I would like to see more human leadership and listening, but I don't know how to train that. Overall, more consideration of others. “*

Another training related challenge mentioned was that overall, the security management training has started relatively too late. Even though the training was seen as good and systematic today, what seemed to be missing is the security element and training programme that would provide the government with a medium to a long-term assessment of the direction in which security environment is going. There also seems to be a need for someone in the field to give the best estimates of what the future threats and demands are, for example, a sparring group assessing what the world will look like in fifteen to thirty years respectively. As a small country, Finland ought to be able to build a long-term package and be able to make smart decisions.

E11: *“Predicting is extremely difficult, especially predicting security. But in any case, someone should do it, sometimes it goes right and sometimes wrong - but at least we would have even tried.”*

4.5 Being prepared

An organisation should be built to be resilient and to balance on the edge of chaos in a situation where it is possible to direct resources toward discovery and development. In chaotic situations, there can occur violation of traditional planning, decision making, and problem-solving methods. (Virtanen et al., 2013) Organisations being complex systems, management need to take on new dimensions. The belief that order and control are essential to achieve objectives should be redressed by managing in new and changing contexts and addressing self-organising processes. (Burnes,

2007) Preparedness is a key theme in security management and thus chosen as the next theme of discussion in the interviews. The experts estimated that the best way for preparedness is to keep various channels open to all directions and tell others about different observations. This should occur especially in various forums where information is shared with different actors. Overall, these cooperation forums should be built before it is too late. Preparedness produces the capability to have good operational and safety management. What is certain according to the experts, no plan will be implemented as it was designed. Preparedness is about balancing and competing to be awake. One of today's challenges was seen in the diversity of actors. Overall, the experts were positive about the fact that preparedness is overall possible, although it requires resources, collaboration, leadership, and cannot be sector-specific only.

E5: *“With such small resources in Finland, there is already a really good job done here. It's almost a miracle what you can do with that little. Of course, there is always room for development.”*

Sometimes the changes were seen as so unexpected that it might be difficult to respond to them. Most of the informants estimated that Finland is quite in a good position already, but, of course, there is also room for development. Key areas in preparedness mentioned were operating models, exercises, regular exploration of the operating environment, developing crisis tolerance, preparing, and preventing. One should always keep up with current developments, be flexible and adaptable, and observe in which direction the world is going. One challenge was seen in going to the old operating models from the standpoint of emergency preparedness while believing that threats, especially military ones, would follow similar patterns than previously. Thus, they would also be answered with the same kind of preparedness as before. The overall challenge of leadership and preparedness management was seen in case they cannot relate to the given organisation's normal processes but are done separately.

4.6 Silos or cooperation - towards a more fruitful cooperation

Social complexity is related to the networks coping with various issues. It is influenced by the number of people and the disunity of the networks. Social complexity includes, for example, strategic and institutional uncertainty. (Vartiainen et al., 2013, 31-35) While discussing cooperation in security management, there was a wide range of opinions on whether the cooperation is fruitful or more side-lined and separated between various organisations. There seems to exist a true willingness to cooperate, even on the hard side of security. On the other hand, challenges were seen in the cooperation with other actors; even though the comprehensive security model received good feedback, the cooperation is truly tested while working together in an operational situation. Again, it was mentioned how the operating environment has changed, it is more complex and requires cross-governmental cooperation with many actors involved. As the field of security management is overall multidimensional and complex, change is always present.

Some of the interviewees argued that a certain separation between organisations is also necessary. Too much concentration might weaken the outcome and large groups are more difficult to manage. Challenges mentioned were, for example obstacles to the flow of information and the protection of privacy which prevents people from raising their concrete security concerns. A partner might sometimes be searched within like-minded people which can create the problem that new thoughts and winds are not blowing. Also, the high number of different actors might lead to a situation where they are not communicating well enough. This part was when the question of gender was raised during some of the interviews. Traditionally it seems that most of the leaders in security field are men and this requires women to adopt certain principles and ways of working. Perhaps men could also learn new things from women managers, for example, emotional intelligence.

