

MASTER THESIS

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Candidate name: Jererimson Okema-Opira

Complexity In Crisis Management And
Leadership In A Global Pandemic. The
Norwegian Government Response To
COVID-19 Crisis.

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Preface

My interest for the Norwegian Government's response to the COVID-19 crisis began at the early stages of the crisis. It was debated on whether there was a pandemic crisis preparedness plan or not. This got me more interested in the learning and knowledge creation, during an ongoing crisis.

Thanks to my supervisor Jonathan Tritter, for the motivation and suggestions. Margit Konstane Jensen, student advisor at the faculty, you have been of great help. Professor Stig Johannessen, for introducing me to social complexity.

Jererimson Okema-Opira

15.11.2022

Summary

The main topic in the thesis is leadership and response to an ongoing crisis, and learning (knowledge) creation in the process. I wanted to find some answers to the topic by posing the main question:

The main question for the study is how have Norwegian government leaders response to covid-19 crisis?

Sub questions:

- What was the relationship and role of central government and the municipalities?
- When and Why did different authorities act differently?
- What justification influenced covid-19 restrictions?
- What insights emerges from the lens of complexity?

The framework for the thesis is based on theories from organizational learning, crisis and risk management, (wicked issues) and complexity perspective. Namely Complex responsive processes of relating (CRP).

The Norwegian Government choose a *limited virus spread strategy* the health system capacity was the focus. However, the limited spread strategy was highly dependent on the collective effort (dugnad) from the people. ‘Dugnad’ has a special meaning Norwegian culture and context.

Complex policies were not only restricted to the control of the virus. This was at many levels, from statutory rules, rules implemented at national level to requirements. Many of the measures were referred to as recommendations and advice. However, sometimes there conflicting interests in the measures implemented. Example the resilience engineering to keep businesses from bankruptcy and a labour market to return after the crisis.

Regarded as lack of fit in the regulation, is the inconsistency in the measures is one of them. National rules implemented require of local government (municipalities) with low infection level is another.

Exemptions for foreign labour for critical societal functions and sectors that relied on seasonal foreign labour such as the fishing industry and construction lead to the increased in imported virus.

Trust has played a central part in the response strategy.

List of tables and figures

Table 1: Table 1. A sample of listing the categories and descriptions (derived from codes)

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1. Introduction

My background includes more than 20 years in the aviation industry working with pilot training and licensing at the Norwegian Civil Aviation Authority (Luftfartstilsynet). I have therefore long experience working in the public sector dealing with issues related to oversight and implementation of aviation regulations. These are complex sets of rules the aviation market must comply with and that the authorities are responsible for their implementation.

I am interested among other things in learning and knowledge production under an ongoing crisis. Since lessons from crisis is meant to help us improve and develop our emergency preparedness, and resilience for future crisis. In practice this has proved to be easier said than done. (NOU 2021:6).

In the first corona enquiry commission report, emergency preparedness is described as an essential part of our societal security. The components of the social security chain are to develop knowledge, prevent, establish preparedness, deal with the incident and the community response to this, restore functions and learn from what one has experienced. The report describes leading crisis (crisis management) as, working under uncertainty and decision making, with little or inadequate information or knowledge.

Leading a crisis is complex. Sense-making of a crisis is crucial. Emergency and response activities must be set in action. Collaboration and coordination of activities is important too. Situation analysis and information are to be gathered. Strategic choices are to be made and communicated, and on-going decision making as we learn more about what is happening. Despite that Norway has one of the with the lowest number of covid-19 death tolls.

Koronakommisjonen (NOU 2021:6, has revealed several weaknesses in the crisis preparedness plan, the leading of crisis at certain stages and weakness in coordination and cooperation among responsible state institutions and organisations. Prime Minister Erna Solberg has therefore received a lot of criticism for this after the report was presented. When asked by a journalist on why there was no crisis preparedness plan. She answered:

“We had pandemic plan, but we did not have a plan for this pandemic” < *Vi har en pandemi plan, men vi hadde ikke en plan for denne pandemi*> (NRK.no, 14.04.2021)

Erna Solberg's political opponents regard the answer as arrogance and dodging responsibility. However, I find Erna Solberg's statement interesting from a risk and crisis management perspective since she is indicating the challenges and complexity in leading in a crisis.

Firstly, this made me to start thinking of what the complex responsive processes (CPR) theory informs us on how we act to plans and work with planning. What interesting aspects or dimensions can I find applying the CPR theory? What does the CPR theory inform on working with uncertainties, knowledge production, innovation (change) under such circumstances?

When I started thinking on writing about this topic, little was known about COVID-19. Despite there is a lot that has been written on the topic. I still feel that there is still a lot to uncover. I hope this thesis is a contribution to the subject.

1.2 Problem formulation

The main question for the study is how have Norwegian government leaders response to covid-19 crisis?

Sub questions:

- What was the relationship and role of central government and the municipalities?
- When and Why did different authorities act differently?
- What justification influenced covid-19 restrictions?
- What insights emerges from the lens of complexity?

1.3 Purpose

The purpose of the thesis is to study the Norwegian Government response to the Covid-19 crisis to see what new insights that emerges from a complexity perspective.

1.4 COVID-19 a global reflection

I will here present a short overview on authorities and leaders in some countries responded to the knowledge of a new deadly virus. This is interesting since their sense making and meaning of the pandemic have impacted the spread of the virus. Leaders in many countries have acted and approached the covid-19 crisis differently. Internationally, it is still disputed about what is the best strategy, lock-down or keeping the society opened for social activities and businesses. (Furthermore, the different strategies in other countries influenced the debate in Norway, on which approach was most correct.) On the 23rd of January 2020, the World

Health Organisation (WHO), announced that the outbreak of sicknesses caused by the newly discovered corona virus NCoV-2019, not a serious health issue of international concern. The so call Public Health Emergency of International Concern (PHEIC). This decision was made by an independent, crisis committee designated by the WHO (FHI,2020). However, only a week later after this announcement, on 30th January 2020, the World Health Organization (WHO), declared the corona virus (covid-19) outbreak as an epidemic, and on 11th March 2020 defined it as a global pandemic (FHI)

Different names have been used for sickness caused by the corona virus. As mentioned above it was first introduced as corona virus NCoV-2019. However, on 11th February the disease got its official name *Severe acute respiratory syndrome coronavirus 2* (SARS-CoV-2) by the ICTV after guideline for new viruses. Thus, covid-19, is a combination of the following words put together: corona virus + disease + 19 (year of the outbreak) ([Covid-19 – Wikipedia](#)).

The covid-19 pandemic has put many governments, institutions, and organizations to the test on their crisis preparedness programs, crisis management systems, and not least, how to manage and lead in uncertainties. The pandemic has been ongoing for over a year and a half now. Covid-19 has disclosed how vulnerable societies and health systems are when a global pandemic strike.

Governments have used different strategies with different results, depending on how and what is counted. Example, Sweden's strategy was based on keeping the society (country) opened and thrived for a "herd immunity". Although, this strategy has kept Sweden's economy in a better shape, many Swedish lives have been sacrificed. Norway chooses lock-down methods with government covid-19 support programs but saving lives of many Norwegians. Leaders in many countries have acted and approached the covid-19 crisis differently. Internationally, it is still disputed about what is the best strategy, lock-down or keeping the society opened for social activities and businesses.

1.5 Limitation and restriction

Data is qualitative content analysis of press conferences and press releases available at the Government website with information on covid-19 situation

1.8 Structure of the thesis

In the first chapter is the introduction where I present my background and background for the study. I explain why I find the study interesting and why it may also be of interest for others and its importance. I give a short overview on the corona virus (covid-19) global response in different countries and by different countries. I have stated the questions I intend to find out more about and the limitation of the research. Chapter 2 includes details on how I conducted and restricted my literature search. It includes my sources of ideas and inspirations for designing my framework. This includes theory selected to define the phenomena I am investigating and the theory to get some of the answers. Chapter 3 describes the method I am applying to gather my data for analysis, the type of study I am conducting and the method I intend to present the results. Chapter 4 a summary and presentation of my study. Chapter 5 is the analysis and discussion part.

2. Theory

I will start by describing how I work with the littérature, the gathering of my sources for the framework and finally presentation of Complex Responsive processes.

2.1 Earlier research on the topic

The figures show how I have restricted how I would search for literature about learning and crisis management in the public service. As we can see, the circle overlaps both one and two of the other. Thus, the search for the literature about learning can be as follows:

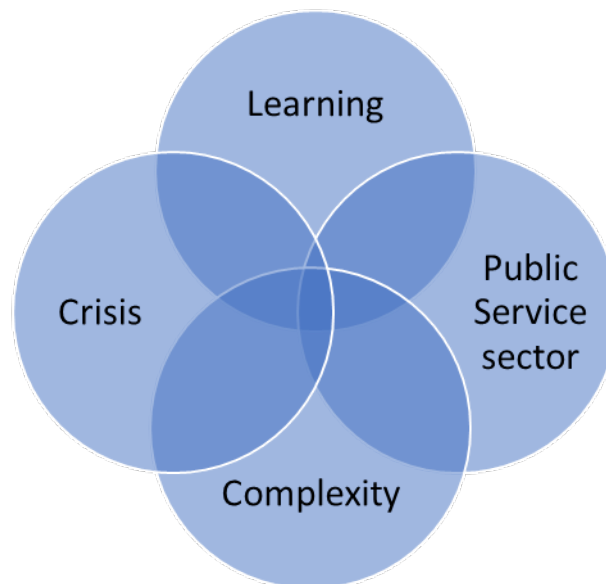


Figure 1. Key words to identify literature

The figures show how I have restricted how I would search for literature about learning and crisis management in the public service. As we can see, the circle overlaps both one and two of the other. Thus, the search for the literature about learning can be as follows:

Learning+Crisis,

Learning+Public service (sector),

Crisis +Public service (sector),

Learning+ crisis +public service (sector)

Example: A general question: What does literature say about learning and management?

I am interested about learning during a crisis in the public service/sector.

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Example: A general question: What does literature say about learning and management?

I am interested about learning during a crisis in the public service/sector.

2.2 Framework and sources of ideas

In the theory chapter is a presentation of key idea/theories from literature and research studies I intend to construct my framework on to answer issues in the research question. For the purpose following Mowles, the framework is interdisciplinarity. Meaning borrowing from whichever systematic thinking that helps us shed light on what we are trying to find out about in our relationships with each other and our environment (Mowles, 2022 p. 171). Thus, my framework is built on concepts from theories that I find relevant to define the phenomena in my problem formulation. (And by applying perspective and lens of complexity, see what insights emerges?).

To define and capture the phenomena in my problem formulation, my framework is built on key ideas from theories that I find relevant in organisational learning, risk safety management, and crisis management.

Following Johannesen (2018 p. 5) the analysis and discussion of the phenomena is drawn upon core tenets of complexity thinking, and particularly Stacey's concept in complexity. Namely Complex response processes.

2.3 Organizational learning.

When one introduces the question of learning, the question of the definition of 'learning' immediately arises. There is obviously no easy answer to such a question, as it is approached from many different disciplinary angles, and this is a very broad field of investigation.

Learning about learning is as old as the first treatise about how humans produce (reliable) knowledge of the world around them. (Is this from [In Kettle and Mumford 2017 p. 524](#)).

That said, organizational learning relates to learning in an organisational or institutional context. According to (Örtenblad, A. 2018 p. 150), learning organization – or for that matter organizational learning – is a concept (or phenomenon) that is not easily defined (Örtenblad, A. 2018). Worth noticing, however are the three main distinctions and differences between newer social perspective of organizational learning and the traditional perspective of organizational learning that Örtenblad describes (Örtenblad, A. 2018 p. 153):

- First, in the newer, social perspective of organizational learning, the collective is the learning unit, rather than the individuals within an organization or the organization as if it were an individual, both of which are considered to be the learning units in the traditional perspective.
- Second, learning is a social or cultural activity in the newer perspective, while it is a mainly cognitive activity in the traditional perspective.
- Third, in the newer, social perspective, all learning is considered as context-dependent, while the traditional perspective acknowledges that there is context-independent learning. Consequently, in the newer perspective of organizational learning, "knowledge" cannot be stored, and as a result, this perspective prefers the term «knowing» instead of "knowledge" (Örtenblad, A. 2018 p. 153).

There is an extensive amount of literature on organisational learning or for that matter learning organisation, or researchers mixing up both perspectives. Örtenblad (2018) has summarised well the distinctions between newer social perspective and older social perspective of organisational learning. However, not explicitly mentioned in the summary are

the typology debate. Just to mention two of the of known or commonly used typologies, for example, single-loop and double-loop learning, tacit and explicit knowledge.

What I take from and is important is for my research is that organisation learning relates to learning in an organisational context and most importantly the newer social perspective of organisational learning.

2.4 Crisis Management and learning

How has learning in relation crisis been studied?

Crisis management studies deal with how societies, authorities, organizations, and leaders take on the seemingly impossible challenge to control processes and phenomena that cannot be easily controlled. How societies and organizations deal with, absorb, and counter unknown threats is at the heart of this scholarly tradition (Deverell, 2021). Many models are based on a linear idea of the phases of before, during, and after the perceived crisis., where the phases can be regarded as five crisis leadership tasks (Boin et al., 2003; Pursiainen, 2018). The learning element in such models comes in the after phase or in other words the final stage. Deverell, however, describes that learning from crisis is not a linear process (Deverell, 2021).

