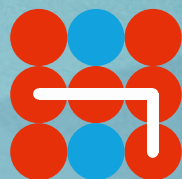


Hybrid CoE Working Paper 9

JUNE 2021

Strengthening the resilience and adaptive capacity of societies at risk from hybrid threats

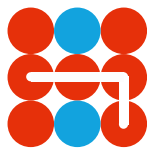
CEDRIC DE CONING



Hybrid CoE

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*This project
is supported by:*

The NATO Science for Peace
and Security Programme

This paper was produced as a part of the Resilient Civilians in Hybrid Population-centric Warfare project, funded by the NATO Science for Peace and Security Programme under grant SPS G5442. For more information about the project, see <https://site.uit.no/hybrid/>.

Hybrid CoE Working Papers are medium-length papers covering work in progress. The aim is to share ideas and thoughts, as well as to present an analysis of events that are important from the point of view of hybrid threats. Working Papers cover a wide range of topics relating to our constantly evolving security environment.

The European Centre of Excellence for Countering Hybrid Threats tel. +358 400 253 800 www.hybridcoe.fi

ISBN (web) 978-952-7282-76-2
ISBN (print) 978-952-7282-77-9
ISSN 2670-160X

June 2021

Hybrid CoE is an international hub for practitioners and experts, building Participating States' and institutions' capabilities and enhancing EU-NATO cooperation in countering hybrid threats, located in Helsinki, Finland.

The responsibility for the views expressed ultimately rests with the authors.

Contents

SUMMARY	7
INTRODUCTION	8
HYBRID THREAT SCENARIOS: POST-APOCALYPSE VS BETTER ANGELS	10
Responding to disruption	10
COMPLEX SOCIAL SYSTEMS	12
Dynamic systems	13
Non-linearity	13
Self-organization	14
IMPLICATIONS OF COMPLEXITY	15
RESILIENCE AND ADAPTATION	17
CONCLUSION AND RECOMMENDATIONS	19
Civil society and the private sector	19
Local government and local emergency services	20
National governments and civil defence agencies	21
Multilateral organizations, such as the European Union and NATO	21

Summary

How would the civilian population of a specific country, as distinct from the various layers of government or organized civil defence, respond to significant disruptions caused by hybrid threats? This paper explores different response scenarios and considers what can be done to strengthen the resilience and adaptive capacities of a civilian population, and its social institutions, when such threats are a likely risk. The paper explains how systems dynamics, non-linearity and self-organization combine and interact to generate complexity, and what the implications are for how civilian

populations and social institutions are likely to respond to hybrid threats, where the centre of gravity is social cohesion and public trust, and where one of the main challenges is the uncertainty and unpredictability of both the threat and how people will respond to it. Faced with this kind of problem set, the paper recommends utilizing an adaptive approach that is designed to cope with the complexity, uncertainty and unpredictability one encounters when attempting to influence complex social systems.

Introduction

The ultimate aim of hybrid threats is to undermine public trust in democratic institutions, challenge the core values of societies to gain political influence and power, and affect decision-making.¹ Specific attacks or campaigns may be aimed at disrupting civil security, creating chaos, increasing distrust and sparking social unrest that would, in the short term, require government attention and resources, thus distracting it from a possible conventional or asymmetrical attack on another front.² The medium- to long-term goal is to undermine the relationship, and the public trust, between the target state and its citizens. If successful, the target society's internal order, civil security, social contract, public trust and social cohesion would have been disrupted and weakened.³ What this means from the perspective of the entity that initiated the hybrid threat is that the target society would have become less of a threat, or less of a counter-balancing force, and more vulnerable to future attacks. Hybrid threats can also be used to punish a state for certain behaviour, or to warn it against such behaviour, in the hope of deterring such behaviour in the future.⁴

In order to prepare for and respond to hybrid threats, one needs to cultivate a common understanding among policymakers about what hybrid threats are, their objectives and dynamics, or modus operandi. In order to address this need, the Joint Research Centre of the European Commission and the European Centre of Excellence for Countering Hybrid Threats have developed a conceptual model for characterizing such threats.⁵ The con-

ceptual model has been developed around four main pillars: actors (and their strategic objectives), domains, tools, and phases. This approach helps key stakeholders to understand the time variable of hybrid threats and thus assists with identifying the range of ways in which a hybrid threat actor can employ a series of tools to affect a targeted country. This conceptual tool can assist targeted countries, at all levels, with designing appropriate prevention, preparedness and response capacities.