Approximately half of the informants estimated that the current cooperation works fine and is well coordinated. Overall, the security strategy has supporters and security actors at various levels. The cooperation has already been developed with various threat models, broad talk about security and especially the comprehensive security cooperation model. However, the experts estimated that the flow of information should be more open between various parties, best practices shared, and security management practiced between organisations instead of inside them. As mentioned in the

theoretical background, an organisation or an individual as a member of it, cannot operate without communication with its operational environment. Communication influences an organisation and its members which again shapes the environment in which the organisation operates. This partly explains why an organisation's environment is unstable and changing. (Vartiainen et al., 2013, 70) According to the interviews, building cooperation requires more opportunities and situations in which views and discussions can be exchanged, potential prejudices removed, and the different actors understand that cooperation might be the solution to many problems. There is necessarily no need to agree but to understand that a problem can also be approached from various perspectives. Overall, more situations, workgroups, workshops, joint projects where different actors think about things together were called for.

E10: "In addition to training, there should exist a loose security cluster at the local level or some instance that brings together the right people. This is a topic for future development so that it is seen as significant and financially invested in."

In cooperation, different skills and means are needed to solve future problems. Also, the informants underlined a need for bold new openings: most important is to have a snapshot and a common understanding of what happens next and to monitor weak signals. Dialogue and informal discussion were seen as tremendously important as informal communication eliminates unnecessary contradictions. Networking, collective competence development, and all structures that promote better awareness of the whole are all needed for cooperation to be successful. Joint planning is already done in the Security Committee but there was still seen a need for coordination and preparedness at different levels, also industry-specific points of contact and professionals in the preparedness positions who are close enough to their field of activities. Increasingly the interaction between different industries would make it more collaborative.

In terms of what could be done differently, there were a few suggestions. For example, there should be a primus motor, someone who gathers the security management people together for even deeper cooperation and sharing ideas and information. Everyone who gives information to others should also feel that they are getting something back from it, not being just a producer of information.

Some room of improvement was indicated in the importance of local cooperation level and the necessary funding for security work. In the security management field, the experts saw it as a risk that it could be broken up with too many actors with different fields of action. Therefore, there must be a body that directs these actions in the desired direction. Joint government action groups could be useful. Another idea was higher education, for example, the security management programme at Aalto University that would bring together experts from various fields. Overall, people from various levels should be brought together in a positive way to achieve effectiveness.

4.7 Can management influence changes in the operating environment?

Even though complex situations are difficult to anticipate and manage, management is the most important tool to control complexity. However, as the operational environment is in constant change, there exists no one method of management or organisational structure that would work in all situations. Organisations are complex systems that need to operate on the edge of chaos to survive and respond continuously to changes in their environment. (Burnes, 2007) One tool to manage complexity is organising: creating an order, combating abnormalities, simplifying things and connecting people and things. A situation should be given a meaning, circumstances should be named and limited, and interaction should be a broader process than just exchanging information. (Hanen, 2017, 156) The experts also considered management as a tool for influencing the operational environment and responding to complexity. Management was overall seen as moving from prohibiting things to providing opportunities.

The experts interviewed mentioned how despite the challenges, an atmosphere of fear should not prevail as it creates unnecessary confrontations. Leadership should be open, transparent and bold, and include people in decision-making. Managing in a changing security environment is also about risk management. There should be enough professionals in place to map out what could happen, go ahead with planning the measurements needed and then practice at all levels. In case something happens, time is limited and there is no possibility to start looking into written documents. Actions are required immediately as situations occur so suddenly. Examples mentioned were a cyberattack, where there are only minutes to react, or the terrorist attack in Turku in 2017, where everything happened in minutes. Preparedness must exist, it comes with physical and imaginative training and

planning with an active reflection on what kind of cooperation and renewal could prevent further damages. However, it should be kept in mind that in security management, there are certain boundary conditions that cannot be influenced, for example, the international security situation.

