

**JYX**



**This is a self-archived version of an original article. This version may differ from the original in pagination and typographic details.**

**Author(s):** Moilanen, Panu

**Title:** Complexity and Resilience

**Year:** 2021

**Version:** Published version

**Copyright:** © 2021 the Author

**Rights:** CC BY 4.0

**Rights url:** <https://creativecommons.org/licenses/by/4.0/>

**Please cite the original version:**

Moilanen, P. (2021). Complexity and Resilience. In K. Ilmonen, & P. Moilanen (Eds.), *The Political Analyst's Field Guide to Finland* (pp. 44-57). Jyväskylän yliopisto. JYU Reports, 10. <http://urn.fi/URN:ISBN:978-951-39-8931-6>

# III COMPLEXITY AND RESILIENCE

*Panu Moilanen*

*Resilience is often regarded as the one-size-fits-all solution for crises and emergencies in post-modern and complex societies. Is this the reality or are the traditional methods of risk management needed as well? In this chapter, concepts of resilience and complexity are discussed theoretically along with proposals of their applicability to Finnish society.*

## Introduction

It is a common belief that the world has changed drastically. *Everything is moving. We are living in the age of information. Everything is connected to everything.* These are some of the phrases used to describe the world we are living in. The world is said to be interconnected, and the evolving digitalisation constantly strengthens this interconnectedness. Phenomena are hard to isolate from other phenomena having some effect on them, and therefore, there is a growing need to analyse the world simultaneously with methods from different fields of science and from different perspectives.

The world is also often described as post-modern, and futurologists often call our world, characterised by surprises, discontinuities, and discrepancies, as post-normal. Regardless of the epithets used, our world is undoubtedly more complex than ever before. To manage this complexity and create security, the traditional methods of risk management based on prudentialism are no longer sufficient. Probably the most discussed alternative to the traditional methods is to build resilience.

In this article, we discuss the concepts of complexity resilience. Firstly, we define the concepts and present the underlying assumptions behind them. We also briefly assess the Finnish comprehensive security model using these concepts. Secondly, as this chapter is written in autumn 2021, the global Covid-19 pandemic and its management and implications within the Finnish society will be discussed in this text. However, one should remember that as this article is written, the pandemic is still ongoing and evolving. Thus, the thoughts presented should be understood as propositions and interpretations and not as conclusions.

### *Covid-19 as a post-normal phenomenon*

The Covid-19 pandemic is an example of a phenomenon of the post-normal time. Things taken for granted before the pandemic have changed, or their foundations have evolved drastically over a very short period. The pandemic might be a turning point for many of us: there is no return to the old, but we do not yet know the new normal, as it is still being constructed.

The pandemic has made the interconnectedness of the world tangible: it has proven that the speed and scale of the crises might have massive and chaotic consequences. As such, the pandemic should not have been a surprise. The possibility of pandemics has been a part of official risk assessments, e.g., in Finland for years, but still, the pandemic seems to have come unexpectedly.

In his column in New York Times, Thomas L. Friedman<sup>61</sup> describes the Covid-19 as a black elephant: “a cross between “a black swan” - an unlikely, unexpected event with enormous ramifications - and the “elephant in the room” - a looming disaster that is visible to everyone, yet no one wants to address.” According to Friedman, Covid-19 is “the logical outcome of our increasingly destructive war against nature”. He identifies destroying natural habitats, population growth, urbanisation, and globalisation as the main causes of global pandemics.

## **Complexity and complex systems**

Complexity theory is a set of theoretical frameworks used for modelling and analysing complex systems within various domains. As complexity theory consists of multiple theoretical frameworks and is constantly evolving, there is no unified definition or formulation for it. However, in this article, it can be seen as a combination of four main areas commonly discussed in the context of complexity and complex systems. These areas are self-organisation, nonlinearity, networks, and adaptive systems.

To understand complex systems, we must first define what a system is in general. A system is an entity consisting of parts with at least one common goal. Societies and communities can be seen as systems comprising of individuals with goals like securing the existence of individuals and offering them different kinds of benefits like security, care, and different kinds of possibilities. Complex systems are systems consisting of interacting, interconnected parts with abilities to adapt. The parts of complex systems together form system-wide states, e.g., homeostasis, crisis, or state of emergency.