A state wishing to prevent or mitigate against hybrid threats may take a number of steps to reduce its vulnerability and strengthen its resilience against attacks on its critical domains. It can also build up its civil defence and emergency response capacities and prepare them for these types of threats.⁶ But how does a state or society strengthen its resilience when it comes to attempts to disrupt its social cohesion and public trust, and how does a state or society prepare its civilian population for the disruptions such potential hybrid threats may cause?

In this paper, I am interested in exploring how the civilian population, and formal and informal social institutions (religious communities, sports clubs, school communities, cultural associations, charity organisations, etc.), as distinct from governmental or organized civil defence, may respond to significant disruptions caused by a hybrid attack, and what can be done to strengthen the resilience and adaptive capacity of the civilian population and social institutions, when such threats are a likely risk.⁷

1 Giannopoulos, G., Smith, H. & Theocharidou, M. (eds.) 2020, *The Landscape of Hybrid Threats: A Conceptual Model*, Helsinki: The European Centre of Excellence for Countering Hybrid Threats.

2 Reichborn-Kjennerud, E. & P. Cullen, 2016, *What is Hybrid Warfare?*, NUPI Report 1/2016, Oslo: Norwegian Institute of International Affairs.

3 McCandless, E. 2019, 'Forging Resilient Social Contracts and Sustaining Peace: Summary of Findings of New Comparative Research', *Journal of Peacebuilding and Development*, Volume 14:1, pp. 90-95. <https://doi.org/10.1177/1542316619832697>; Kleinfeld, R. 2020, *Do Authoritarian or Democratic Countries Handle Pandemics Better?* New York: Carnegie Endowment for International Peace.

4 Mazaar, M. 2015, *Mastering the Gray Zone: Understanding a Changing Era of Conflict*, pp. 126-137. United States: Army War College Strategic Studies Institute.

5 Giannopoulos et al., 2020.

6 In this paper, civil defence refers to a national or federal government-led effort to protect their civilian citizens (i.e. non-combatants in the context of International Humanitarian Law) from military attacks, hybrid threats and natural disasters. Some countries may use related terminologies such as crisis management, emergency management, emergency preparedness, contingency planning, civil contingency, civil aid, and civil protection.

7 See also Hoogensen Gjørsv, G., Ørjan Karlsson, Rachele Brancaleoni, Isabel Dineen, Jardar Gjørsv, Sabina Chiara Magalini, Marco Di Liddo, Mihaela Teodor & Marte Foyen Aasen. Forthcoming 2021. "The Role of the 'ordinary civilian' in hybrid threats." Submitted to *Strategic Defence Communication Journal*, STRATCOM.

In order to do so, I turn to the research into social complexity to depict how self-organizing processes generate and sustain resilient and adaptive societies, communities and social institutions. To avoid re-inventing the wheel, I turn to the natural disaster, climate change and peace-building research to learn what has already been established in the research literature in these fields on the role of resilience and adaptation when it comes to under-

standing how social systems may respond to the kinds of shocks and disruptions that hybrid threats may attempt to produce. I am particularly interested in what can be done to strengthen a society's social capital, resilience and adaptive capacity, so as to increase its ability to withstand, survive and perhaps even become more resilient as a result of its responses to hybrid threats.

Hybrid threat scenarios: Post-apocalypse vs Better Angels

Before I introduce the theory, let us sketch a scenario of a hybrid attack to create a common frame of reference for the notion of hybrid threats to be used in the rest of the paper. Let us assume that in a northern European country, like Norway, a foreign state actor manages to cause a massive electricity blackout in the middle of winter, affecting the most populated areas of the country and lasting approximately seven to ten days before electricity is restored. Without electricity, there is no mobile phone network or internet. No television or digital radio functions. No streetlights or traffic lights. Most households rely on electricity for food storage and preparation, for heating water and for heating their houses or apartments. Most houses in Norway have wood-burning fireplaces to supplement heating, but most apartments do not. Without electricity, most shops, like supermarkets and others that sell food, cannot sell their goods because without their digital inventory systems they do not know what the items cost, and they don't have a system for facilitating transactions. Similarly, without electricity, banks and ATMs cannot dispense cash or process digital transactions. Filling stations similarly rely on electricity to pump the fuel and to process transactions. Under normal conditions, most households in a country like Norway only have food, cash and fuel for two to four days. Moreover, approximately 18% of personal cars in Norway were electric in 2020, and most trains are electric, as are their signal systems.