E4: *“The tricky thing is that when something goes wrong, it probably happens in a different way than was thought beforehand.”*

A complex, surprising situation can also be called a black swan that can create a situation that is extremely challenging to be managed. One central focus of interest in the complexity management research is in the moment when a surprising event takes place. That moment will change everything, and completely new dimensions will be introduced. The way the leader works after the surprise is decisive. The complexity theories are interested in how to interpret unexpected situations and phenomena where the cause and effect relationships are difficult to perceive. An organisation is also dependent on its earlier choices and its history. This is defined as the path dependency. The past of an organisation always affects its future developments. (Hanen, 2017, 115) The managers saw certain ways how management can influence the operational environment. One of them was developing and managing preparedness which was previously discussed, among some others were national security planning policies, a big picture describing the field broadly and increased risks and security planning tools. With effective cooperation, it could be possible to respond to black swans, and whatever happens, there should always exist plans and networks through which it is possible to act. Overall, promoting a peaceful and stable society was seen as a key to security.

E11: *“A lot can be influenced through this work, but at the same time, anything unpredictable can happen.”*

Security management includes many features of wicked problems described in the theoretical background. Existing management models alone cannot solve wicked problems and also in security, new management models are needed. The security managers often work in expert organisations

which need to adapt to complexity, identify wicked problems and opportunities, and prepare for surprises and changes caused by complexity. (Vartiainen et al., 2013, 38) One of the objectives of many security managers seemed to be trying to influence and anticipate the changes in the operational environment. A new way of thinking in managing security appears to be more about enabling than denying things, working as safely as possible. The role of security management was seen in bringing opportunities, striving to make plans work as well as possible and developing situational awareness and responsiveness. All stakeholders should always understand why something is done. Influencing happens through practice, training, and instructing why something is done and stressing why it is important. This was as seen as a key where a difference can be made.

H13: *“The security environment can be influenced, but you should always remember what's on the other side of the coin: functionality and possibility to do the tasks given to a certain organisation.”*

4.8 What could be said about the future?

H13: *“Digitalisation is such a powerful thing, if you are not on the side of enabling it, nobody is listening to you. “*

The final topic discussed with the experts during the interviews was the future. According to them, there exists certain possibilities and challenges and both internal and external threats were mentioned. One example of an internal threat was that comprehensive security remains a frame without the possibility to build it in cooperation with other professionals as the main tasks of experts might be so under-resourced that all work goes there. Overall, common analytical abilities and snapshots should be developed together. Another risk related to the comprehensive security model mentioned was that such a political idea remains under discussion about politics and ownership, but due to the current structures, significant weak signals are not recognised.

The experts estimated that intelligence and threat of terrorism require new ways of thinking and reacting. Passing and producing information was seen as more significant than relying on traditional

security classifications. Other current challenges mentioned were climate change and asylum seekers. These challenges need to be recognised, but there was also seen a need for a longer vision for the future that would take into consideration possible black swans.

H13:” *The pace of change is crazy, what we do today will be surely done differently in five, ten or fifteen years.*”

Overall, according to the experts, security management should be taken seriously at all levels and security culture developed so that it becomes part of an organisation’s day to day management. A security manager should accept the change and the fact of not being able to control everything. Managers should be on top of things, then one can only try to influence what comes next.

5. DISCUSSION

There are no indicators that constant change would diminish in the future. The world is becoming even more tightly interrelated and globalisation is increasing. Climate change might become an even more serious threat in the future, and it will also affect the security environment. In addition, new threats are rising, and societies need to be prepared and maintain their operational capacity and vital systems. The early warning period for the crisis is shorter than previously. Identifying threats is difficult as they are dynamic, cross-border and transformative. Overall, the experts in this research indicated that effects in the international operational environment can be seen more rapidly in Finland than ever before. The most important current concerns raised were influencing through information and hybrid threats. Thus, new strategies are needed.

5.1 Operating in a complex security environment

Complexity thinking formulated the background for this research as security management situations are examples of extremely complex situations. Everything cannot be predicted, and the future is unknown. The security environment itself can be seen as a complex system in which the theories of complexity thinking occur. Complexity makes the operational environment unpredictable where things happen quickly.