*Self-organisation.* Complex systems are composed of many entities without centralised control. In these systems, global organisation is an emergent feature based on an interaction between the entities. Emergence refers to the new levels of organisations

---

61 Friedman, ‘We Need Herd Immunity From Trump and the Coronavirus.’

developed within the complex systems based on self-organisation; global coordination is formed based on interactions at the local level. In societies, self-organisation is often seen as opposed to bureaucratic forms of organisation, and it is generally regarded as a better solution in fast and unexpected changes of the environment.

*Nonlinearity.* Complex systems are often non-linear and chaotic, opposed to the mainstream body in scientific thinking and knowledge, which are based on linearity and equilibrium; a clear causal relationship is expected between the cause and the consequence. In complex systems, processes of change happen far from equilibrium: they are governed by feedback loops and nonlinear causalities, which are caused by the interconnectedness within the system. Therefore, causal relationships in complex systems are often unclear, the so-called butterfly effect<sup>62</sup> being probably the best-known example of this.

*Networks.* Almost all complex systems and the connections between the parts comprising them can be understood and modelled as networks. In network theory, the symmetric or asymmetric relations between the entities of a complex system are studied using graphs consisting of nodes and connections between them. Examples of this kind of networks are various social networks, flight and freight connections or connections between information systems. Using real-time data sets, these connections can be modelled and studied to predict, e.g., the spread of contagion of a computer or real-life viruses, pieces of news or rumours.

*Adaptive systems.* Complex adaptive systems consist of many parts acting and reacting to each other's behaviour. They are highly dynamic and constantly evolving following the key ideas of cybernetics<sup>63</sup>: systems are controlling themselves based on stimuli sensed from outside the system, which not only maintains homeostasis but also leads to evolution – and as a matter of fact, even the system itself produces stimuli it later reacts on. This is referred to as a feedback loop.

Because of the feedback loops, controlling complex systems from outside is impossible, as attempts to control the system are stimuli changing the system as well, and the global interconnectedness makes the control of the systems and systems of the systems highly unpredictable. Therefore, the goal should not be the control and stability of the systems but rather their ability to learn from failures and evolve to safeguard their existence. We have moved away from a stable and controlled world towards building more resilient systems.

---

62 Butterfly effect refers to the idea of the dependence between initial conditions, a small change in one of the early states of a nonlinear system and the large differences in the later states of the system. The effect is called butterfly effect as it is quite often illustrated with an example of a butterfly flapping its wings and being the initial cause of a serious storm or some other rough weather several weeks later geographically far away.

63 Wiener, *Cybernetics, or, Control and Communication in the Animal and the Machine*.

## *Societies as complex systems - Finland*

Social systems and societies are widely used as examples of complex systems. They consist of individuals and relationships between them, forming communities, organisations, and other structures. Societies can also be used to give examples on the four areas presented earlier.

*Self-organisation* is an integral part of the function of societies. Fundamentally, even the creation of formal organisations in societies is based on self-organisation after one noticed there is a need to create order between the individuals of society. However, self-organisation still plays an important part even today in the organised societies' ability to react to change.

One example of this could be the swift creation of unofficial support networks for teachers, who were forced to move to remote teaching practically overnight in March 2020 as the Finnish Government decided to close schools because of Covid-19. The official structures could not support the shift, but self-organisation based on social interaction between the individuals made it surprisingly painless and successful.

*Nonlinearity* can be seen, e.g., in the process in which Finland got its independence: the emergence of a new political movement (communism) resulted in a regime shift in Russia. It opened the window to the independence of Finland – a goal set by the Fennomaniac movement more than a century before because of an ever-stronger national awakening in Finland.

*Networks* are an essential part of any society. In Finnish society, e.g., social networks and networks of trust play an important role in many vital areas of the country. One example of this could be cyber security: the pool of experts within this specific area is quite limited, and most experts are either directly connected or only one node away from each other. This makes reacting to emergencies or organising cooperation easy and fluent even if there are no formal supporting structures.

*Adaptation* is constantly happening in societies. The example used for self-organisation is also an example of adaptation: as schools were closed because of Covid-19, teachers continued teaching using various remote teaching methods ranging from group phone calls to social media services and different video conferencing services. Although the transition to remote teaching was made almost over-night, the results were surprisingly good, and the “remote school” played an important role in enabling the pupils to cope with the sudden emergency – especially as even the delivery of daily school meals to homes was quickly organised in practically all Finnish schools.