In crisis management, most studies in relation to learning and crisis are of a conceptual nature, identifying salient factors and proposing models (Drupsteen & Guldenmund, 2014). On a theoretical level, the field is not as developed as other subfields of crisis management studies such as, for instance, collaborative crisis management (Bynander & Nohrstedt, 2020) or crisis decision making (Pursiainen, 2018, p.146).

Crisis-induced learning merges the concepts of crisis and learning. It aims to study lessons drawn from the experiences of a specific crisis and from experiences of managing that crisis. Crisis-induced learning can thus be either learning *from* crisis or learning *in* crisis.

Learning from crisis, is learning from earlier crises or from one crisis to another, while learning in or during a crisis is restricted to processes during a particular crisis or focuses on an ongoing crisis, as such my mind study, the COVID-19 pandemic crisis.

2.5 Managing risk in crisis (complex risks)

Risk management is an integrated part of crisis preparedness plan. The crisis preparedness plan that are designed, however, often based on experiences from the past and on how we

predict the probability of future events and scenarios. Who would have imagined the dimension, impact and magnitude of a global pandemic in this age and time? Maybe it was only the Wimbledon Tennis Association, who had an insurance of this kind lockdown. Can't we talk of unknown risks? This brings the question on the distinction of risk and uncertainty, a term often used interchangeably. For that matter, I feel that some clarification is needed. Knight (1921) defines uncertainty as that which cannot not be known, as 'unknown unknown' (in Boulton et al p. 214). It is associated with the underlying structures and constructs themselves shifting or disappearing, and new ones appearing. Uncertainty is something more than risk. Risk refers to situations in which variables and the mechanisms of the problem are well defined and do not change. Risk is about known unknowns (ibid p. 214).

(source) The key difference between risk and uncertainty is best captured by this statement that "Risk is measurable uncertainty while uncertainty is immeasurable risk". What this basically indicates is that risk is a subset of uncertainty. The extreme component of risk that is immeasurable and therefore unquantifiable is what uncertainty is. Uncertainty denotes a situation where the future events are largely unknown. Since the events are unknown, the outcomes are also unknown. Since the outcomes are unknown, it is hard to assign probabilities to the possibility of occurrence. Effectively, this makes it hard to measure and assign a probability to. Risk, on the other hand, refers to a future event which can be known with reasonable degree of certainty. While the actual event is still unknown, you can assign probabilities to the occurrence of various possibilities based on past experience. That is what makes risk measurable and also manageable. Uncertainty cannot be measured and therefore cannot be managed (source). However, reducing uncertainty is the art of risk management. (Hopkin p. 220)

There are certain risks that give rise to uncertainty about the outcome of a situation and can be described as control risks (Hopkin 2012 p.15). Control risks are associated with unknown and unexpected events. They are sometimes referred to as uncertainty risks and they can be extremely difficult to quantify. (Hopkin 2012 p.16). Example, In the beginning, when COVID-19 was identified as a pandemic and the virus was spreading from country to country. As Hopkin (2012 p.16), in in these circumstances, it is known that the event will occur, but the precise consequences of those events are difficult to predict and control. Therefore, the approach is based on minimizing the potential consequences of these events (Hopkin 2012 p.16)

I mentioned earlier that one of the things that raised my curiosity for this research was the issue of whether there was a crisis and emergency preparedness plan for a pandemic or not. Hopkin argues that although the element of control may be much reduced in a crisis, there is still the need to assess the possible aspects of these large complex risks and develop crisis management plans to cope with any risks that materialise.

It can be argued whether one can use the term risk control when the risks have materialised and at crisis level. But what if the crisis is a long during crisis like the covid pandemic, would it not be interesting to understand the sense-making mechanism of the risk situation? Hopkin points out that the most convenient way is to describe risk control techniques as preventive, corrective, directive and detective. Thus, sometimes crisis management will involve the use of alternative facilities that have been put in place before the crisis arose. For that matter it could be argued that these are corrective controls. Corrective controls are designed to limit the scope of loss and reduce any undesirable outcomes that have been realised. This may also provide route of recourse to achieve some recovery against loss and damage (Hopkin 2012 p. 237).

As mentioned earlier, Deverell (2021) described that most crisis research have been on the temporal “during” phase, focusing on causes, consequences, and management of crises, while risk studies and disaster studies tend to deal with the “before” stage by applying concepts such as risk reduction, preparedness, or resilience. In a long during crisis like the covid-19, I find it fruitful to combine ideas from these studies.

I have decided to include a bowtie model, since it gives a good illustration of risk identification (in this case sense-making) and the crisis management. I intend to use it as a way of describing the response to the covid-19 pandemic. Example, why a particular choice is made and intentions behind such a choice. The model is adopted from Hopkins and for my purpose I name it societal resilience planning.

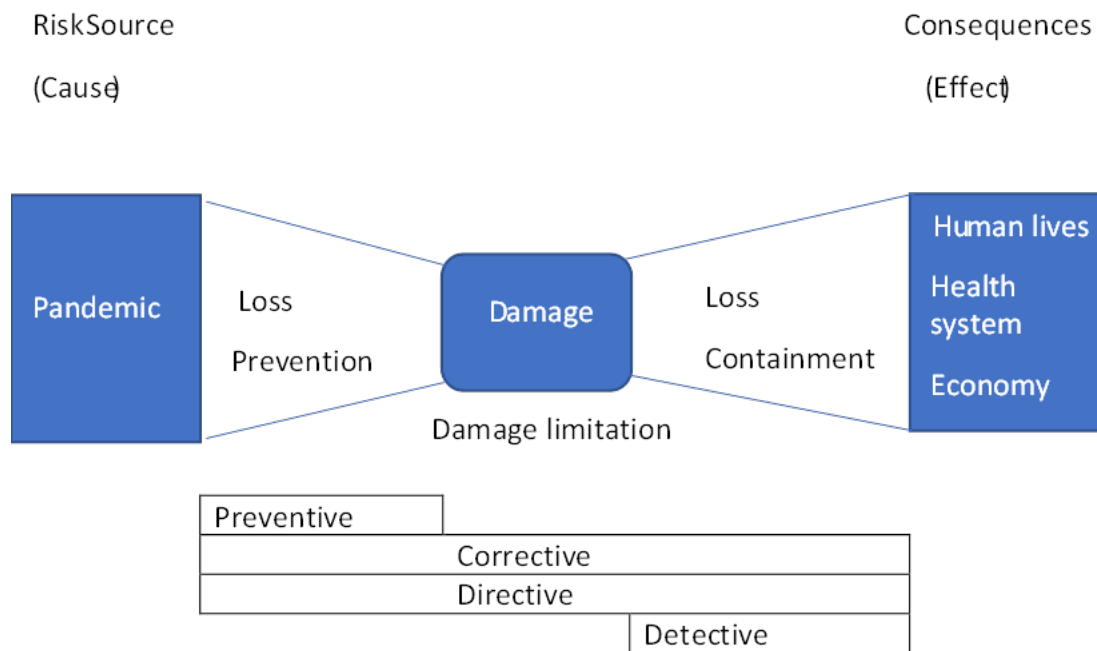


Figure 2. Societal resilience planning (SRP).
(Adopted from Hopkin 2012 p. 237?)

Bowtie method has been applied for different purposes. One of the advantages with the method is, its ability to visualise sequences in a way that is easily understandable. But one must bear in mind that it is a linear model.

Preventive controls (terminate) - These controls are designed to limit the possibility of an undesirable outcome being realized. The more important it is to stop an undesirable outcome, the more important it is to implement appropriate preventive controls. Prevention or elimination of all risks is not possible on a cost-effective basis, nor may it be desirable for the future of certain activities. For analysis purposes, it could be useful to understand what preparations was done incident should occur.

Corrective (treat) - These controls are designed to limit the scope for loss and reduce any undesirable outcomes that have been realised. They may also provide a route of recourse to achieve some recovery against loss or damage. Corrective controls are the next option after it has been decided that preventive controls are not technically feasible, operational desirable or cost-effective. Corrective controls are capable of producing an entirely satisfactory result, whereby the current level of risk is reduced to within the risk appetite (acceptable level).

Sometimes, corrective controls are over-engineered, and their cost is disproportionate to the benefit that is achieved.

Directive (transfer) - These controls are designed to ensure that a particular outcome is achieved. They are based on giving directions to people on how to ensure that losses do not occur. They are important but depend on people following established safe systems. Although directive controls on their own represent an insecure and unreliable method of risk control, they will always be a component in the overall approach to risk control.

For analysis purposes, after corrective actions are taken, what directive controls are put in place, in form on rules and regulations.

Detective (tolerate) – These controls are designed to identify occasions when undesirable outcomes have been realised.

For analysis purposes, with detective controls are systems put in place, to monitor. During covid-19 includes testing regimes, tracing and tracking.

Change in model. The detective should be a long as from where corrective and directive starts.

2. x Complex risks or wicked issues (problems)

Covid-19 can be understood as a complex risk since its impacts are beyond health issues and its effects global. Hopkin explains that complex risks are sometimes referred to as wicked risks (Hopkin 2012 p.8) or what some term as ‘wicked problem’. Kay and Knight (2020 p. 22) explain that the term originates from the urban planners Horst Rittel and Melvin Webber in 1973. Rittel and Webber observed that, although the well-defined infrastructural needs of the communities had been met, their client remained dissatisfied. They came to distinguished between ‘tame’ problems which had been solved from the ‘wicked’ problems which might never be solved.

Sustaining societal safety and ensuring crisis management is a typical ‘wicked problem’, extending across government levels, policy sectors and organisational borders (Christensen, Lægreid & Rykkja 2016). The term is now often used in social policy and medicine (Kay and Knight (2020 p. 22)

Grint (2008) introduced a typology that linked wicked problems to management, leadership and crises. In this article, Grint was suggesting that the high proportion of organizational change failures might be the result of assuming that all kind of change were susceptible to the same kind of change programme, when, in fact, change is often radically different. This

knowledge can be useful in sense making and when leading a crisis (describing and defining crises.) Crises can be conceptualized as change.

According to (Verweij & Thompson, 2006) wicked problems may need to be approached on different levels of analysis and using a range of instruments; and there is no 'one best solution' (in Head 2019, p.192). Head (2019), however, proposes that to sharpen the explanatory capacity and generative power of wicked problem theorising, it would be helpful for scholarly analysis to include a strong focus on considering problems from several perspectives, designing instruments or programs that accommodate complexity and ambiguity, accounting for crises and surprises.

2.6 Complexity sciences in brief

In this section I will start with a brief introduction of complexity sciences, scholars whose contributions have had influences in the field and relevant for my research. And have inspired me with ideas in developing my framework.

According to Boulton et al, Prigogine as one of the initiators of the field of complexity, gave a particular focus to the interplay between current patterns of relationships/structure/form (which can be expressed via mathematical equations) and the role of variation, chance and randomness- between 'science and history' (Boulton et al p. 4).

The ideas from natural complexity sciences have been adapted in organization and management studies to understand human actions in several ways. Examples that Stacey et al mentions, are that some make direct applications of ideas in complexity sciences to organisations. Others use the science in a loose metaphorical way. Yet others regard the complexity sciences as sources domain for analogies (Stacey, Griffin, Shaw 2000 p.199). CRP regard complexity sciences as a source of domain for analogies which I will present more extensive in the later part of this chapter.

According to Bryne and Callaghan, within the social sciences, there is the existence of two streams of complexity sciences: restricted complexity and general complexity. Restricted complexity theory seeks to formulate laws of complexity through the creation of non-linear equations and modelling. Whereas general complexity theory adopts a holistic view in which

the emphasis is upon the multidirectional interactional influences experienced in the relationship between both the whole system and its agents (Bryne and Callaghan 2014).

2.7 Complexity thinking worldview

- **Systemic:** the world cannot be understood through taking apart the bits and understanding them separately. Factors work together *synergistically*, that is. the whole is different from the sum of its parts. We live as part of patterns of relationships.
- **Path-dependent:** history matters and the sequence of events is a key factor in giving shape to the future.

Known-Unknown. Movement toward a future that is: under perpetual construction by the movement itself. No mature or final state, only perpetual iteration of identity and difference, continuity, and transformation, the known and the unknown, at the same time. The future is unknowable, but recognizable: known-unknown.

Find examples to explain/ describe the meaning in this paragraph.

- **Sensitive to context:** one size does not fit all, and the way change happens and the way the future emerges is dependent on the detailed and particular events and patterns of relationships and particular features in the local situation. By generalizing we risk throwing out the very information that sheds light on why things happen and what might happen next.

Nature and origin of variation or change

In Transformative teleology it is interpreted as gradual or abrupt changes in identity or no change, depending on the spontaneity and diversity of micro interactions (Stacey et al p.55).

Find examples to explain/ describe the meaning in this paragraph.

- **Emergent, uncertain, but not random:** although the future does not follow smoothly from the past, neither is what happens random. The world is neither chaotic nor predictable but somewhere in between.
- **Episodic:** things are becoming, developing, and changing, but change seems to happen in fits and starts (*tipping points*). The intriguing thing about the world is that on the surface patterns of relationships and structures can seem almost stable for long period of time, although micro-changes may be going on under the surface. And then radical change can happen suddenly, and new patterns of relationships can *self-organize* and some completely new features that could not have been predicted may emerge. **Kind of self-organisation implied as:** diverse micro interaction of a paradoxical kind that sustains identity and potentially transforms it and **Meaning:** arises in the present, as does choice and intention (Stacey et al. 2000 p. 55)

2.8 Complex responsive processes

Ralph Stacey was one of the early pioneers of insights from complexity sciences and their implications for management of organisations. Stacey together with colleagues David Griffin and Patricia Shaw at the University of Herefordshire, UK, developed a perspective combining the complexity sciences and social theory, built on Stacey's previous work which they termed complex responsive processes of relating.