Organisations are operating in an environment where organisational uncertainty exists, and full control is not possible. Digitalisation also has an enormous impact as it makes things more complicated and faster. Beforehand it is not possible to know what the butterfly effect could be; how small changes to a seemingly unrelated thing can influence larger entities. These types of situations can lead to a black swan, a new and unpredictable situation that is challenging to manage. The role of a leader in these kinds of situations is decisive and management is the most important tool to control complexity. Management should share a common understanding and situational picture awareness. Organisations with security management need to operate on the edge of chaos and try to solve wicked problems. One example of this type of problem is hybrid influence.

Organisations need to respond to changes in their environment and be able to react. Resilience is needed and too hierarchical management models and management by authority do not usually work. Wicked problems require non-linear problem-solving models as situations are new, there exist no one solution and interaction is needed. Security itself can be seen as a wicked problem as it includes uncontrolled changes, causalities and serious threats to safety.

5.2 Managing security

The large number of organisations and experts represented in this research gave a wide insight about the current security management topics and trends. Complexity framework is an effective tool in seeing opportunities in this challenging and fast-phase environment. The same challenges, as well as opportunities, seem to occur in various types of organisations and the results were in-line with no major exceptions rising from the analysis. The managers seemed motivated and showed willingness for personal development.

The field of security management is multidimensional and complex, change is always present. Security management organisations are often complex systems: they are made up of a large number of parts that have many interactions. Adaptation is needed as the environment is always more complex than the system operating in it, but complexity can be reduced through certain practices. These include preparedness, training, information sharing and sensitivity to changes in the operational environment. The operational environment can only be influenced to a certain extent and complexity should be recognised as one feature of it. The constant change should be accepted as a vital condition, organisations should aim for the best possible situation and keep eyes open for new paths of opportunities. The results of this research also indicate that overall challenges in security management are growing and disruptions and crises occur more rapidly than ever before. There is a need for continuous preparedness.

Organisations with security management require a certain level of adaptation and can be described as Complex Adaptive Systems. They need to adapt to changes in their environment. They often use networks where interconnection happens and in changing and dynamic security situations, quick problem-solving is needed. These types of organisations do not usually function as linear systems.

Emergence can also be seen as a characteristic of security management: networks create something that did not previously exist as situations are usually different and difficult to anticipate.

Preparedness is required but according to the security management experts, there always exists the surprise effect and not all threats can be predicted and planned ahead. Security managers should let go of the thought that everything can be controlled, and more attention should be paid on resilience and recovering from challenging situations.

Complex and unpredictable situations are prevailing, and changes are difficult to anticipate. Complexity thinking can offer new models for management in these situations. The changing situations can also offer new opportunities and possibilities for learning and development, new solutions and adaptive space opened. Communication was emphasised as a key element in security management. Also, in complexity, information is one of the essential concepts and tools of interaction both within an organisation and between the organisation and the operational environment. Another necessary element in security management mentioned was confidence both between manager and subordinate and between different security actors. In security, management issues are often sensible, and security is also about the feeling of security or insecurity which is more difficult to influence than just the operational level. Management practices could be developed to even more adaptive direction and giving responsibility to networks and subordinates. New training models were called for especially related to the longer-term assessment of future directions. Overall, security management should be developed so that it becomes part of an organisation's everyday management. The direction seems to be more towards strategic security management and cooperation between various organisations.

5.3 Effective cooperation

In Finland, one central tool and model for managing security is the Comprehensive Security framework where leadership is also mentioned as one of the key areas. Also, previous research suggests that cooperation related to this model could be developed and the framework should adapt and evolve according to changes in the operational environment.

According to the experts in this research, even more effective cross-governmental cooperation with various actors involved is needed. This requires different types of forums, information sharing and enough working groups where genuine cooperation exists. The managers mentioned that if information is not managed properly, information flow can lead to more complexity. Resourcing was highlighted as one of the issues, without sufficient resources it is difficult to achieve a satisfactory level of security management.