It is crucial to notice that although all the examples given above are positive, the complexity of societies as a system makes them also vulnerable. The complicated and uncontrollable nature of societies results in possibilities of endo- and exogenic vulnerabilities, which can also be created with a purpose. These kinds of hostile actions are often discussed in the context of so-called hybrid threats.

## Resilience

Ten years after 9/11, in September 2011, Newsweek's cover featured a picture of an aeroplane flying towards one of the twin towers. The text over the image was "9/11 – ten years of fear grief revenge resilience", the word resilience being written with larger font spanning over the whole page. The headline of the corresponding 10-year-anniversary-article in Time was headlined "Portraits of Resilience." The concept of resilience had become part of the public debate. According to Kaufmann<sup>64</sup>, we had entered the era of recurring emergencies, into which we must react with adaptation and evolution – by being resilient.

Although resilience nowadays is often discussed in societal contexts, it has its origins in ecology and psychology. Probably the most cited definition from the early phases of the concept was presented by Canadian ecologist Holling<sup>65</sup>, who defined resilience as "a measure of the persistence of systems and of their ability to absorb change and disturbance and still maintain the same relationships between populations or state variables". The concept was soon adopted in socio-ecology, in which ecosystems and social systems are seen as coupled, interdependent, and coevolving<sup>66</sup> - in other words, they are seen as complex systems. Later, the concept of resilience was adopted by many other disciplines, e.g., by engineering and information technology.

*Resilience defined.* Regardless of the area or discipline, specific common attributes can be identified when defining resilience<sup>67</sup>. Firstly, resilience is always a reaction or response to stress, disturbance, misfortune, risk or – quite simply to change. Secondly, resilience can also be seen as an ability to maintain or restore a system to its original state after the factor causing the system to react has ceased to exist. In this retrospect, resilient systems are tolerant, flexible, elastic, redundant or robust. However, one should also bear in mind that the resilience of systems always has its limits: if these limits are reached, systems can collapse, vanish, transfer, or deform.

Resilience can also be seen as a process. In a report published in 2019 by the Prime Minister's Office of Finland<sup>68</sup>, resilience is defined as a three-step process comprised of resistance, maintaining of functionality and adaptive learning. In the report, resilience is seen as a general ability to adapt to disruptions and crises regardless of their exact characteristics.

---

64 Kaufmann, *Resilience, Emergencies and the Internet*.

65 Holling, 'Resilience and Stability of Ecological Systems'.

66 Berkes, Folke, and Colding, *Linking Social and Ecological Systems*.

67 Kaufmann, *Resilience, Emergencies and the Internet*, 21.

68 Hyvönen et al., *Kokonaisresilienssi Ja Turvallisuus: Tasot, Prosessit Ja Arviointi*.

## Levels of resilience

As discussed earlier, systems are comprised of parts. If the system in question is a society, the parts are individuals forming communities, groups, and organisations. Societies, in turn, form global and other systems as well. Therefore, it is reasonable to see the societal resilience of having levels as well.

Hyvönen et al.<sup>69</sup> suggest a concept of comprehensive resilience consisting of individual, community, institutional and global resilience. *Individual resilience* is seen as a characteristic of an individual. It refers to an individual's ability to develop and adapt successfully regardless of exposure to severe stressors having the potential to trigger trauma or mental health problems. It comprises psychological, physiological, and socio-cultural resources. Individual resilience is not a stable state, but it can be strengthened and developed through skills, competencies, and personality.

*Community resilience* can be defined as “the existence, development, and engagement of community resources by community members to thrive in an environment characterised by change, uncertainty, unpredictability, and surprise”<sup>70</sup>. Respectively, Hyvönen et al.<sup>71</sup> define community resilience through four attributes: robustness, redundancy, innovativeness, and rapidness. In sum, community resilience can be said to be the ability to foresee risks, decrease their effects, and recover quickly through survival, adaptation, development, and growth as the community faces a significant change<sup>72</sup>.

*Institutional resilience* refers to the resilience of the central institutions of the society. Institutions can be both public organisations and existing (Giddensian) structures, such as educational systems, democratic bodies, religions or other belief systems. The continuity of the functions of institutions plays an essential role in individual resilience: the more normally institutions of society function or at least appear to function, the more individuals tolerate uncertainty and exceptional situations.

*Global resilience* is a phenomenon of the interconnected world. The further one is from an individual and her/his resilience, the more difficult and speculative it is to manage resilience, although global factors have an undeniable effect on the individual and her/his resilience Covid-19 being an excellent example of this. Unfortunately, Covid-19 is also an excellent example of the non-existent global cooperation in the management of resilience: securing nations' own interests has been the primary concern for most countries.