The properties of complex responsive processes of relating by analogy with complex adaptive systems, the thematic patterning of interaction is understood to be:

- **Complex.** Complexity here refers to a particular dynamic or movement in time that is paradoxically stable and unstable, predictable and unpredictable, known and unknown, certain and uncertain, all at the same time. Complexity and uncertainty are both often used to refer to the situation or environment in which humans must act and this is distinguished from simple or certain environments. Prescriptions for effective action are then related to, held to be contingent upon, the type of environment. However, from the complex responsive processes perspective it is human relating itself which is complex and uncertain in the sense described above. Human interaction is then always complex, no matter what situation. Patterns of human relating that lose this complexity become highly repetitive and rapidly inappropriate for dealing changes.
- **Self-organizing and emergent.** Self-organizing means that agents interact with each other on the basis of their own local organizing principles, and it is in such local interaction that the widespread coherence emerges without any programme, plan or blueprint for the widespread pattern itself. In complex responsive processes terms, then it is in the myriad local interactions between people that the widespread generalizations such as social objects and cult values emerge.
- **Evolving.** The generalizations of social object and cult value are particularized in specific situations, and this inevitably involves choices as to how to particularize them in specific situation, which inevitably means some form of conflict. The generalizations will never be particularized in exactly the same way, and the nonlinear nature of human interaction means that these small differences could be amplified into completely different generalizations. In the way social objects and cult values evolve (Stacey and Griffin 2006, p. 7–8).

The perspective of Complex Responsive processes of relating draws on the complexity sciences as a source domain for analogies with human actions.

As a social theory, that the concept of complex responsive processes draws on are process sociology, pragmatic philosophy and group analytic method. Briefly explained:

- insights from process sociology, is that everything is in flux and change, and our fluctuating interdependencies are the engine of social stability and instability and shape our identities.
- Insights from pragmatic philosophy, is that (pragmatists), is that we are social through and through. We are selves, because there are other selves, and our paradoxical ability to take ourselves as an object to ourselves enable the mind, self and society to emerge.
- insights from group analytic theory, is that the best place to realize oneself as an individual is in a group. Becoming more skilful in a group is a prerequisite for becoming ourselves. Accordingly, a by-product by becoming better managers and leaders

Complex responsive processes comprise of 3 key intersecting components. These are responsive processes of: (a) communicative interaction (b) ideology relating and (c) power relating (Stacey, Griffin and Shaw 2000; Stacey 2001; Stacey and Griffin 2006; Stacey & Mowles 2016; Mowles 2022).

2.9 Learning and knowledge from a Complex Responsive Processes perspective

Learning and knowledge creation in this perspective is seen as qualitative processes of power relating that are emotional as well as intellectual, creative as well as destructive, enabling as well as constraining. The result is a radical questioning of the belief that organisational knowledge is essentially codified and centralised. Instead, organizational knowledge is understood to be the relationships between people in an organisation and has to do with the qualities of those relationships (Stacey 2001).

It is the ongoing communicative interaction between everyone in an organisation, and with people in other organisations that learning occurs and knowledge arises (Stacey 2001, p. 234).

The perspective focusses attention on the ordinary way in which themes patterning communicative interaction between people may be caring and indifferent, cooperating and competing, loving and hating, agreeing and conflicting in the context of the living present. Thus, the complex responsive process perspective does not imply that humans can avoid the negative and have only the positive. On the contrary, it suggests that the paradox of negative and the positive at the same time is essential to the emergence of new knowledge. Thus, it is to try to understand more how these paradoxical processes do give rise to knowledge and provide obstacles to its arising at the same time (Stacey 2001, p.234- 235).

The theory of complex responsive processes is based on the argument that meaning, and therefore knowledge, arises in the local, detailed, ordinary communicative interaction of people in organisations in the living present. Knowledge is not understood to be property at all but active relational processes between human persons and a reflection of human identity which cannot be captured stored or owned. Now this form of reasoning is also on abstraction, but it is also a way of thinking about actual relationships in specific situations rather than as the foundations of further abstractions of a model. It is a way of thinking about interactional processes in which conversions may indeed centre on a model but, in retaining sight of relational processes, it offers a wider perspective on such models (Stacey and Mowles p. 477)

However, if knowledge is not a thing but a process of making meaning, where meaning is continuously reproduced and potentially transformed in the action of communicative relating between human bodies, then one cannot speak of sharing it or of spreading it around an organization. Any concern or with any concern with improving knowledge creating capacity becomes a concern with the qualities and the dynamics of human relating in the living present. Attention is then focused on the power relations being sustained and shifted in communicative interaction and on the ideologies unconsciously making patterns of power relations feel natural. (Stacey and Mowles p. 477-478)

Instead of focusing attention on how the tools are used. The tools are used in a wider process of communicating interaction in which particular ways of talking or ‘in’ and others ‘out’. A concern with the knowledge creation process, would therefore involve an exploration of this dynamic as it manifests in local situations in the living present. What kind of exclusion is operating? What impact does this have in terms of obstructing or encouraging the emergence

of new knowledge? Such questions soon lead to reflections on the manner in which ideological-based power relations are being sustained and challenged. What impact does this have on communicative interaction and emergence of knowledge? A concern with knowledge creating process also involves exploration of the identity-threatening an identity provoking aspect of the process, so focusing attention on these and other aspects of the conventional life of an organization and its transformative potential (Stacey Mowles p. 478)

2.10 Organisational learning in relation to Complex responsive processes

The theory of complex responsive processes belongs to the newer, social perspective of organizational learning, outlined above. The similarities are that:

- the collective is the learning unit, rather than the individuals within an organization or in an organization context. In CRP, there is no divide between the individual and the ‘system’
- learning is a social or cultural activity in the newer perspective, while it is a mainly cognitive activity in the traditional perspective.
- all learning is considered as context dependent.
- “knowledge” cannot be stored. This is described in the CRP perspective as; knowledge is not understood to be property at all but active relational processes between human persons and a reflection of human identity which cannot be captured or stored (Stacey and Mowles p. 477). With the term “knowing” being preferred, instead of “knowledge”. Knowing, for Stacey then, implies a concern with the qualities and dynamics of human relating (Stacey 2001 p. 228).

Although these similarities exist between the newer, social perspective of organizational learning and CRP. It is important to bear in mind differences between newer perspective of organisational learning and CRP. These includes ways system thinking are applied to human systems or action. Example the direct application or implementation of ideas from complex adaptive systems to human actions.

Leadership and response are two concepts included in the main question and title of the thesis. In the complex responsive processes perspective, organisations are not things at all, let alone living things, but rather they are processes of communication and joint action.

Communication and joint action as such are not alive. It is the human bodies that are alive.

This immediately focuses attention on the communicative interaction between living human

bodies that are an organisation. This is the basis of the alternative perspective of participative self-organisation as the process sustaining and potentially transforming identity directly in participating in ordinary interaction between people (Griffin 2002).

Participation is that of the embodied human beings with each other rather than the modernist concept of the autonomous individual. Experience can be understood not in terms of the individual alone but rather in terms of a world in which the individual plays an active part. Individuals come to an understanding of themselves in the continuity of their action, in the world in which they play an active part, and this is a social self-organizing process. Knowing and knowing selves are social processes (Griffin 2002).

Leaders act and leadership is action. This immediately means that a theory of leadership is also a theory of ethics. Ethical values emerge in interaction as a reflection of the emergence of leaders (Griffin 2002).

Theories of ethics and leadership are both concerned with the future, specifically with action into the future, and this means that they both have to do with “who” is acting into the future, a matter of identity. The underlying concern in both has to do with persons and the notion of person combines two opposite aspects, namely changeability and stability. This combination of transformation and continuity is the core of what identity is about and therefore at the core of what ethics and leadership are about (Griffin 2002 p. 215).

Leadership themes emerge in the on-going process of group interaction in which personal and collective identities are iterated and potentially transformed. Leadership themes over time and have virtually unlimited meaning for a group (Griffin 2002).

2.11 CRP and the paradox of known unknown

Uncertainty is central in the CRP approach on leadership. The -managers and leaders' degree of control and possibility for what they can control. And not least predictability into the future- known-unknown'.

Throughout the process characterized by the paradox of known unknown and in it emerges the aims people formulate the goal they set, the intentions they form and the choices they make. What is being expressed here is the individual and collective identity at the same

time Stacey (2001). I see that from the perspective of CRP that although a situation can be known the consequences at large may be related to how individuals collectively act.

Friis (2006 p. 86) refers to this as social interaction as improvisation and describes that improvising leads to both repetitive actions and novelty. The paradox of improvising means acting in two apparently opposite ways: being skilled and experienced in what you are doing, and at the same time acting spontaneously. This is knowing and not knowing simultaneously. Whether the emphasis is more on knowing or not knowing varies from situation to situation and from person to person. If the emphasis is more on knowing, if you are mainly acting based on your experience, what you have already planned, how you usually do things, then you are more likely to stay within repetitive actions. If the emphasis is more on the not knowing, the spontaneous actions, the possibility for transformation and novelty is greater, Focus on known, in this sense, is risk assumptions and assessment based on experience and staying in repetitive actions. In other words, not expecting surprises.

There are certain risks that give rise to uncertainty about the outcome of a situation and can be described as control risks. Control risks are associated with unknown and unexpected events. They are sometimes referred to as uncertainty risks and they can be extremely difficult to quantify (Hopkin 2012 p.16). Example, In the beginning, when COVID-19 was identified as a pandemic and the virus was spreading from country to country. How fast the virus would spread and how many would be seriously could not have be calculated in advance. Hopkin explains, in these circumstances, it is known that the event will occur, but the precise consequences of those events are difficult to predict and control. Therefore, the approach is based on minimizing the potential consequences of these events (Hopkin 2012 p.16)

2.12 Framework summary

Organizational learning, risk & crisis management are system thinking applied to explain the phenomena. A common nominator in these theories is how control and the role of leaders or people in authority is perceived. Complexity thinking is applied to see insights that emerges from this perspective. The Complex responsive processes perspective is to energize the complexity analysis since it brings fort consequences of communicative interaction, power and ideology. Aspects which are neglected in the dominant discourse on organisation and leadership.

3. Method

In this chapter I will explain the method I have applied for study, why and how I have made those choices.

3.1 Data source.

My study is based on press releases and press conferences conducted by Government officials related to the covid situation. I have studied documents on the government website. The timeline for news from the ministries about the coronavirus disease COVID-19 is available in both English and the Norwegian language.

The website in English (138 press releases), however, does not contain all the information available in the Norwegian language (531 press releases). Example information in Norwegian starts from 30th January 2020 while on the English websites, the information starts first from 27th February 2020, almost a month later. Not only are there less content on the English website compared with those in Norwegian. The Norwegian website has recording of the press conferences.

For contrasting two municipalities that were differently affected by covid-19 (but had to comply with the same national restrictions). I decided on Oslo that was the epicentre for the virus and Tromsø in the polar circle, that had for most of the period only a few cases.

For describing how the virus developed. I collected data from different sources to create a timeline with variants, regulations and advice.

According to Tjora 2013 p. 163). Document studies are traditionally regarded as “unobstructive methods”, since data is generated without that the non-research participants are involved. Tjora writes that an important point with documents is that they give us information about matters recorded at a particular time and place. Therefore, when documents are the source, we are therefore required to put them in a context. That is when they are written, what is written by whom, and for which reader and purpose?

In this study we have the national press conferences targeting the whole nation. The local press conferences in most cases have been responses to national press conferences with information targeting local area and conditions. Thus, the documents on the Government

websites are intended for the whole nation. However, the documents on municipalities website are intended for the respective municipality.

Nilsen referring to works of Francis Bacon in (Flyvberg 2004), states that it is a fundamentally human tendency to be more open to findings that support what we think than what does not, and this is not a problem specific for qualitative research. Nilsen advice that by working consciously with one's subjectivity through reflectivity contributes to that the researcher does not lose focus, but manages to distance oneself from the research participants, context, and data material (Nilsen 2014 p.139). This may have ethical issues which I intend to take up later in this chapter.

Discourse analysis is not a form for generating empirical data, but a form of analysis, where one is especially seeks to identify text/practice as reality construction. Basically, in discourse analysis is that the current situation (I the widest sense) is not naturally given, but could have been different, and that it is formed by the social specially through language. (Tjora 2013)

3.2 Codes and coding

A code in qualitative inquiry is most often a word or short phrase that symbolically assigns a summative salient, essence-capturing, and /or evocative attribute for a portion of language-based on visual data. The data can consist of interview transcripts, participant observation field notes, journals, documents, open-ended survey responses, drawings, artifacts, photographs, video, internet sites, e-mail correspondence, academic and fictional literature and so on (Saldaña 2016 p.4).

The governments website related to response to the covid-19 situation contains information on press releases, press conferences and implemented regulations. Most of the press conferences are video recorded. These video recording includes presentation and a question session the media. The individual interviews with different media are not included. I have only taken notes for coding from these video recordings for coding. For my study I have transcribed the recording first in the Norwegian and then later translated in English. My reason for doing this is to be able to double check my interpretation of the speeches, especially when coding the data and analysis. Note individual private interviews with the media is not available on this website.