The experts indicated that even the most challenging partners should not be forgotten. A common ground should be searched for even though not all the information can be shared. Overall, the cooperation situation in security management seems to be working well in Finland but on the other hand, the results speak for a few improvements. The flow of information could be better, a central point of contact and coordinator would be useful as well as more cooperation with different industries. Overall, longer-term visions of the future are needed.

5.4 Leadership in security management

Leadership in today's complex security management environment is challenging but according to the experts in this field, it also seems to be rewarding. The results indicate that traditional management models do not work in security management and everyone should accept that the world is constantly changing. Overall, today's organisations need new management models as they are often based on knowledge. Operating in a complex environment can also bring opportunities for new ideas and learning. This requires that the conditions for these activities are favourable and leadership is in a key role in this process. The way of working has changed tremendously during the last thirty years and managing change has become one of the core competencies of today's successful organisations.

As change occurs continuously, also management and leadership models need to respond to this development. The post-modern way of understanding security is that it cannot be controlled or predicted, and threats are becoming more complex. According to the experts in this research, security comes from people and this is also an important indicator of why effective management

and leadership are needed. However, a manager should still be the one with a comprehensive picture, decision-making ability, and a vision on the future direction.

Leadership is needed in complex security situations as it is difficult to know beforehand how things will influence one another. Leaders should combine multiple perspectives and make the best possible estimates and decisions. The leadership models could be improved into a more adaptive and tolerant direction. Instead of trying to control things, the focus should be on estimating risks in the best possible way and delegating power. Control does not work in all circumstances and leadership is becoming more about enabling networks which seem to also be increasing in security management.

Enabling leadership is a unique leadership type introduced by Complexity thinking and suitable for security management. The Complexity Leadership Theory for Complex Adaptive Systems could be used in organisations operating in security management as this model aims for creativity, learning, and adaptability. The three main leadership roles of this theory are all needed in security management. Administrative leadership is required for planning and coordination and for accomplishing goals. It is relevant in security management as these organisations operate with a wide range of different issues and the operational environment requires preparedness. Many experts highlighted on trusting their subordinates and providing them with the best possible conditions for working and there can be seen characteristics of Enabling leadership. Adaptive leadership is also needed when organisations adjust to various tensions. Today's challenges require new ways of behaviour, learning and innovation and leaders are in a key role in this development. Also, security management requires new ways of thinking

Key areas in leadership according to this research are flexibility, communication, and networking skills. Leaders should pay attention to the skills of different professionals and enable them to fully use these skills. As the experts interviewed reminded, the most important stakeholder is one's team. A manager cannot succeed alone, especially with issues being as challenging as they are today.

5.5 Recommendations

Good leadership and management are especially needed in challenging situations. Organisations should focus more on resilience than control since full control in challenging circumstances is not possible. Complexity should be accepted as one feature of the operational environment as it occurs everywhere. Adaptive leadership could be a useful model for security management and provide the ability to see also the possibilities for learning and development in challenging situations. Networks are essential in this field, smooth cooperation between authorities is needed and information must flow from one to another as smoothly as possible. A central point of contact and coordinator would be useful in comprehensive security as well as and more cooperation with different industries. Overall, longer-term visions of the future are needed.

Security management itself could be developed so that it becomes part of an organisation's everyday management, it should not be done separately to be able to achieve the most effective results. Management practices could be developed to even more adaptive direction and giving responsibility to networks and subordinates. New training models are needed especially related to the longer-term assessment of future directions. Security managers should let go of the thought that everything can be controlled, and more attention should be paid on resilience and recovery after the crisis.

The leadership models could be improved into a more adaptive and tolerant direction. Instead of trying to control things, management should be more about estimating risks in the best possible way and delegating power. Control does not work in all circumstances and leadership is more about enabling networks which seem to be increasing also in security management. Key areas in leadership according to this research are flexibility, communication, and networking skills.