---

69 Hyvönen et al.

70 Magis, 'Community Resilience.'

71 Hyvönen et al., *Kokonaisresilienssi Ja Turvallisuus: Tasot, Prosessit Ja Arviointi*.

72 Denhart and Denhart, 'Building Organizational Resilience and Adaptive Management.'

## Four views on resilience

In her book<sup>73</sup> discussing resilience in the complex and interconnected information age, Mareile Kaufmann presents four views on resilience. She suggests that resilience can be seen as empowerment, insecurity, self-governance, and as critique. These views are worth considering, as resilience is often seen only as a uniform solution for security issues of the post-modern era.

*Resilience as empowerment.* It is improbable the resilience as such would diminish the possibility and probability of threats – this can be achieved through traditional risk management. However, it is widely suggested that resilience reduces sensitivities to disruptions at all levels of resilience, i.e., individual, community, and (national or global) institutions. Resilience and knowledge of possessed resilience are often empowering factors within society: when facing disruptions and challenges, one copes better with them if one genuinely believes one can overcome them. Thus, there is a clear objective in many political programmes to weave resilience into communities and societies through individuals' empowerment.

### *The Security Strategy for Society and comprehensive security*

The Security Strategy for Society is a resolution of the Finnish Government harmonising national preparedness principles and guiding preparedness in the various administrative branches. The first part of the strategy presents a cooperation model for comprehensive security, based on which preparedness measures and other actions are taken concerning a range of different kinds of incidents in Finland. The second part directs preparedness in Government's administrative branches.

Comprehensive security is a cooperation model, a framework for doing things collaboratively. It is described in the Security Strategy for Society, which lays out the general principles governing preparedness in Finnish society. In the cooperation model, actors share and analyse security information, prepare joint plans and train together. Foresight is an important part of preparedness work, providing a means for responding to security challenges and preventing future ones.

The Security Strategy for Society has been prepared in broad-based cooperation, taking into consideration the viewpoints of all the actors involved. Comprehensive security is looked after through cooperation between the authorities, the business community, organisations, and citizens. Each administrative branch is responsible for the implementation of the strategy based on its area of expertise. The Security Committee monitors the implementation and develops cooperation together with the preparedness managers of the various ministries.

---

73 Kaufmann, *Resilience, Emergencies and the Internet*.



The principles of the Security Strategy for Society cover preparedness in different types of incidents and emergencies. The cooperation model for comprehensive security in Finland is internationally unique and respected. The strategy lays out vital functions in society<sup>74</sup>, i.e., the basic functions that must be safeguarded under all conditions and at all operative levels. The second part of the strategy outlines the tasks and areas of responsibility of the Government's ministries pertaining to preparedness.

The security strategy was prepared jointly by the authorities, organisations, and representatives of the business community. Citizens also had the opportunity to present their ideas and contribute to the strategy.

Source: <https://turvallisuukskomitea.fi/en/security-strategy-for-society/>

The Finnish comprehensive security model presented above is a perfect example of utilising individuals and communities' empowerment to build resilience. In this model, not only are the public organisations responsible for the nation's security, but other (private and commercial) organisations and the actors of the third, voluntary sector are sharing the responsibility. Examples of this are defence training organised by voluntary educators coordinated by the National Defence Training Association, search and rescue operations carried out by individuals belonging to member organisations of the Voluntary Rescue Service, and volunteer fire departments taking care of fire-fighting alongside the public fire departments. Agency and duties within these organisations are highly empowering for the individuals: they get a sense of belonging and feeling of doing something for the common good.

Communications can also be used to empower people. Covid 19 -pandemic is probably the most severe global challenge after World War II. In Finland, this made the Finnish Government to commence an information campaign to build the resilience of the Finnish society. The campaign lasting until the end of 2022 is titled "Finland forward" (see Figure 1), and its official goal is to "support psychological resilience to crisis during and after the emergency situation and build trust and strengthen people's sense of belonging and belief in the future"<sup>75</sup>. The decision to address the nation in this way is historical. According to the communications department of the Finnish Government, this is the first time since the years of war, as this kind of communication is carried out in Finland by a public body<sup>76</sup>.

---

74 Management of government affairs, psychological crisis tolerance, the populations income security and capability to function, functioning of the economy and infrastructure, internal security, Finland's defence capability and international activity.