In qualitative data analysis, a code is a researcher-generated construct that symbolises or translates data and thus attributes interpreted meaning to each individual datum for purposes of pattern detection, categorisation, assertion or proposition development, theory building, and other analytic processes (Saldaña 2016 p.4).

3.3 In Vivo Coding

There are many names for In Vivo coding. Saldaña describes that although In Vivo coding has also been labelled “literal”, “verbatim coding”, “inductive coding”, “indigenous coding”, “natural coding”, and emic coding in selected methods literature. (Despite its many names it is most well-known as In Vivo rephrase sentence) (Saldaña 2016 p.105).

The root meaning of In Vivo is “in that which is alive” and as a code refers to a word or short phrase from the actual language found in the qualitative data record, “the term used by participants themselves (Strauss, 1987, p. 33 in (Saldaña 2016 p.105).

Since each sentence or line can get its own code applying In Vivo as a method of data generating data. The method can therefore generate an extensive frequency of codes. According to Saldaña, coding as “splitter” is when every sentence is recorded, whereas coding as “lumper”, is when what most relevant for one's goals recorded (Saldaña 2016 p 106-107).

I choose In Vivo coding since I see many advantages in the method for my purpose. This will be presented in the next section.

3.4 Working with data

Here I will present how I have gathered data and how the data analysis has been conducted, or as Miles et al (2014) recommends, a description of systematic procedures and thinking process of how data come together to explain how things work.

The research is limited to the period from 31 January 2020– 12th February 2022. As mentioned, this is the period from when the pandemic was defined as a serious social health threat, to when it was defined as no longer a serious societal health threat to the nation. The data gathering includes both press releases and video recordings of the press conferences. Here I have had to make my own transcripts since not all the actors had published information presented at the press conferences or their speeches. This was a demanding process since transcribing interview and speeches is very time consuming. The payoff, however, is as that the presentation on the Norwegian website has more details related to the press releases. Furthermore, interviews with representatives from the health authority.

The layout stages for data preparation were designed after (Saldaña 2016 p.19), for text-based qualitative data, for manual coding and analysis. This process was first done in Microsoft Excel and Word to find out what worked best and as the amount of data increased. The initial code book was divided into 5 columns. I soon found out that it was too time-consuming, furthermore, that some of this information would not be relevant in the data analysis. I later copied over what I had in Excel to Word. With a few columns now in Word, it was much easier to navigate through the document.

With some many codes at now available, I transferred data to the Nvivo software. Using the software helps to have a better overview and structure which is helpful in the analysis process.

During the first cycle coding, I recorded 128 In Vivo codes. In the second cycle coding this number was reduced to 38 codes. These are codes relevant for my research question. For curiosity I conducted a word cloud search in Nvivo (see Appendix 1). These codes were combined to categories with similar themes and later used to develop concepts. Four concepts were developed from data based on my analysis. On how I have conducted the first, second and category example, see Appendix 2.

Open coding, as Nilsen (p.78) write comes from Glaser and Strauss (1967) who developed the concept “grounded theory” as a research method. Open coding means to approach data material with an open mind, and an open attitude to what data material says. Nilsen explains that the key idea behind the method is to develop new theoretical ideas that have roots in the

data material, in other words, an inductive approach, compared to testing a theory, deductive approach. It prioritizes generating theory more than verification of theory.

Nilsen describes that grounded theory takes shape in the 3 code stages (phases. Open coding is the part of analysis where the researcher gives name or code the phenomenon and expressions, after having thoroughly gone through the data material. Axial coding is the stage when categories are divided into subcategories, so that the explanation to the phenomenon is more precise and complete. It is at the selective coding level where one can discover the key categories and can systematically relate it to other categories. The key categories represent the research main theme and according to Glaser (2001), Grounded theory” is a theory about a core category” (Saldaña 2016 p. 209).

(Saldaña 2016 p.55), describes that there are six particular methods however are considered part of grounded theory’s canon (though they can all be used in other non-grounded theory studies). These are In Vivo, Process, Initial, Focused, Axial and Theoretical Coding. In earlier publications Initial Coding was referred to as “open” coding and Theoretical Coding was referred to as “selective”coding” (Saldaña 2016 p.55). Tjora (2012) writes about Stepwise – Inductive- Deduction (SDI) method. I tried several of these methods just to see the kind of information generated using these different approaches. But finally ended up with concentrating on the Stepwise – Inductive- Deduction (SDI) method.

Inductive analysis implies/means to discover patterns, themes, and categories in the data material opposite to deductive approach where data is analyzed with help of predefined structure (Patton 2002, in Nilsen p.14)

I was more interested in using an inductive approach to gathering data. My reason for this is that I am interested in generating data by what is in the text and instead of applying a deductive approach with predefined variables or categories.

In the social science studies the role of theory and where theory comes in the research is much discussed. I must admit that in the beginning I found myself only related to the concepts and theory in my framework. But after some practice, I found I was more at ease with the data collection and selecting what was eye-catching and could be of interest.

Below is a graphic presentation of the Stepwise – Inductive- Deduction model.

3.5 Analysis as Stepwise-deductive induction (SDI)

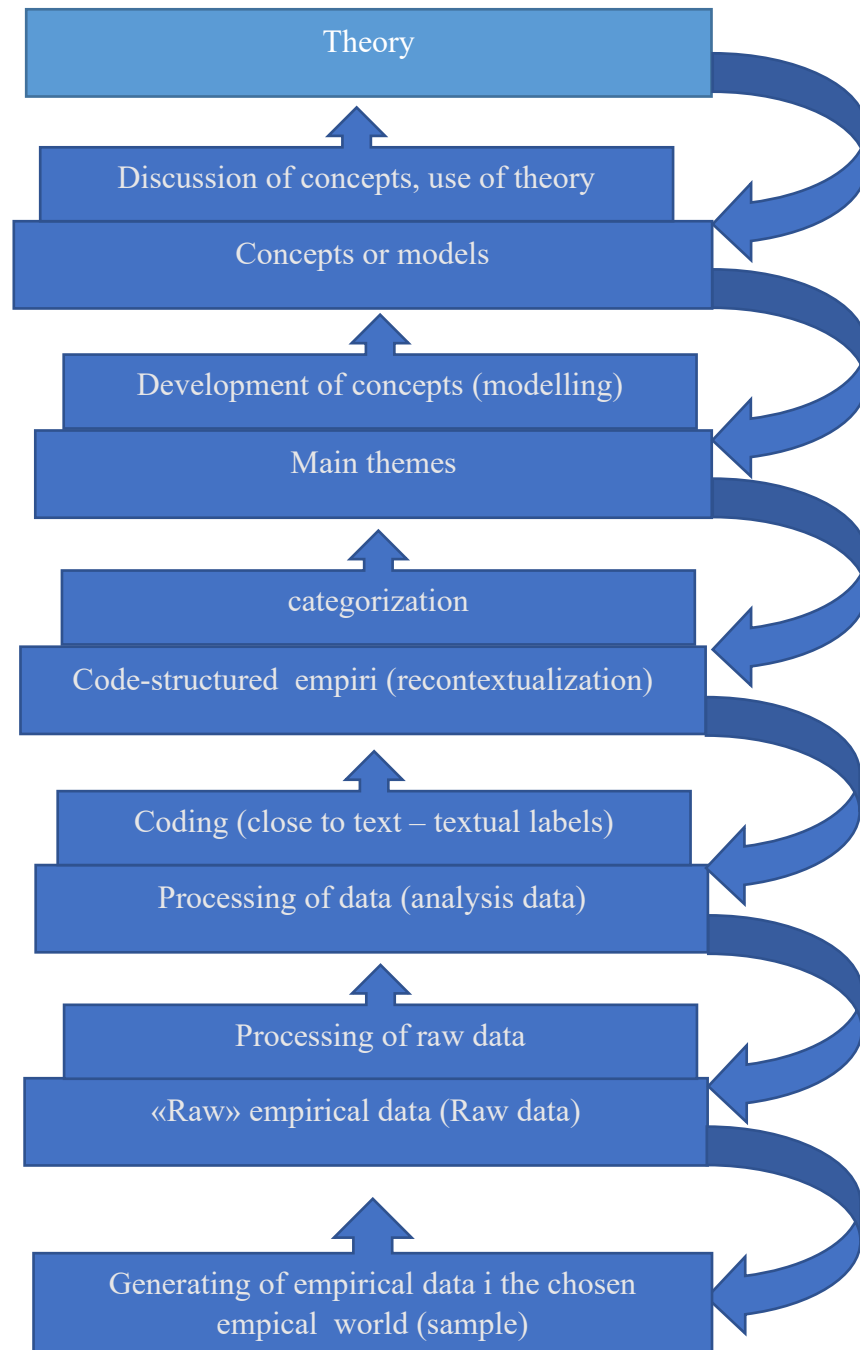


Figure 3. Stepwise- deductive-induction method. Source (Tjora 2012, p. 175)

The model is based on an inductive principle. It starts with raw data and moves towards concepts or theories through incremental deductive feedback loops, the ‘stepwise-deductive induction’.

3.6 Ethical concerns

Ethics in content analysis are not often discussed or explicitly mentioned. However, in my opinion ethical issues to consider are just as important when conducting this kind of study. Although one may have the impression that it is data that is already public and out there, it is important to bear in mind essential ethical principles. What is right or wrong, acceptable, or not acceptable etc. In other words, moral and ethical questions.

As Tjora (2012) put it, it a kind of ethical sense should be implicit in all research, strictly speaking independent of the formal legal requirements for research.

Miles et al. write that all research must be guided by the classic principle of human conduct: First do no harm (Miles et al. 2014). There is a well-define codes of ethics at Nord University on guidelines described in the Master Thesis companion. Some of the ethical issues Miles et al., take up that I find relevant for content /text analysis are:

1. A request that should asked about the worthiness of the project one is undertaking. Will it contribute to some significant way other than for person gains?
2. Competence, implying efforts one has made to acquire the necessary resources both from oneself and others.
3. On research integrity and quality. Is my study conducted carefully, thoughtfully, and correctly in terms of some reasonable set of standards or established practices.
4. On use and misuse of results. Since research results can be misuse for many wrong reasons. Thus, one has the obligation in the analysis to acknowledge the multiplicity of perspectives encountered (Miles et al. 2014).

An example of misuses of studies is when the Prime Minister Tony Blair and the Bush Jr. Administration when to the length of using a plagiarized student paper as an intelligence work to justify that Saddam Hussein in Iraq had weapons of mass destructions. ([Iraq dossier](#)) Which later proved that this was not the case.

In summary, ethical considerations are always important since it well can improve the quality of the research and may also clarify issues related to reliability and validity.

3.5 Reliability

The underlying issue here is whether the process of the study is consistent, reasonably stable overtime and methods, which addresses issues of quality and integrity (Miles et al. 2014). Useful points take up and that I find relevant for my study:

1. The research questions are clear, and the features of the study design are congruent with them.
2. The findings show meaningful parallelism across data sources (participants, context times)
3. Basic paradigm and analytic constructs are clearly specified. Reliability depends, in part on its connectedness to theory)
4. Data quality checks have been made (e.g., for bias, deceit).

In other words, (brief) a short summary,) reliability is about internal logic throughout the research process (Tjora 2012)

3.5 Validity

Validity is about the external logic of the research process. As Tjora (2012) puts it, the logical connection between the research design, results and the questions posed.

Miles et al. mentions that validity is a contested term among selected qualitative researchers who feel that the term is a quantitative construct. Tjora (2012) also find that it inexpedient either in translation or to adopt different term.

Useful points take up and that I find relevant for my study, advice from Miles et al. (2014)

1. Description of are context-rich, meaningful, and “thick” (Geertz, 1973 in Miles et al.)
2. The account rings true, makes sense, seems convincing or plausible, and enables a vicarious presence for the reader.
3. Trangulation among complementary methods and data sources produced generally converging conclusions. If not, the procedures for reconciling the differences and their results are explained.
4. The data presented are well linked to the categories of prior or emerging theory. The measure reflect the construct at work.
5. Rival explanations have been actively considered.

4. Presentation of the study

In this chapter I will start with presenting the results from my content analysis. This is how the concepts have been developed and grounded in theory. The second part of the chapter a timeline on different COVID-19 waves in Norway. In the third part of the chapter I will contrast two municipalities.

4.2 Concepts generated from data

Below I have presented a table with an overview of the categories and In Vivo codes generated from data. To show how the codes have been analysed, I have included a sample in Appendix 2. An advantage with such a presentation, following Saldaña (2016) is that important points can get overlooked or lost when embedded in narrative.

<i>Limited virus spread strategy</i> <i>“manage to limit and delay the infection”</i> <i>“limit the spread”</i> <i>“stopping the spread of the virus”</i>
<i>We-ness</i> <i>“our collective effort”</i> <i>“stronger together”</i> <i>“by standing together”</i> <i>“dependent we are on each other”</i> <i>“that we are stronger together”</i>
<i>Datafication</i> <i>“transmit the virus to a maximum of one other person.”</i> <i>“Data not dates”</i> <i>“R-number”</i>
<i>Complex policies</i> <i>“most sweeping measures”</i> <i>“series of measures”</i> <i>“measures into action”</i> <i>“local, regional and national measures in place”</i> <i>“measures in everyday life”</i>

Tabel 1. A sample of listing the categories and descriptions (derived from codes)

The following sections below include how theory has been grounded (grounded theory) in developing the concepts to get a wider picture in their meaning, quotes from the press releases and transcripts included.