6. CONCLUSION AND IDEAS FOR FUTURE RESEARCH

This research process was an interesting journey. The discussions with the security management experts were fruitful and eye-opening. There seems to be excellent development in the field happening already but at the same time, the challenges are also increasing.

Overall, the research followed the research plan well and the objectives were accomplished. Positively, the amount of information was even larger than what was assumed in the planning phase. The interview questions were divided into sections which was also helpful during the analysis. One challenge during the process was to find suitable previous research and build the theoretical background from various sources. There exists little previous research about security management in Finland and therefore the theoretical background was built around complexity thinking and comprehensive security. The research is reliable as it was well planned, reported and conducted by following strict academic practices. Also, previous research's results show similar outcomes and no contradictions were found while comparing the results.

Another challenge was the schedule and completing the work required more time than was expected. Some black swans appeared during the process and there was a need for adaptation and resilience. The topic is still as current as could be, if we think of the year 2020, there can be signs of many threats and black swans that need to be responded to effectively and rapidly.

For future research, there are plenty of subjects both in security management and in complexity. Related to a similar subject, it would be interesting to conduct a research which would include the thoughts and opinions of security managers' subordinates. What do they see as key areas in leadership and how they would like to be managed? The operational environment of security management is changing so rapidly that the same research could be repeated regularly, and processes improved accordingly.

7. REFERENCE LIST

Aaltola, J. & Valli R., Ikkunoita tutkimusmetodeihin 2, PS-Kustannus, Jyväskylä, 2010

Alasuutari, Pentti, Laadullinen tutkimus, Vastapaino, Jyväskylä, 2001

Alasuutari Pertti, Laadullinen tutkimus, Vastapaino, Jyväskylä, 1999

Alhadeff-Jones, Michel: *Three generations of Complexity Theories: Nuances and Ambiguities*, Educational Philosophy and Theory, Vol.40, No.1, 2008

Anderson, Philip: *Complexity theory and Organisational Science*, Organization Science, Vol.10, No. 3, 1999, p. 216-232

Aven, Terje: *Implications of black swans to the foundations and practice of risk assessment and management*, Reliability engineering and System Safety, 134, 2015, p. 83-91

Branders, Minna: Kokonainen turvallisuus? Kokonaisturvallisuuden poliittinen kelpoisuus ja hallinnollinen toteutettavuus, Tampereen yliopisto, 2016

Brusset, Eremy, Complexity thinking for peacebuilding: practice and evaluation, Palgrave Macmillan, 2016

Burnes, Bernand: *Kurt Lewin and complexity theories: back to the future?*, Journal of change management, Vol.4, No.4, 2004, p. 309-325

Dihn, Jessica, Lord, Robert, Gardner William, Meuser Jeremy, Liden, Robert & Hu, Jinyu: *Leadership theory and research in the new millennium*, The leadership Quarterly, 25, 2014, p. 36-62

Eskola, J. & Suoranta J., Johdatus laadulliseen tutkimukseen, Vastapaino, Tampere, 1998

Gerrits, Lasse & Marks, Peter: *How the Complexity Sciences can inform public administration: an assessment*, Public Administration, Vol.93, No.2, 2015

Hanen, Tom: *Ennakoinnin illuusio*, Tiede ja ase 68, 2010

Hanan, Tom & Huhtinen, Aki-Mauri: *Yhteenkietoutumisen teoria – yllätysten ja sattuman tieteellinen selitys*, Tiede ja ase 69, 2011

Hanan, Tom: Yllätysten edessä – Kompleksisuusteoreettinen tulkinta yllättävien ja dynaamisten tilanteiden johtamisesta, Maanpuolustuskorkeakoulu, 2017 (<http://urn.fi/URN:ISBN:978-951-25-2870-79>)

Hyvönen Ari-Elmeri & Juntunen Tapio, Resilienssi avaimena laaja-alaiseen kokonaisturvallisuuteen: haasteita ja mahdollisuuksia, Valtioneuvoston selvitys- ja tutkimustoiminta, Policy Brief 25/2018, 2018