75 'Finland Forward – Come Join Us!'

76 Palokangas, 'Valtioneuvoston Kampanja Nostattaa Henkistä Kriisinkestävyttämme: "Emme Ole Tehneet Täytäntöyppistä Viestintää Sitten Toisen Maailmansodan".'

### *We will manage this – the spirit of Winter War revived?*

During the Covid-19, one has once again started to think about the essence of Finland. In the public speech, terms and expressions reflecting the national narrative and identity of Finland have once again come up: emergency conditions have been described as a joint battle, the citizens have been reminded of the spirit of the Winter War, and it has been emphasised that one should not surrender to the enemy. The Finnish stamina, the mythical 'sisu,' is once again valued, the premise being "we will manage this." One of the Finnish society's distinct characteristics, trust, has been offered as an explanation for the fact that Finns have obediently followed government recommendations, which in many ways are quite agonising.

Bringing the years of war (1939-1945) to the discussion about managing the pandemic is interesting. By now, the Winter War's spirit had been considered something mythical that could never again be achieved in Finnish society. In 2019, Jared Diamond<sup>77</sup> published a book, "Upheaval – How Nations Cope with Crisis and Change." In his book, Diamond presents cases where a nation has faced a remarkable upheaval and then discusses how the states reacted to these upheavals. One of the countries discussed as a case is Finland, and one of the most dramatic moments in its history, the war(s) against the Soviet Union in 1939-1944. In his book, Diamond identifies seven factors that made it possible for Finland to survive the crises caused by the war against the Soviet Union.

The factors (a-g) identified by Diamond<sup>78</sup> are a) national consensus the one's nation is in crisis, b) building a fence to delineate the national problems needing to be solved, c) national identity, d) honest national self-appraisal, e) dealing with national failure, f) situation-specific national flexibility, and g) national core values.

It is interesting to notice that six of these seven factors apply to the management of the Covid-19 crisis in Finland as well: the pandemic cannot be seen as a national failure, so the factor e) is not relevant in this case, but it can be replaced with another of the total twelve factors presented by Diamond: acceptance of national responsibility to do something. Although the unity in Finland about the management of Covid-19 crisis measures has been embrittled as the situation has prolonged, it is perhaps not an overstatement that the spirit of the Winter War was revived in Finland at the beginning of the pandemic.

---

77 Jared Diamond is an American geographer, historian, anthropologist, ornithologist, and a professor of geography at UCLA. He is known for his books drawing from a variety of fields in science and was ranked ninth on a poll by Prospect and Foreign Policy of the world's top 100 public intellectuals in 2005.

78 Diamond, *Upheaval*, 93.

*Resilience as insecurity.* The concept of resilience as it is used today is strongly linked to the ideas of complexity and interdependence presented earlier. The world is seen as ever-changing and complex, which challenges the possibilities to control security *ex-ante*, as insecurity from this point of view is often endogenous and not something that could be prevented from entering the system. Therefore, resilience can exist only in an environment where there exists insecurity as well.

However, it is essential to note that complexity is not a fact but a theoretical construct, which can be seen as a part of a political programme. This links complexity and resilience to the concept of securitisation, which was developed by Barry Buzan, Ole Wæver and Jaap de Wilde<sup>79</sup>, and which probably is the most prominent outcome of the Copenhagen School of Security Studies. The basic idea of securitisation is that using speech (act), a (state) actor moves a topic from political discourse to the area of security and thus tries to legitimise the (extraordinary) means against this socially constructed threat.



Figure 1. “We will manage this together” - the imagery of the Finland forward -campaign launched by the Prime Minister’s office in spring 2020. Images are taken from the image film of the campaign.

If resilience is seen as insecurity, it is a substitute for security. In other words, insecurity is not seen as a result of political choice but as an inevitable consequence of complexity and interconnectedness. In the worst case, resilience thinking can lead to

79 Buzan, Wæver, and Wilde, *Security*.

*laissez-faire* -administration, in which one does not even try to control risks since one relies too much on the (assumed) resilience of individuals and the system.

If viewed as insecurity, resilience can be regarded as outsourcing the responsibility of security. The Finnish comprehensive security model can be examined from this perspective as well. Defence training can easily be argued to be a responsibility of the state, and SAR and firefighting can be seen as duties of the public bodies. Instead of commitment and empowerment, it can be the felt insecurity, which makes individuals take action to control the situation. By creating insecurity through securitisation, the responsibility of creating security has been outsourced to individuals and the third, voluntary sector.