4.2.1 Limited virus spread strategy

The concept *Limited virus spread strategy* is constructed using a combination of several In Vivo codes and theoretical grounding inspired by Hopkins model on risk controls. I have used the word ‘spread’ as it used in the press conferences /releases, and intentionally avoided using the term ‘control’. This is because in complexity thinking, organizations and society are open, complex, non-linear and dynamic systems. Thus, an organization or society is not a simple controllable system that is possible to manage and regulate as a whole (Johannessen, 2011; Stacey, 2011). Since strategy is defined here as ‘what we end up doing’ rather than the more usual definition of ‘what we plan to do’ borrowed from Boulton et al (p 141.). Furthermore, the strategy here involves complex actions depended on other actors’, their responses and actions.

Two examples: example 1

10.03.2020. Prime Minister Solberg *“I understand that people are concerned. We are in a serious situation, primarily because the corona outbreak threatens people's lives and health.*

Therefore, job number one is to limit the spread of infection. The health authorities are planning for a situation where the number of infected people will increase sharply in the coming months.

*This is demanding for the Norwegian healthcare system, and I would like to thank everyone who makes a great effort. We must all make an effort **to limit and delay the spread of infection.** The important thing now is to avoid too steep peaks in the infection curve so that not too many people get sick at the same time. This is important for two reasons:*

- *The healthcare system must have the capacity to treat both those sick with corona and those who are ill for other reasons. Therefore, we have to flatten the peaks.*
- *The longer we manage to **limit and delay the infection**, the greater the chance that a vaccine or treatment has been developed. The government is looking at various measures we can take in both the short and long term”.*

At the end of February, Norway had its first confirmed case of Corona.

‘Limited virus spread strategy’, as a concept, in my opinion makes more better sense-making of the measures in place, when the Government described would move from a control strategy to what they termed a preparedness strategy, as part of the reopening steps. After step 4 *“Normal everyday life, with increased preparedness”*

10.04.2021. ‘After we are done with Step 4, we will move from a control strategy to a preparedness strategy. The phase ‘Normal everyday life, with increased preparedness’ can be summarised in two points:

- The population’s everyday lives will be affected by the pandemic to little extent. Good hand hygiene and cough etiquette will continue to be important; people must be more willing to stay home if they are ill, and everybody should take a test in accordance with the official guidance. However, the special COVID-19 measures will end.
- The local and national authorities will continue to closely monitor developments, so that measures can be introduced quickly if the situation changes. The Norwegian Government, the health authorities, the hospitals, and the municipalities will have a higher level of surveillance and preparedness.
- ‘We will continue to pursue our objectives of protecting people’s health, reducing societal disruption, and protecting the economy. Children and young people will continue to be our top priority, followed by jobs, and the business sector,’ states Ms Solberg

I find the Bowtie model fruitful, though the Government did not at earlier stage use these terms or explicitly mention the type or combination of risk controls put in place. The description of the response however informs what was being done. In risk management terms, it would imply that the after stage 4, the virus would be considered a hazard. Thus, no longer regarded a control risk but a hazard risk.

4.2.2 We-ness (collective effort)

The Concept ***‘We-ness’***, draws on Elias and Mead. It is also inspired by ‘basic assumption’ developed by Psychiatres Wilfred Bion (dependency, fight/flight and pairing) and Pierre Turquet (oneness), on what might be going when a group is anxious and what might lead to their expectations of people in authority So, in situations of crisis, according to Bion, we are likely to become dependent on our leaders and to invest heavily in their words (Mowles 2022 p. 131). Furthermore, drawing on Elias and Mead.

On the first televised press conference related to COVID-19 10th March 2020, the Prime Minister said *“This is a serious situation we are in, the most important is that it affects life and health. We must all through ‘collective action’ take part to limit the virus from spreading”*. On 24 March 2020, the Prime Minister further emphasized, *“We must continue our collective effort to stamp out the virus. We know it is costly, but people across the country are following up. For that I would like to extend my thanks. We have made it through tough times before. And we will this time as well”*. About a year later 10th April 2021, The Prime Minister continued with her encouragement to the people *“We have been facing this together. Our goal is to come out of this crisis together too”*. The ‘collective effort’ theme was picked and used by the other Government ministers and officials too.

4.2.3 Datafication

The concept **Datafication** is borrowed from Mayer-Schonenberger and Cukier (2013:78), who use it to describe the contemporary phenomenon of quantifying aspects of life that was previously were not measured numerically (Elkington 2022 p. 68 in Mowles and Norman 2022). Modelling is to inform policy and data is part of how measures would be applied and policy or the role of data.

10.04. 2021. The Government presented a reopening plan that consists of four steps. It became clear that ‘data’ would be conditional for lifting measures and reopening of activities.

“The reopening plan is not scheduled to happen on fixed dates. Before moving on from one step to the next, these three aspects will be assessed:

- *Infection rates and the disease burden*
- *The capacity of the health care services*
- *Vaccinations*

- At every step of the reopening process we will have to monitor the situation closely. If the numbers of infected and ill persons do not increase, we may proceed to the next step after three weeks. However, if the numbers of infected and ill persons increase, we must wait before proceeding, or tighten measures again. In other words, what will determine the pace are the data, not the dates” said Bent Høie, Minister for Health and Care Services”.

4.2.4 Complex policies

The concept *complex policies* are an InVivo codes developed through code weaving. Meaning, integrating and incorporating several codes through xxx reduction, since they refer to different sets of measures applied to different sectors in the society. The concept is borrowed from Head and Alford (2015), and theoretical grounded through the context of wicked problems. As mentioned earlier, Hopkin describes certain risk controls as wicked problem. Complex policies means also that there is some uncertainty between policies and outcomes.

27. February. 2020. Norwegian health authorities are prepared for the corona virus and have already put several *measures into action*. I am following the situation closely, and I am also receiving frequent updates from the Norwegian Directorate of Health and the Institute of Public Health. It is important that everyone do what they can to limit the risk of infection by following the official advice for hygiene: Wash your hands regularly and cough into paper or your elbow.

“On 12 March 2020, the Government introduced a *series of measures* in the hope of stopping the spread of the virus. These are the strongest and *most sweeping measures* Norway has seen in peacetime. Prime minister Erna Solberg.

29.01.2021 ‘*Financial measures* will be in place for the duration of the crisis, but it is important that they are adapted to the infection situation at any given time. We are still in the middle of this crisis, and we need to provide security and predictability for those who are suffering most financially. At the same time, we need a plan for how to best promote development, change and growth when society reopens, and the level of activity is back to where it was. When that happens, it will be important for people to get back to work as quickly as possible,’ says Minister of Finance Jan Tore Sanner

22.03.21. “*Although we require strong measures in order to limit the spread of infection, it is also necessary for industry to retain access to critical personnel. We will seek to safeguard both of these requirements in a safe manner,*” says Monica Mæland, Minister of Justice and Public Security

14.12.2021 “We have received clear advice from the health authorities to introduce new and **stricter measures** at this point. It is important to us that we protect children, adolescents, and vulnerable groups but unfortunately, they, too, will be affected by the **measures in everyday life**. We are also aware that many people who work in the health service and at kindergartens and schools are weary now. This reinforces the gravity of the situation,” said Mr Prime Minster Støre.

4.3 Timeline on COVID-19 Waves in Norway

Another way to see what kind of responses (learning/ways of knowing) has taken place is to see the timeline of regulations implemented and the recommendations made. The table below including waves on the different variants and authority responses to them. Note the variants are those that were most dominant during each wave and the dates are estimations of when the virus type was officially announced by the health authorities, FHI.

Wave	Virus Variant	Intra-crisis learning	
		Regulation and measures	(Desired Behaviour) Advices & Recommendations
Wave 1 26.02.2020	Alfa (B.1.1.7)	<ul style="list-style-type: none"> • Revision of SOPs • Revision of laws • Traffic light model for schools and kinder garden (• TISK strategy (Testing, Isolation, Tracking, Quarantine) • Work furlough scheme & loan guarantees for businesses. • 17.03.20 At least two meters’ distance when travelling • August 7: National closing hours for pubs & clubs • 26 October New national measures (Children in line of new knowlegde) 	<ul style="list-style-type: none"> • Wash hands often • Cough into paper or arm • Social distancing measures (the one meter) • Home-office • Limited use of collective transport • •
Wave 2 01.11.2020	Alfa (B.1.1.7) Beta (B.1351)	<p>How to present rules during each wave Include or just write something about it. Revisions made.</p> <ul style="list-style-type: none"> • 5 November; New national infection control measures and at local level (New measures in regions with widespread infection) 	<ul style="list-style-type: none"> • In the coming weeks must stay at home as much as possible and limit social contact with other people. (New) • The number of guests at social gatherings in private homes, gardens or cabins should not exceed five, in

		<ul style="list-style-type: none"> • 7 November; Negative test to enter Norway and quarantine at hotel. (07. November) Regulations relating to amendments to the COVID-19 Regulations - regjeringen.no • 2 December Preventions measures necessary for Christmas • 14. December; long term strategy updated • 26. December: Vaccine came to Norway and distributed according to the vaccination strategy. • • 4 January. Stricter national measures to limit social contact. Red light level for primary and secondary schools. • 18 January: Obligatory test at the border. School given orange light • 28. February: vaccination strategy document modified. 	<p>addition to the household members. If all the guests come from the same household, more than five guests are permitted. Two families with many children can still meet.</p> <ul style="list-style-type: none"> • The restriction limiting social gatherings to five guests does not apply to day care centre or primary school cohorts. • Young people and adults who have been with friends and in other situations where they have not been one metre apart, should stay two metres away from people in the risk group. (New) • Measures for Christmas
Wave 3 01.03.2021	Delta (B.617.2) Gamma (P.1)	<ul style="list-style-type: none"> • Nation liquor ban in pubs, clubs and restaurants. • Working from home (if possible) • All indoor sports for grown up forbidden. • 12 March Tightened test and quarantine hotel rules for incoming travellers to Norway. • 7 april “Together out of the crisis. Phase wise strategy for opening. “Data and not date” was decisive. • 27. May: First time during the pandemic green level for kinder garden and schools in area with low infection pressure. Municipalities could now decide local measures • 11. June: Infection control act updated for acceptance of corona certificate. • 5 July: New long term emergency preparedness strategy published 	<ul style="list-style-type: none"> • Social distancing measures (two meter) • Number of guests limited two • Minimum social contact

Wave 4 28.07.2021	Delta	<ul style="list-style-type: none"> • 25 September, children from the age of 12-15 years old could be offered vaccination. All restrictions lifted apart from isolation when infected by covid-19 	<ul style="list-style-type: none"> • Isolation when infected by covid-19
Wave 5 01.12.2021	Omicron (B.1.1.529)	<ul style="list-style-type: none"> • 02.12.2021 New national measures • Red light level for kinder garden and schools. 	<ul style="list-style-type: none"> • Booster dose people ≥ 65 • Face mask when in contact with health & care service • Face mask in public transport, taxi, shops • Regularly testing of students in areas where infection levels are high
		<ul style="list-style-type: none"> • 14.01.2022 Changes in TISK-strategy 	<ul style="list-style-type: none"> • Transmission quarantine is being replaced with more self-testing, and people who receive a positive test result must notify their close contacts.
		<ul style="list-style-type: none"> • 12.02.2022 All statutory requirements against COVID-19 infection control measures lifted - pandemic not over but no longer defined as a societal threatening disease 	<ul style="list-style-type: none"> • No longer required to wear face mask, keep the one meter or isolation when sick

Table 2: Timeline on dominant covid-19 variants in Norway, regulations, and recommendations (desired behaviour) in response.

Table summarizes the different waves from the early 2020 to February 2022.

4.4 Case of two municipalities, Oslo and Tromsø

Although the first COVID-19 case in Norway was case was reported in Tromsø. Just a couple of days later, also cases began to be registered in Oslo and its surroundings. The first case in Tromsø, was a tourist who had return from China, whereas the case in Oslo were skiers who had return from the Alps in Italy.

An example for the lack of fit in regulation can be illustrated by contrasting two municipalities. The case is to show how the two municipalities were affected by the virus and the Government response to them. The two municipalities are included to illustrate the lack of fit in regulation. Oslo was the epicentre of the virus and natural with high level of infection,

whereas Tromsø had a low level of infection for most of the period (see figure). FHI only prepare statistics at provincial level.

To make this contrast, I have compiled data from the Norwegian Surveillance System for Communicable Diseases (MSIS) (see Appendix 3 for the number of cases. Instead of presenting the data based on weekly number of cases I have decided to present monthly cases for two reasons. Firstly, weekly presentation would require very many pages. Secondly, Tromsø had a very low monthly case. The first-time registered number of cases was above 200 was in the month August 2021. A paradox in the sense that the number of cases increased despite the introduction of the vaccine.