Juntunen Tapio & Virta Sirpa, “Security Dynamics: Multilayered Security Governance in an Age of Complexity, Uncertainty and Resilience”, *Leading Change in a Complex World: Transdisciplinary Perspectives*, Tampere University Press, 2019

Kananen, Jorma: Laadullinen tutkimus pro graduna ja opinnäytetyönä, Jyväskylän ammattikorkeakoulu, 2017

Kangas, Anna, Kujala, Johanna, Lönnqvist, Antti, Heikkinen, Anna & Laihonon, Harri: “Introduction: Leadership for Dealing with Complex Change”, *Leading Change in a Complex World: Transdisciplinary Perspectives*, Tampere University Press, 2019

Kiviniemi, Kai:” Laadullinen *tutkimus prosessina*”, Ikkunoita tutkimusmetodeihin 2, PS-kustannus, 74-89, 2018

Lagadec, Patrick: *Learning processes for Crisis Management in Complex organisations*, *Journal of contingencies and crisis management*, Vol.5, No.1, 1997

Laitinen Kari, Turvallisuuden todellisuus ja problematiikka. Tulkintoja uusista turvallisuuksista kylmän sodan jälkeen, Tampereen yliopisto, 1999

Lonka Harriet, Valtioneuvoston turvallisuusstrategiatyö lainsäädännön muokkaajana, Itä-Suomen yliopisto, 2016 (http://epublications.uef.fi/pub/urn_isbn_978-952-61-2239-7/)

Marion, Russ & Uhl-Bien, Mary: *Leadership in complex organisations*, *The leadership Quarterly*, 12, 2001, p. 398-418

Puusa, Anu & Juutinen, Pauli: Menetelmäviidakon raivaajat: Perusteita laadullisen tutkimuslähestymistavan valintaan, Hansaprint, 2011

Schneider, Marguerite & Somers, Mark: *Organisations as complex adaptive systems: Implications of Complexity Theory for leadership research*, The Leadership Quarterly, 17, 2006, p. 351-365

Tuomi, Jouni, Sarajärvi Anneli: Laadullinen tutkimus ja sisällönanalyysi, Kustannusosakeyhtiö Tammi, 2009, 2018

Uhl-Bien, Mary & Arena, Michael: *Complexity Leadership: Enabling people and organisations for adaptability*, Organizational dynamics, 46, 2017, p.9-20

Uhl-Bien, Mary, Russ, Marion & McKelvey, Bill: *Complexity Leadership Theory: Shifting leadership from the industrial age to the knowledge era*, The Leadership Quarterly, 18, 2007, p. 298-318

Virta, Sirpa & Branders, Minna: *Legitimate Security? Understanding the Contingencies of Security and Deliberation*, British Journal of Criminology, 56(6), 2016

Other sources

The European Security Strategy, <https://europa.eu/globalstrategy/en/european-security-strategy-secure-europe-better-world>, 2019, Accessed 15 March 2018

Järjestöt mukaan turvallisuussuunnitteluun, Työkirja, Sisäasianministeriön julkaisuja, 4/2010, Accessed 10 April 2019

Yhteiskunnan turvallisuusstrategia, valtioneuvoston periaatepäätös, <https://turvallisuuskomitea.fi/yhteiskunnan-turvallisuusstrategia/>, 2019, Accessed 30 June 2019

Branders, Minna, Valtonen, Vesa, Virtanen Petri: Soveltuisiko MindLab-malli kokonaisturvallisuuden suunnittelun tueksi?, <https://www.sitra.fi/artikkelit/soveltuisiko-mindlab-malli-kokonaisturvallisuuden-suunnittelun-tueksi/>, 2019, Accessed 5 May 2019

National risk assessment 2018, <http://julkaisut.valtioneuvosto.fi/handle/10024/161351>, Publications of the Ministry of the Interior 2019:9, Accessed February 2018