*Resilience as self-governance.* In resilience thinking, the role of self-reflection and engagement is often emphasised on all levels of resilience – individual, community and society (institutions). The entities are seen to be connected to each other and the world in general and fully realise the risks they should adapt and prepare themselves for. Governmental strategies often catalyse these forms of reflection and self-organisation. In these strategies, citizens are encouraged to acquire knowledge and skills to be better prepared for different kinds of disruptions and the government counts on citizens' engagement<sup>80</sup>.

Expecting something from individuals and communities without explicitly saying so but steering them towards this kind of behaviour with strategies and policies can be seen as a form of governmentality. Governmentality is a concept initially coined by Foucault<sup>81</sup>. It can be defined as “calculated and coherent action aiming at steering individuals, communities and whole populations towards achieving goals regarded as important at a given time”<sup>82</sup>. One of the most influential developers of the concept of governmentality, Nicholas Rose, has concluded that governmentality is based on the use of free will of its subjects: individuals and communities are made to act in a desired way through self-regulation based on persuasion<sup>83</sup>. In the context of security, the insecurity, doubt, and alertness experienced by an individual can be utilised to justify different kinds of security measures even in everyday life.

The Covid-19 measures in Finland have been mainly based on governmentality, not on direct orders or rules. Finns have been verbally (using speech-acts) convinced of the necessity of the different kinds of (sometimes quite uncomfortable) restrictions, which juridically have been “recommendations” or “strong recommendations”. This kind of governing by creating self-governance has been quite an efficient way in Finnish society in general as well.

---

80 Malcolm, 'Project Argus and the Resilient Citizen'.

81 Foucault, *The Government of Self and Others*.

82 Kaisto and Pyykkönen, *Hallinnan Analytiikan Suuntaviivoja*.

83 Rose, *Powers of Freedom*.

Understood as self-organisation, resilience can also lead to remoteness between the governing bodies and the individuals, as the governing bodies are spatially distant to citizens, especially in the times of technologically mediated communications<sup>84</sup>.

*Resilience as critique.* Traditionally, one tries to control the systems (e.g., societies) through interventions based on assumed causalities. In neoliberalism, the systems are seen to be controlled *deus ex machina* by markets and rational choice. In resilience thinking, this is criticised since reality is hard to be understood *ex-ante*, but mainly *ex post facto* when one might detect the causalities. Therefore, to build resilience, one should work backwards and find solutions through self-reflective processes. However, this is not possible without something happening, and therefore the ideas of prudential risk management should not be forgotten.

In critical security studies, resilience is seen as a highly political concept that has been translated and transferred from various disciplines into security. In this discussion, resilience is attached to two “turns”: the complexity turn, which has been discussed in detail in this article, and the material turn, which aims to explore the construction and use of power through and by material objects<sup>85</sup>.

In conclusion, it should be remembered that although resilience seems to be the superb solution to post-modern or post-normal emergencies, there is no certainty of it being the universal solution to complex challenges we are facing, but just another option that can and should be criticised as well. Relying too much on (imagined) resilience might expose us to unexpected and uncontrollable risks. In addition, attempts to create resilience will undoubtedly act as stimuli in the feedback loops of the systems, also in ways not anticipated by the governing bodies.

## Conclusion

As there are many expectations placed on resilience, one should build resilience as efficiently as possible – resilience should be built before it is needed. In their report, Hyvönen et al.<sup>86</sup> propose approaches one should adopt to enhance resilience in Finland. The proposed action can be seen to consist of three pillars: societal measures, training, and resources. The most important thing is to ensure societal safety: to diminish and prevent polarisation among citizens, take care of services within the social sector both during normal and emergency conditions and pay attention to the “social ground” of politics. In training, one should pay attention, e.g., to media literacy, cultural abilities, attitudes, and citizens’ concrete security skills. It is also proposed that a separate

---

84 Kaufmann, *Resilience, Emergencies and the Internet*, 29.

85 Dunn Cavelti, Kaufmann, and Soby Kristensen, ‘Resilience and (in)Security’.

86 Hyvönen et al., *Kokonaisresilienssi Ja Turvallisuus: Tasot, Prosessit Ja Arviointi*.

resilience education be available for the central actors within comprehensive security. The results of education and level of resilience should also be constantly measured and evaluated. For this purpose, an evaluation framework for institutional resilience should be developed. From the resource point of view, it is crucial to add redundancy, especially to critical infrastructure.