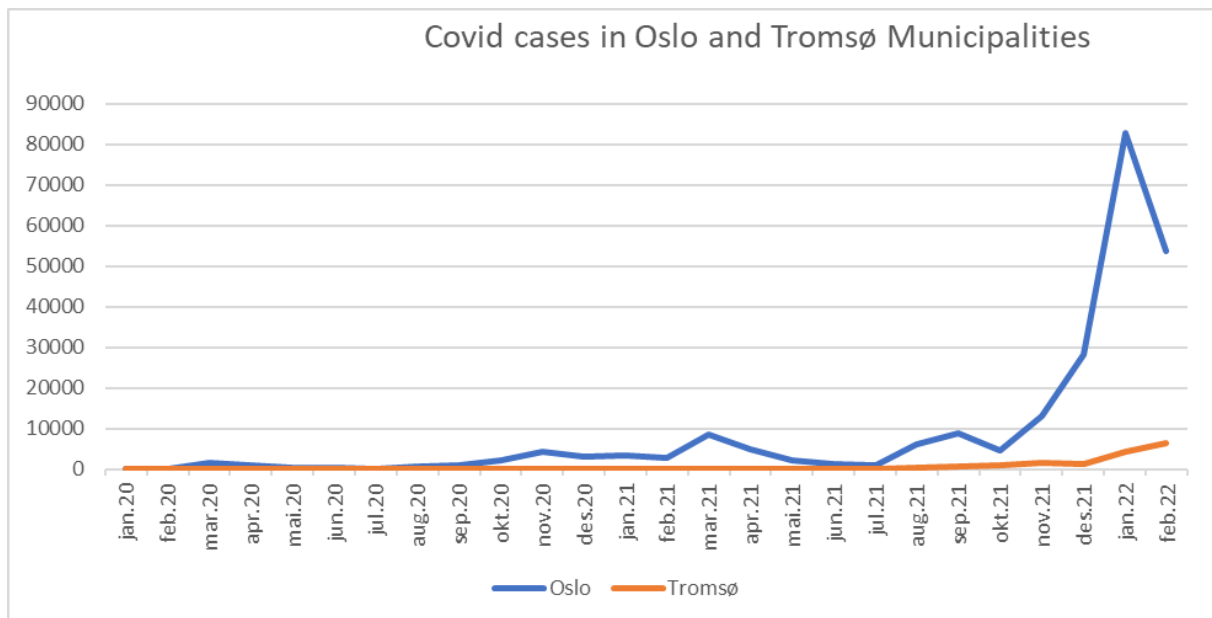


Figure 4 Differences in infectious level between the Municipality Oslo and Tromsø. January 2020 – February 2022.

Source : Norwegian Surveillance System for Communicable Diseases (MSIS) FHI

According to the second doctrine is the principle of local self-government. The municipalities have independent responsibilities for a range of important public tasks at the local-level – including responsibilities for public security (Christensen, et al., 2016). However, when cases of the virus were detected in Norway, municipalities in Northern Norway decided to implement what became famously known as ‘Søringkarantene’ or ‘Southerner quarantine’. Travellers from the southern Norway had to meet the quarantine requirements when they arrive or visited the municipality.

This brought about an outraged from the Unions (KS, LO and NHO). The municipalities had to take the following considerations to guidelines issued by the Government when applying local measures.

This is what the authorities say about quarantine rules municipalities must avoid:

- Measures that affect critical societal functions, as defined in the national regulations in force at any given time.
- Measures affecting public service provision and the exercise of authority, including child protection.
- Measures affecting transit without staying in the municipality.
- Measures which affect children with shared residence and which thus interfere disproportionately with family life.
- Measures that affect people who cross municipal borders while traveling between home and place of work, and between different places of work, and which prevent employees from being able to keep their jobs and that employers are still guaranteed labour.
- Measures affecting passenger and goods transport (by road, sea or rail or in the air).
- Measures of importance to keep production running in businesses, including maintenance, repairs, supply lines, specialized services, etc.

The above is an example of lack of fit in regulation whereby the municipalities have to take such considerations, when implementing local measures.

5 Analysis and discussion

The analysis and discussion chapter are structured such that my theoretical framework describing the phenomena is applied at the beginning of the section for each concept. These are the four concepts generated from data. I will then first from a general complexity thinking perspective discuss the concepts and finally present what emerges from a complex responsive processes (CRP) perspective.

Below is a figure of causal network depicting the logical chain between the concepts.

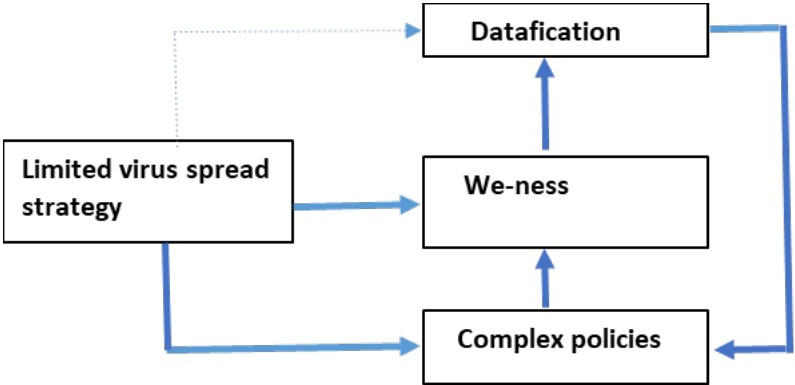


Figure x Causal network model on response to COVID-19

A narrative presentation of the model can be useful to conceptualize how the concepts relate together. The categories of themes covering the Government's intentions on how to limit the spread of the virus fall under the *'limited virus strategy'* concept. The Government also set up a target. This is illustrated by the dotted line that goes from the *'limited virus strategy'* to *'datafication'* concept, monitored by the health authorities. This could be understood as the acceptable level of safety (ALOS) target, for example, *"transmit the virus to a maximum of one other person."* or through the *'R-number'* indicator.

The ministries are responsible to act to this strategy by designing and implementing measures. This is illustrated by the arrow that the goes from the *'limited virus strategy'* to *'complex policies'* concept.

The Government's communication and appeal to the people in the fight against COVID-19, is the message emphasizing collective effort. This is illustrated by the arrow that goes from the *'limited virus strategy'* to *'We-ness'* concept.

The arrow that goes from '*We-ness*' to '*datafication*' is the changing level of the spread among people, reported to the health authority. And the arrow that goes from '*datafication*' to '*complex policies*' concept, illustrates measures appropriate ministry must take, to constantly changing data, from the health authority.

5.1 Norwegian context in brief

Boulton et al (2015: 196-197) advice is that a complexity informed framework shall include a context analysis. This approach emphasizes the past, that history matters – both to understand the current institutions, norms and patterns of relationships, and to understand what has been done before. Such an analysis consists of questions regarding path-dependency, systemic, the particular within the context and what is emerging. Naturally, since such an analysis can be very extensive and due to limited space, I will only highlight some main points in brief. In order to see whether the Government's response considered path-dependency. One must look at the history of crisis response and management in Norway, and how this might have also shaped what has been done. To use Johannessen words, 'national trauma event' to describe crisis and emergency that was last experienced in Norway, was the terrorist attacks in Oslo and on Utøya in 2011 (Johannessen 2018 p.2, Johannessen 2015). The Tsunami in Thailand (2003), despite taking place in another country affected many Norwegian lives. Fimreite et al (2014) takes up several other crises 'events at national, and regional level, that has required response from the authorities.

Crisis of economic nature was the global financial crisis of 2008 and falls in oil prices in 2014. As the Minister of Finance stated in the first televised press conference. "*The oil companies are well equipped to handle a fall in oil prices – far better equipped than they were when oil prices fell in 2014*".

These incidents in contemporary times have influenced the crisis-management structure in Norway. For instance, the aftermath of Tsunami in 2003, brought about organizational changes in the Ministry of Foreign Affairs in areas related to crisis preparedness (Jaffery and Lango 2014). The history of learning from one crisis to another, in organizational learning context, referred to as inter-crisis or crisis-induced learning (Deverell, 2010 2021).

So how do things relate to each other systemic (systemically), regarding the institutional setting in Norwegian context in crisis leadership.

Christensen et al (2016) explains that knowledge of the Norwegian political-administrative system two governance doctrines is essential, in order to understand the structure of crisis management and public safety. The first is the principle of ministerial responsibility, which means that each minister, is in command for all decisions in subordinate agencies and bodies within his or her portfolio. This principle implies that the minister focuses mainly on what happens within his or her own policy area. According to Christensen et al., this has resulted in strong line ministries, administrative ‘silos’ and weak overarching ministries that are supposed to handle trans boundary wicked issues that transcend ministerial areas – for example, climate change or internal security. The only strong overarching ministry is the Ministry of Finance. However, it focuses mainly on budget and finances and not on substantive policy issues. Christensen et al. Further explains that adding to this, the PMO’s formal coordinating power is weak, and the Prime Minister is seen as ‘first among equals’. These results, in general, in weak inter-ministerial coordination. This is especially problematic when tasks cut across ministerial areas. Quoting Scharpf (1994) and Bouckaert et al. (2010), they describe that in this system, ‘negative’ co-ordination is more common than ‘positive’, implying minimum coordination and a policy of non-interference into other ministries’ areas. Over time, some measures have been introduced to counter this. Nevertheless, the sector orientation still dominates (Christensen, et al. 2016 p.27-29)

The second doctrine is the principle of local self-government. The municipalities have independent responsibilities for a range of important public tasks at the local-level – including responsibilities for public security. This implies that municipalities generally have their own policy agenda, often rather loosely coupled to that of central government. This potentially leads to weak vertical coordination between central and local government. Taken together the governance doctrines produce ‘grey zones for public administration as well as accountability ambiguities, both horizontally and vertically. The formal division of responsibilities for security and prevention is complex, since several ministries and central agencies are involved (ibid).

During the COVID-19 crisis, the accountability was distributed between the Prime minister’s office (PMO), Minister of Health, Minister of Justice and societal security on coordinating

information and implementing regulations. The Directorate of Health; and National Institute of Public Health had a consultative and coordinative function. The Minister of Finance had a special role with the responsibility for the COVID-19 financial budget and compensation during lock down and periods of restrictions. As the crisis evolved, other ministries got more involved, since the pandemic affected different sectors of the society.

What is particular in this context is that country has sound economy, modern health system and it has come a long way in the digital infrastructure in society.

The Government got involve early involve with emerging factors.

The presentation above is a brief presentation on context that are important on also understanding how certain things worked out the way it did or not.

5.2 Limited virus spread strategy

One way to understand the government's response to COVID-19, is through response perspectives in risk management.

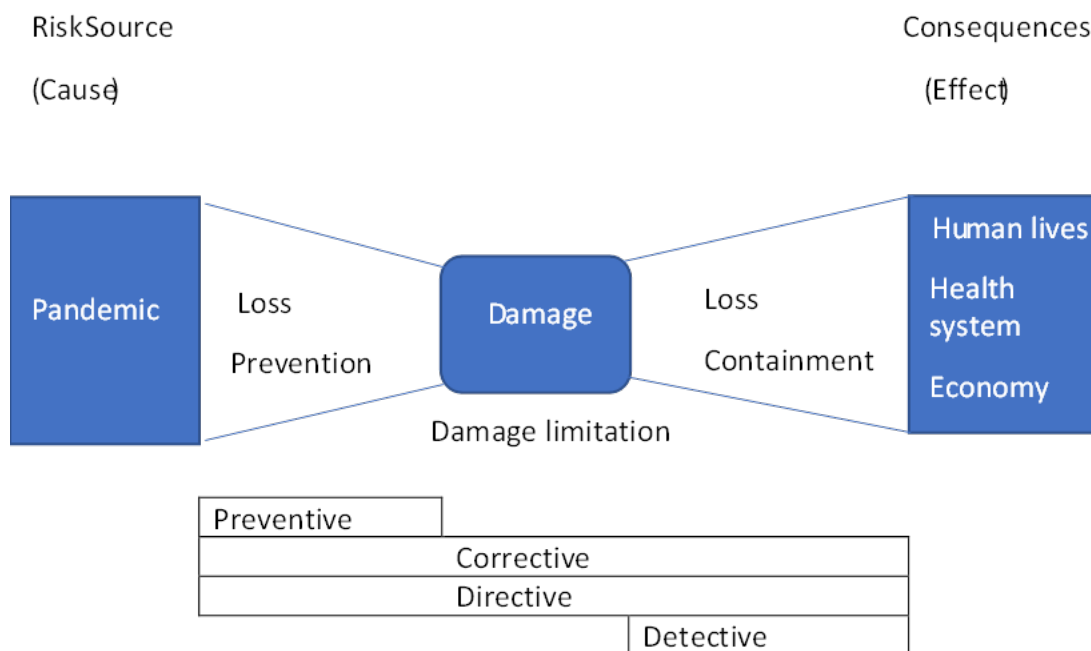
At the Prime Minister's press conference of 12 March 2020, the government introduced measures that were to control the spread of the virus. Restrictions were put in place “to flatten the curve”.

Here is a quote:

*“On 12 March 2020, the Government introduced a series of measures in the hope of **stopping the spread of the virus**. These are the strongest and most sweeping measures Norway has seen in peacetime. Prime Minister Erna Solberg (24.03.2020)*

It would appear, the strategy was ‘preventive’ and ‘corrective’ risks control, based upon the statement “to stop the spread of the virus”. Already at this point, it was apparent that mathematical models (datafication), would play a major role in policy making.

As presented earlier, according to Hopkins, corrective controls are designed to limit the scope of loss and reduce any undesirable outcomes that have been realised. This may also provide a route of recourse to achieve some recovery against loss and damage (Hopkin 2012 p. 237). I have illustrated the processes with the figure below:



There were earlier concerns about the testing capability since people wanted to get tested. Some thought this was a way of not spreading the virus, by being assured of not carrying the disease. However, the health authority’s response at the press conference was that they had made changes in the test criteria to a more ‘targeted test regime’. According to Line Vold, this meant that Norway went “opposite direction regarding COVID-19 and testing” (Regjering.no, 16.03.2020). By opposite direction in monitoring, meant, people should first have COVID-19 symptoms before contacting the health system for testing. The explanation was to avoid unnecessary misuse of resources such as test equipment and staff time. This can be described in the Bow-tie model under the detective controls.