Appendix 1: Interview request

Haastattelupyynnö pro-gradu tutkimukseen – Tampereen yliopisto

Hei,

Olen Tampereen johtamiskorkeakoulun opiskelija Peace, Mediation and Conflict Research -ohjelmassa. Teen parhaillani pro-gradu tutkimusta aiheesta *johtaminen muuttuvassa turvallisuusympäristössä*. Tutkimuksessa tarkastellaan johtamista kokonaisturvallisuuden näkökulmasta ja tutkimuksen teoria perustuu kompleksisuusajatteluun. Johtamista tarkastelen laajempänä ilmiönä, joten tutkimus ei rajoitu vain yhteen organisaatioon. Haastateltavana ovat sekä itse johtajana toimivat että aiheeseen perehtyneet asiantuntijat järjestösektorilla ja valtionhallinnossa. Työni ohjaajana toimii professori Sirpa Virta (sirpa.virta@uta.fi).

Tiedustelen ystävällisesti olisiko teitä mahdollista tulla haastattelemaan aiheesta teille sopivana ajankohtana? Haastattelut kestävät korkeintaan tunnin ja äänitetään analysointia varten, kerättyä aineistoa tullaan käyttämään vain tutkimustarkoituksiin. Haastateltavien henkilöllisyys tulee säilymään anonyymina koko tutkimuksen ajan, ja kerätty aineisto hävitetään tutkimuksen valmistuttua. Haastattelujen ensisijainen toteutustapa on henkilökohtainen tapaaminen, mutta mikäli tämä ei ole mahdollista, myös Skype tai sähköposti ovat mahdollisia.

Vastaan aiheeseen liittyviin lisäkysymyksiin mielelläni.

Kiitos vastauksestanne jo etukäteen!

Ystävällisin terveisin,

Siina Lepola-Lång

KTM

Hallintotieteiden YO

Puh. 044-5756043

<https://www.linkedin.com/in/siina-lepola-l%C3%A5ng-1a75baaa/>

Appendix 2: Interview questions

Tausta ja toimintaympäristö

1. Kerro hieman itsestäsi ja kuinka pitkään olet toiminut turvallisuuskysymysten parissa?
2. Miten Suomen turvallisuusympäristö on mielestäsi muuttunut viimeisen kymmenen vuoden aikana? (Kompleksisempi kuin ennen?) Vai onko? Mitä haasteita ympäristöstä nousee?
3. Millainen kokonaisturvallisuuden johtamisen operatiivinen ympäristö on tänä päivänä?
4. Miten Euroopan Unioni vaikuttaa Suomen turvallisuusympäristöön? Miten Suomi suhteutuu muihin maihin verrattuna?

Johtaminen

5. Miten johtamisen toimintaympäristö on muuttunut?
6. Mitkä ovat johtamisen suurimmat haasteet? Entä mahdollisuudet?
7. Mitä muuttuvassa turvallisuusympäristössä toimiminen vaatii johtajalta?
8. Miten johtamisen kouluttamista voitaisiin kehittää?
9. Miten johtamisella voi vaikuttaa toimintaympäristön muutoksiin?
10. Millaiseksi kuvailisit omaa johtamistyyliäsi? (Esimerkiksi mukautuva, hallinnollinen, mahdollistava)
11. Mitä turvallisuuteen liittyvässä johtamisessa tulisi ottaa huomioon?
12. Onko johtaminen toimimista ns. kaaoksen reunalla?
13. Mitä kokonaisturvallisuuden ympäristössä toimiminen vaatii johtajalta?

Yllättävät tilanteet

14. Miten toimintaympäristön uhkiin ja yllättäviin tilanteisiin voi varautua?
15. Millainen hallinnollinen rakenne edistää laajaa/kokonaisturvallisuutta?
16. Mitkä tekijät aiheuttavat kompleksisuutta?
17. Mitkä ovat suurimmat turvallisuusuhat kokonaisturvallisuudelle?
18. Onko turvallisuuden johtaminen siiloutunut?
19. Miten eri tahojen välistä yhteistyötä ja kokonaisturvallisuutta yleisesti voisi kehittää?