Resilience seems to be an appropriate solution to respond to the challenges of the ever more complex world we are living in. In many cases, it seems to be a better solution than the traditional, prudential way to manage risks. However, one should bear in mind that although self-organisation and adaptation are distinct features of complex systems, there is a need for active resilience-building measures. If these measures are not taken, there is a risk of resilience becoming a paper tiger used to outsource the responsibility of security to others without explicit knowledge of whether someone accepts the responsibility. In the worst case, this might lead to increased insecurity and the inability to react to emergencies.

## Bibliography

- Berkes, Fikret, Carl Folke, and Johan Colding, eds. *Linking Social and Ecological Systems: Management Practices and Social Mechanisms for Building Resilience*. Cambridge, U.K. ; New York, NY, USA: Cambridge University Press, 1998.
- Buzan, Barry, Ole Wæver, and Jaap de Wilde. *Security: A New Framework for Analysis*. Boulder, Colo: Lynne Rienner Pub, 1998.
- Denhart, Janet, and Robert Denhart. 'Building Organizational Resilience and Adaptive Management'. In *Handbook of Adult Resilience*, edited by John W. Reich, Alex Zautra, and John Stuart Hall, 333–49. New York: Guilford Press, 2010.
- Diamond, Jared M. *Upheaval : How Nations Cope with Crisis and Change*. Allen Lane, 2019. Dunn Cavelt, Myriam, Mareile Kaufmann, and Kristian Søbyst Kristensen. 'Resilience and (in)Security: Practices, Subjects, Temporalities'. *Security Dialogue* 46, no. 1 (February 2015): 3–14. <https://doi.org/10.1177/0967010614559637>.
- 'Finland Forward – Come Join Us!' Accessed 9 November 2020. <https://valtioneuvosto.fi/en/finlandforward>.
- Foucault, Michel. *The Government of Self and Others : Lectures at the Collège de France, 1982-1983*. Palgrave Macmillan ; St Martin's Press, 2010.
- Friedman, Thomas L.'We Need Herd Immunity From Trump and the Coronavirus'. *The New York Times*, 25 April 2020.
- Holling, C S. 'Resilience and Stability of Ecological Systems'. *Annual Review of Ecology and Systematics* 4, no. 1 (November 1973): 1–23. <https://doi.org/10.1146/annurev.es.04.110173.000245>.
- Hyvönen, Ari-Elmeri, Tapio Juntunen, Harri Mikkola, Juha Käpylä, Harri Gustafberg, Markku Nyman, Tiina Rättälä, Sirpa Virta, and Johanna Liljeroos. *Kokonaisresilienssi ja Turvallisuus: Tasot, Prosessit ja Arviointi*. Helsinki: Prime Minister's Office, 2019.

- Kaisto, Jani, and Miikka Pyykkönen. *Hallinnan Analytiikan Suuntaviivoja*. Helsinki: Gaudeamus, 2010.
- Kaufmann, Mareile. *Resilience, Emergencies and the Internet : Security in-Formation*. Routledge Studies in Resilience. Routledge is an imprint of the Taylor & Francis Group, an Informa Business, 2017.
- Magis, Kristen. 'Community Resilience: An Indicator of Social Sustainability'. *Society & Natural Resources* 23, no. 5 (5 April 2010): 401–16. <https://doi.org/10.1080/08941920903305674>.
- Malcolm, James A. 'Project Argus and the Resilient Citizen'. *Politics* 33, no. 4 (December 2013): 311–21. <https://doi.org/10.1111/1467-9256.12021>.
- Palokangas, Piritta. 'Valtioneuvoston Kampanja Nostattaa Henkistä Kriisinkestävyttämme: ”Emme Ole Tehneet Tämäntyyppistä Viestintää Sitten Toisen Maailmansodan”'. *Markkinointi & Mainonta*, 3 November 2020. <https://www.marmai.fi/uutiset/valtioneuvoston-kampanja-nostattaa-henkista-kriisinkestavyyttamme-emme-ole-tehneet-tamantyyppista-viestintaa-sitten-toisen-maailmansodan/>.
- Rose, Nikolas. *Powers of Freedom : Reframing Political Thought*. Cambridge University Press, 1999.
- Wiener, Norbert. *Cybernetics, or, Control and Communication in the Animal and the Machine*. New York: John Wiley, 1952.