On 7th May 2020, when the Prime Minister talked about transitioning to a control strategy, I think, she was referring to several risk controls (corrective and directive), when implying:

“we have had the same aim all along, to ensure that the health services have the capacity to assist everyone that needs it, both patients in need of health care due to COVID-19, and patients that need health care due to other reasons and diseases”
 (in Ursin, Skjesol and Tritter 2020 p. 9).

Describing risk processes at societal level can be confusing, since they have different meaning and context. According to Olsen, Kruke and Hovden (2007), existing concepts developed to analyze at individual and organizational level can hardly be transferred to societal level. In a

similar vein, Ball and Ball-King, are critical to engineering-style solutions to managing public safety. They argue that there is some evidence that these measures are less effective or even ineffective in the public sphere. Partly because they take little account of the complexity of human behavior and their interactions with their surroundings. Furthermore, public space and activities are a complex system. A few things can be confidently predicted to work in a certain way, but many cannot (Ball and Ball-King, 2010). Hood et al, argue that indiscriminate or inappropriate applications of corporate risk management approaches could detract from, rather than augment, the quality of government risk.

The examples above shows why I included a Bowtie model. The model is a good descriptor for type of risk controls being or has been applied. But it does not address issues taken up by the named scholars.

- In complexity thinking the following aspects are of interest.

As to whether the ‘systemic’, was considered in ‘the limited virus spread strategy’ can be explained in a few ways. Those considered and not considered.

Considered:

1. Protecting the health system and hospital capacity was prioritised.
2. Economic support to spread.

Not considered.

3. Children and adolescents.
4. Impact of mutation and variants for such a strategy (Example, regulations and recommendations had to be modified as new variants appeared).
5. Dependency on foreign goods and labour.

As to whether attention was paid to ‘path-dependency’ (the way the present builds on history), in ‘the limited virus spread strategy’. This can be explained that the health authority acted first on knowledge gained from similar type of virus before.

As to what extent is the ‘limited virus spread strategy’ response was sensitive to specificities of the context to allow customisation, experimentation, and learning. The customisation and experimentation were allowed with the ‘limited virus spread strategy’, could be understood as the changes and modifications in regulations and policies. This can also be seen as some of the learning aspects during an ongoing crisis. See more discussion under complex policies.

- What emerges from a CRP perspective on limited virus spread strategy response?

In the CRP perspective, strategy is a gesture. As a gesture, it can be communicated in several ways. This has, as I can see it at least two main implications with many different variations. The first is related to the meaning of the gesture. Is it easily understood and how is the meaning translated by different actors? The second aspect is the presentation and the responses it creates. From a complexity point of view, the emerging patterns of these interactions will create new patterns of actions and communications. These self-organizing patterns of interactions can both be positive or negative depending on the actor's intentions. According to Stacey (2011) and Johannessen (2011), unlike the view from the main discourse in management and strategy, managers and leaders have no influence on these self-organizing processes.

5.3 We-ness (collective effort)

This concept We-ness is built on 'collective efforts' themes, and the involvement of people is central. In crisis, according to Bion, when a group is anxious, and they have expectations in people in authority. They likely become dependent upon their leaders and invest heavily in their words (Mowles 2022 p. 131).

Starting with a risk and crisis management perspective. Hopkin (2012) writes directive risk controls are designed to ensure that a particular outcome is achieved. In the former section above, I presented the limiting the spread of the virus strategy as the main intensions. Hopkin emphasises the importance of such an approach in a crisis. However, at the same time, he warns that it to a great extend too depended on people following the outlined safety measures.

In newer organization learning perspective, the We-ness concept implies the learning unit is collective, thus, collective learning.

Here are some quotes relevant for the concept:

*“My message to the Norwegian people is: Stay at home as much as possible. Have the least possible social contact with others. **Together we can** reverse the alarming trend in infection rates, but it **requires all of us to be a part of this huge effort** in the coming weeks,” says Prime Minister Erna Solberg (05.11.2020).*

It may not at first seem interesting what 'joining efforts', 'coming together' or 'our 'collective effort' means in the fight against COVID-19. These expressions were used by leaders who immediately took the situation seriously from the very beginning. In many countries, leaders started using this expression (rhetoric) very late and in countries never used at all. However, why is this interesting in the Norwegian context?

- In complexity thinking path-dependency and specific context of the 'We-ness' concept is of most interest.

'Collective effort' (Dugnad), has a special meaning in the Norwegian context. In the fight against the corona virus, the use of the old Norwegian word 'dugnad' has seen an upswing. After 12th March 2020, the expression "national corona collective effort" has caught on. 'Dugnad' is a word that is not so easily translated into other languages, but it is not entirely Norwegian. Finnish (talkoot), Estonian (talgud) are also words that mean 'collective voluntary work effort'. These words are borrowed into Baltic Finnish from Baltic, and talka means 'hard work' in both Latvian and Lithuanian. Swedish (talko), while Swedes prefer to talk about collective work effort. In English it can be called (voluntary work), in German (Gemeinschaftsarbeit), in French (travail de groupe) ([Dugnad \(sprakradet.no\)](https://www.sprakradet.no/)). Volunteering, normally means that you get together and make a free effort for something. Naturally, we cannot go together physically in a charity against infectious disease. The Corona 'dugnad' is a gathering in a figurative sense: We make a joint effort, but preferably individually (ibid). In this sense, 'we-ness' ('corona dugnad'), in the fight against COVID-19, is a paradox. Together implying alone or least possible social contact.

- What emerges from a CRP perspective on 'we-ness' as a concept and response?

Mead wrote about what he termed 'cult values'. Cult values are idealized and imaginative construction of the unity of experience of what it means to be a 'whole' community.

These values, which are on one hand the precious expression of who we believe ourselves to be, are at the same time a cult in the sense that they provide the criteria for inclusion and exclusion from the group. Cult values contribute to our feeling of an enlarged sense of the self as members of the heroic group. So, in this respect, they are a key contributor to our sense of identity (Mowles 2022 p. 134).

Examples of quotes to describe types of response mentioned above:

“Norwegian sovereignty. What is amazing and something special about the Norwegian people ”18.03.2020.

“We have made it through tough times before. And we will this time as well,” the Prime Minister said (24.03.2020)

However, the ‘We-ness’ can also be a form of ‘social control’. As Mowles writes, at the same time, the appeal to heroic ‘we-ness’ can cover over critique and questioning (Mowles 2022 p. 134). Larsen (2006) explains, this often feels so risky since it makes it difficult to invite spontaneity. Taking the attitude of others enables social control to emerge according to Mead:

The human societies in which we are interested are societies of selves. The human individual is a self only in so far as he takes the attitude of another toward himself. In so far as this attitude is that of a number of others, and in so far as he can assume the organized attitudes of a number that are cooperating in a common activity, he takes the attitude of the group towards himself, and in taking this or these attitudes he is defining the object of the group, that which defines and controls the response. Social control, then will depend upon the degree to which the individual does assume the attitudes of those in the group who are involved with him in his social activities. (Mead [1932] 2002: 195-196, in Larsen 2006, p.58)

I reckoned, the ‘We-ness’ values have played an important role in the response against COVID-19. However, the most important cult value that is ‘cemented’ in the process, is what Mowles refer to as “**National religion to protect the health system**” (Mowles 2021) also expressed as “protection of the hospital capacity”.

5.4 Datafication as a concept to explain response

The concept of datafication is borrowed from Mayer-Schonenberger and Cukier (2013:78), who use it to describe the contemporary phenomenon of quantifying aspects of life that was previously were not measured numerically (Elkington 2022 p. 68 in Mowles and Norman 2022). In my opinion, this includes different uses of performance indicators in the public service that goes under the umbrella of New Public management (NPM).

During the pandemic of COVID-19, computer modellers, epidemiologist, virologists and quantitative sociologists have been constantly on the news explaining their work and thinking, trying to predict how the pandemic will unfold, even how people will behave, to try and keep citizens safe. These models were crucial in persuading reluctant governments that mitigations strategies would not work once significant community transmission had occurred (Ferguson et al , 2020 in Mowles p. 6), so, lockdown and social distancing became inevitable. (Mowles 2021)

Datafication was clearly expressed / pronounced when the reopening plan was presented.

“The reopening plan is not scheduled to happen on fixed dates. Before moving on from one step to the next, these three aspects will be assessed:

- *Infection rates and the disease burden*
- *The capacity of the health care services*
- *Vaccinations*

*In other words, **what will determine the pace are the data, not the dates**, says Bent Høie, Minister for Health and Care Service” (10.04.2021).*

The content and context on how the indicators were to be applied were later on slightly altered.

“The following indicators will be used by the authorities to determine what risk governs the situation:

- *The number of new hospital admissions and number of patients already admitted (total occupancy rate).*
- *Age distribution of admitted patients.*
- *Admissions to intensive care units.*
- *Treatment capacity in the municipalities.*

The assessment will be supplemented by an overall assessment of the development of the pandemic” (20.09.2020).

Later, it was formulated as:

“The following four indicators will be applied when the authorities assess how large a disease burden we must be able to handle:

- *The number of patients in hospital*
- *The number of patients in intensive care units*
- *The age distribution of patients*
- *Capacity in the municipalities*

The COVID-19 infection rate will therefore play a smaller role in the future, while the overall burden, which includes the flu and RSV, will become more important.”
(25.09.21)

Expressions such as ‘to flatten the curve’ or ‘flattening of the curve’ are all part of response based on datafication.

A reflection on complexity thinking and modelling.

• Prigogine who is regarded as the modern father complexity theory combined two theories - Newton’s machine view that suggests that everything that goes on forever, unchanging Thermodynamics view suggest s that everything decays. But evolution, seemingly in complete contrast shows that life evolves into new and often more sophisticated forms. (Boulton et al p. 34). This is another way of presenting that complexity theory came about through mathematical modelling. And as Boulton et al (p. 71), writes, many of theories of complexity, can lead us to a minefield since many of these types of models are adopting different simplifications and assumptions.

The pandemic has revealed how important modelling in the real world is to help inform our actions but at the same time shown just how imperfect and incomplete they are. Science is enmeshed in other human activity like politics and ethics, and the way we try to think about current problems is heavily informed by the way we have dealt with previous problems, and not always helpful. Furthermore, abstract modelling can also trump more practical ways of knowing to everyone’s detriment (Mowles 2022: 6-7)

Stacey and Mowles, explains that if the state is to function effectively, those at the top of centralised management structure have no option but to rely on these abstract simplifications in order to pursue institutional purposes through exerting some degree of control over the behaviour of people by enforcing generalised rules of conduct which protect productive activities. However, this means that the few powerful must think and formulate their policies in terms of stereotypical global categories; they must act based on standards and measures; they must operate according to global maps and models. In other words, these are second-order abstracting (Stacey & Mowles p. 457).

The lack of fit in regulations between municipalities in the North (where infection pressures most for most of the period low) and South (where infection pressures most of the period was high, is such an example of ‘datafication’. Stacey and Mowles refer to this as implication abstract maps and models to change behaviour in local situations (Stacey & Mowles p. 458).

5.5 Complex policies

Covid-19 can be conceptualized as complex risks since its impacts are beyond health issues and its effects global. Hopkin explains that complex risks are sometimes referred to as wicked risks (Hopkin 2012 p.8) or what some term as ‘wicked problem’. Sustaining societal safety and ensuring crisis management is a typical ‘wicked problem’, extending across government levels, policy sectors and organisational borders (Christensen, Lægreid & Rykkja, 2016).

The modern approach to policy in the public sector, as Rhodes, M. L et al. (2011:186) indicates, stress the intertwined and inseparable nature of policymaking and policy implementation. They call attention to the reality of policy as negotiated, brokered, cooperation, learning, feedback, and evolution. Against this background, complex policies may have contradicting effects on intentions and outcomes. This possibility increases when extending across government levels and sectors in society. Example, measures to keep the critical societal functions operative may not be possible if those workers commute from one country to another, and when borders are closed. Or in other cases, when they may be infected and contribute to the further spread of the virus (imported virus).

In the second part of the Corona Enquiry Commission’s report (NOU 2022:5 p 443-444), 14 bullets points are listed up as learning points from the COVID-19 crisis. One of the learning points is that the pandemic has widen the social and economic gap in the population. This

finding per se is not new. As Mowles and Norman describes referring to Douglas, (1986/2012/) and Marris, (1996), it has long been observed that in situations of crisis or enhanced uncertainty, it is the already marginalised and vulnerable who are most likely to suffer the greatest (in Mowles and Norman 2022 p. 8). The disproportionate consequences of covid-19 on different groups in society. The pandemic has affected different social groups disproportionately(enforcing) widening social gaps in society. - marginalized groups better way to use this term. This yet another example on how complex policies may have contradicting effects on intentions and outcomes.

Following are some selected quotes on measures, presented in a chronological manner.

Economic policy

“We have an extraordinary situation in the labour market,” Minister of Labour and Social Affairs Torbjørn Røe Isaksen said. ‘I want to assure everyone of the basic security of our welfare system. People will receive the support they need while the crisis is ongoing, and we are doing all we can to ensure that the jobs will be there when the crisis is over. In addition, NAV now has the ability to pay unemployment benefits in advance, and we are extending the unemployment benefit period for people who are nearing the time limit. New measures are continually being considered ‘Fortunately, the Norwegian economy is fundamentally solid, and we have room to manoeuvre on economic policy, as we are now doing. This is the time for corporate and social responsibility. I want to encourage companies, households, property owners, banks, municipalities, labour and employer organisations – and everyone else who can – to step up and take responsibility so that we can help to preserve jobs for when normal daily life returns,” said the Minister of Finance (28.03.2020)

On Municipalities

“The municipalities have refined their contingency measures and demonstrated that they can deal with local outbreaks. The key to stopping the spread of infection lies in implementing sound, targeted actions. The municipalities will now have a wider array of tools to use” said Minister of Children and Families Kjell Ingolf Ropstad (26.10.2020)

Local and regional differences

“Even if national infection control measures become less strict, there will be a need to suppress local outbreaks through local and regional measures. Therefore, people must be prepared for even more pronounced differences between infection control measures applied in different parts of the country” said Guri Melby, Minister of Education and Integration (24.03.21)

From the perspective of CRP, the important point is not the “tool” but the goals that the tool is to achieve emerge in conflictual processes (Griffin 2002 p. 216). Complex policies entail power and ethics. Meaning, what is prioritized and for whom. Example. When the vaccines were newly introduced and not easily available. The question is then, who should be vaccinated first or have the priority? Change in policy on who should first be vaccinated is a power and ethical issue. Thus, public service leaders change vaccine measures to suit them and may put themselves first in line to get vaccinated, compared those who may be sick and in need of the vaccine.

Power and ethics can also be described using the policies response on the distributions of the COVID-19 vaccine at national, regional and global level. When the vaccine was first introduced, some countries tried to have restrictive rights to the distribution of the vaccine. In other words, the first patch of vaccines reserve for their countries. This brought about a new concept, ‘vaccine nationalism’. At national level, there was the debate on how it should be distributed among the regions. Should the vaccine be distributed on where the infection level was high, or should every region and municipality get their fair share?

5.5 Discussion

I will now discuss issues highlighted through my analysis. The purpose of the thesis is to study the Norwegian Government response to the Covid-19 crisis, and to see what new insights may emerge from a complexity perspective. When I started writing my thesis the crisis was still ongoing. This got me interested in the learning and knowledge creation during a crisis.

My framework therefore is a construct with key ideas from crisis and risk management, organization learning and complexity sciences.

- **Limit the spread strategy**

The COVID-19 infection rate will therefore play a smaller role in the future, while the overall burden, which includes the flu and RSV, will become more important.”

(25.09.21)

Based on this statement, I understand it that in case of a new wave, this strategy will play a minor role.

- **We-ness**

- **Datafication**

Modelling from the health authority has played an important and central part in the response to COVID-19. They were used as indicators of infection level and for predicting different scenarios.

I would rather use the term data with modification, since there are many factors not included in the modelling. From a complexity perspective this would be referred to as simplification of complex context or what in complexity responsive processes regard as a tool and abstraction.

The model is tied up to the hospital capacity, meaning, an indicator for number of patients admitted and the existing sick bed or intensive care capacity. It is however well known that in most modern Western countries, the health care sector has experienced reduction in investments in equipment and human resources, under the parole of New Public Management. ‘More for less’. Therefore, even before the pandemic, the hospital capacity has been an issue, although in a different context. The COVID-19 pandemic made this clear. In this sense, the hospital capacity is not only a COVID-19 issue but also a public governance issue, which some would call a wicked problem.

12.02.2022 Prime Minister Jonas Gahr Støre announced that the *infection control measures be lifted* since the corona pandemic was longer a serious threat and that people with well protected by the vaccines.

FHI estimates that hospitalisation will not exceed more than 1000 patients at once and the hospitals have the capacity to handle. Despite that the regulations are lifted; the pandemic is not over. The main goal with 'live with' strategy, is that it will be able to live with covid-19 in such a way that it gives least possible burden on individuals and society. Covid-19 is still defined as an infectious disease dangerous to the public. Which implies that the municipalities can implement local measures if necessary.

Risk management: acceptable levels of hospitalisation. (what happens if more that 1000 covid patients at once?)

The COVID-19 infection rate will therefore play a smaller role in the future, while the overall burden, which includes the flu and RSV, will become more important.” (25.09.21)

- Policies, measures, and waves.

“History has shown that pandemics can come in waves, that the severity of the disease can vary from wave to wave” (National Preparedness Plan Pandemic Influenza, 2014 p. 8).

Despite there is already knowledge that a pandemic may come in waves. It seems it was never considered when designing and implementing policies, until very late. Following quotes as examples:

On quarantine hotels rules

“We are changing the rules concerning quarantine hotels. We are removing the distinction between necessary and unnecessary travel for entry into Norway, and we are looking, instead, at the rate of infection in the individual countries” said Minister of Justice and Public Security Monica Mæland (24.05.2021).

On parallel rules and new variants

“Dealing with parallel rules in contact tracing work is very challenging, and this is becoming less justifiable with the increase in cases of the Omicron variant. We are therefore now introducing a single set of isolation and quarantine rules, regardless of

the virus variant, following the recommendations of the specialist agencies” said Minister of Health and Care Services Ingvild Kjerkol.

I constructed a timeline from different sources on dominant covid-19 variants in Norway, Tabel 1. regulations, and recommendations. The table is not exhaustive on regulations; however, it gives a picture on some of measures implemented during the different waves.

COVID-19 can be conceptualized as complex risks since its impacts are beyond health issues and its effects global. Thus, a ‘wicked problem’. In my data analysis, I categorized themes on different measures that were implemented under ‘complex policies’.

5.6 Summary and conclusion

My framework including some key ideas from organizational learning, risk and crisis management (wicked problems), I have tried to explain the Norwegian authority's response to the covid-19 crisis.

The Norwegian Government choose a *limited virus spread strategy* the health system capacity was the focus. However, the limited spread strategy was highly dependent on the collective effort (dugnad) from the people. ‘Dugnad’ has a special meaning Norwegian culture and context.

Complex policies were not only restricted to the control of the virus but includes several measures involving economic shock remedy as consequences of the pandemic. This was at many levels, from statutory rules, rules implemented at national level to requirements that were referred to as recommendations and advice. However, sometimes there conflicting interests in the measures implemented. Example the resilience engineering to keep businesses from bankruptcy and a labour market to return after the crisis.

This can also be regarded as lack of fit in the regulation. Inconsistencies in the measures is one of them. National rules implemented require of local government (municipalities) with low infection level is another.

Exemptions for foreign labour for critical societal functions and sectors that relied on seasonal foreign labour such as the fishing industry and construction lead to the increased in imported virus.

5.7 Future studies

I observed that when I was collecting information on municipalities to contrast their responses on implemented COVID-19 regulations, at the local level. Apparently, it seems there is no standardized procedures among the municipalities on how COVID-19 related information are archived for public records on their websites. Furthermore, records on implemented local restrictions are not easily available. For example, information on whether and when implemented local measures were stricter than the national measures. In my opinion, such information could be valuable for contrasting effects of local infection control and for learning.

It's normally a requirement to keep a log on records of events, during an emergency or crisis. In a pandemic, be it short or long, I suggest it could be important for accountability and transparency to keep a log that are easily available for later use. The details on when local measures were implemented, in such a system could help to identify not implemented measures, and in cases when they should have been, based on other indicators. A topic for future studies is what inhibits local authorities from implementing local measures in crisis?

Risk and safety management is well developed for organizations and closed systems. However, the framework and terminology that have been developed within the field may not be totally relevant at societal level. Future studies need to develop risk management designs, methods and maybe even terminology more appropriate to deal with societal risks and crisis.

Existing concepts developed to analyze the individual and organizational level can hardly be transferred to societal level (Olsen, Kruke and Hovden 2007; Ball and Ball-King, 2010; Hood et al, 2010). The study identifies the need for improvement and development on indicators and concepts for risk management at societal level.

Future studies in crisis induced learning, applying organization learning theory, can be more fruitful applying newer social theory (on collective learning).

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Appendixes



Appendix 1. World Cloud including actors, ministries, and issues.

Appendix 2 Transcript of press releases and conferences

Press release/ Press conference	First cycles InVivo	Second cycle with developed category
<p>We must continue <i>our collective effort</i> to stamp out the virus. We know it is costly, but people across the country are following up. For that I would like to extend my thanks</p>	<p>“our collective effort”</p>	<p>We-ness “our collective effort” “stronger together” “by standing together”</p>
<p>The only way we are going to get through this <i>without suffering intolerable losses is by standing together</i></p>	<p>without suffering intolerable losses is by standing together, “we can do collectively to prevent it from spreading”</p>	<p>“dependent we are on each other” “that we are stronger together”</p>
<p>The pandemic has shown <i>how dependent we are on each other, and that we are stronger together,</i></p>	<p>“how dependent we are on each other, and that we are stronger together”</p>	
<p>The Government has <i>adopted a strategy to limit the spread of infection</i> that entails ensuring that <i>infected persons only transmit the virus to a maximum of one other person.</i></p>	<p>“strategy to limit the spread of infection” “infected persons only transmit the virus to a maximum of one other person.”</p>	
<p>If this succeeds, the health service will have the capacity to help all who need it,’ Prime Minister Erna Solberg said. On 12 March 2020, the Government introduced a series of measures in the hope of <i>stopping the spread of the virus.</i></p>	<p>“hope of stopping the spread of the virus”</p>	<p>Limited spread of virus strategy “limit the spread” “stopping the spread of the virus”</p>
<p>the Government <i>introduced a series of measures</i> in the hope of stopping the spread of the virus.</p>	<p>“introduced a series of measures”</p>	<p>Datafication “transmit the virus to a maximum of one other person.” “Data not dates”</p>
<p>Norwegian health authorities are prepared for the coronavirus, and <i>have already put several measures into action.</i></p>	<p>“have already put several measures into action”</p>	<p>Complex policies</p>

<p>In other words, <i>what will determine the pace are the data, not the dates,</i></p> <p>However, <i>if it transpires that the local, regional and national measures in place at present are insufficient</i> to reduce infections, we will be obliged to introduce stricter national measures,'</p>	<p>“what will determine the pace are the data, not the dates”</p> <p>“<i>if it transpires that the local, regional and national measures in place at present are insufficient</i>”</p>	<p>“series of measures”</p> <p>“measures into action”</p> <p>“local, regional and national measures in place”</p>
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Appendix 3

Month /Year	Covid -19 Waves	Oslo	Tromsø
jan.20		0	0
feb.20		7	1
mar.20		1388	100
apr.20		1007	59
mai.20		244	8
jun.20		236	0
jul.20		119	2
aug.20		504	16
sep.20		1063	6
okt.20		2034	94
nov.20		4389	143
des.20		3042	66
jan.21		3351	47
feb.21		2877	51
mar.21		8490	98
apr.21		4883	31
mai.21		2249	32
jun.21		1291	141
jul.21		990	129
aug.21		5966	244
sep.21		8697	561
okt.21		4458	828
nov.21		13182	1658
des.21		28356	1230
jan.22		82924	4317
feb.22		53780	6387

Source: [FHI MSIS statistikkbank](#)

Appendix x Press releases and transcript from press conferences

Press release/ Press conference	First cycles InVivo	Second cycle with developed category
<p>We must continue <i>our collective effort</i> to stamp out the virus. We know it is costly, but people across the country are following up. For that I would like to extend my thanks</p> <p>The only way we are going to get through this <i>without suffering intolerable losses is by standing together</i></p> <p>The pandemic has shown <i>how dependent we are on each other, and that we are stronger together,</i></p> <p>The Government has <i>adopted a strategy to limit the spread of infection</i> that entails ensuring that <i>infected persons only transmit the virus to a maximum of one other person.</i></p>	<p>“our collective effort”</p> <p>without suffering intolerable losses is by standing together,</p> <p>“we can do collectively to prevent it from spreading”</p> <p>“how dependent we are on each other, and that we are stronger together”</p> <p>“strategy to limit the spread of infection”</p> <p>“infected persons only transmit the virus to a maximum of one other person.”</p>	<p>We-ness</p> <p>“our collective effort”</p> <p>“stronger together”</p> <p>“by standing together”</p> <p>“dependent we are on each other”</p> <p>“that we are stronger together”</p>
<p>If this succeeds, the health service will have the capacity to help all who need it,’ Prime Minister Erna Solberg said. On 12 March 2020, the Government introduced a series of measures in the hope of <i>stopping the spread of the virus.</i></p>	<p>“hope of stopping the spread of the virus”</p>	<p>Limited spread of virus strategy</p> <p>“limit the spread”</p> <p>“stopping the spread of the virus”</p>
<p>the Government <i>introduced a series of measures</i> in the hope of stopping the spread of the virus.</p> <p>Norwegian health authorities are prepared for the coronavirus, and <i>have already put several measures into action.</i></p>	<p>“introduced a series of measures”</p> <p>“have already put several measures into action”</p>	<p>Datafication</p> <p>“transmit the virus to a maximum of one other person.”</p> <p>“Data not dates”</p>
		<p>Complex policies</p> <p>“series of measures”</p>

<p>In other words, <i>what will determine the pace are the data, not the dates,</i></p> <p>However, <i>if it transpires that the local, regional and national measures in place at present are insufficient</i> to reduce infections, we will be obliged to introduce stricter national measures,'</p>	<p>“what will determine the pace are the data, not the dates”</p> <p>“<i>if it transpires that the local, regional and national measures in place at present are insufficient</i>”</p>	<p>“measures into action”</p> <p>“local, regional and national measures in place”</p>
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