In this kind of scenario, a loss of electricity supply in a developed information economy, like Norway, will catastrophically disrupt all services that rely on digital electronic and telecommunications systems. The government, the private sector and private households all rely on the routine functioning of these systems and are thus highly vulnerable to such a disruption. With almost immediate effect,

people and institutions, like hospitals, will lose the ability to communicate, to obtain and share information and to coordinate with others. Within a few days, people will run out of food, medicine and other essentials and the means to purchase more, and they will lose mobility. The situation will soon become quite desperate. How will ordinary people and social institutions respond to such a situation?

Responding to disruption

In the worst-case scenario, let us call it the *Post-apocalypse scenario*, people will start dying because they are unable to find food, medicine and heated shelter. Some categories of people, such as the disabled, the elderly, and those on the social periphery are most at risk. The more desperate the situation, the greater the risk that it may lead to a breakdown in the social order. For example, some may resort to looting shops and homes or attacking others to find food and other resources. In response, others may form self-defence groups or militias that hoard their own resources. In the latter scenario, the crisis is not resolved when the power has been restored, because the blackout will have resulted in a breakdown in social values and identity. In this scenario, the hybrid attack will have achieved its objective in undermining public trust, and will make people start to challenge the core values of their society.

In an alternative scenario, let us call it the *Better Angels scenario*, with reference to Steven Pinker's book *The Better Angels of Our Nature* (2011),⁸ people find ways to cooperate and self-organize, they share resources and protect the vulnerable. In this scenario, the community comes out of the experience stronger, with new social institutions and networks that increase their resilience to withstand future shocks. In this scenario, the hybrid attack will have failed in its ultimate objective. While it has

⁸ Pinker, S. 2011, *The Better Angels of Our Nature*, New York: Penguin Books.

managed to cause significant disruption to people's lives, it has failed to create social disorder and to weaken the target state and population. The attack would have backfired, leaving the society with reinforced values and a stronger identity.

In contrast to the worst-case scenarios that are popular in films and books, disaster research reveals that the *Better Angels* kind of positive outcome is more common than generally realized. In *A Paradise Built in Hell: The Extraordinary Communities that Arise in Disaster* (2009), Rebecca Solint documents with examples from the Mexico City earthquake, the 9/11 attacks in New York City, and Hurricane Katrina in New Orleans, among others, how many ordinary people rose to the occasion, organized themselves, and demonstrated altruism, resourcefulness and generosity amid the grief and disruption inflicted on their everyday life by these disasters.⁹ She argues that these kinds of crises give rise to opportunities for purposefulness, a sense of community, and meaningful work that most people desire, but that is often unmet in their normal rushed lives in developed economies. Charles Fritz explains how this sense of purpose comes about:

"The widespread sharing of danger, loss, and deprivation produces an intimate, primarily group solidarity among the survivors... People are thus able to perceive, with a clarity never before possible, a set of underlying basic values to which all people subscribe. They realize that collective action is necessary for these values to be maintained and that individual and group goals are inextricably merged. This merging of individual and societal needs provides a feeling of belonging and a sense of unity rarely achieved under normal circumstances."¹⁰

However, Solint also discusses other cases that show that the effects Fritz describes are not universal to either every disaster or for everyone in any disaster. In many cases, no community converged because people were displaced, dispersed and isolated, and much of the rescue and recovery work was done by outsiders.¹¹

In this paper I ask the question, what can governments, civil defence agencies and civil society organizations do to try to increase the likelihood that, in the face of hybrid threats, the civilian population and their social institutions will find ways to cooperate and organize, making a *Better Angels* positive outcome more likely than the *post-apocalypse* alternative?

9 Solint, R. 2009, *A Paradise Built in Hell: The Extraordinary Communities that Arise in Disaster*, New York: Penguin Books.

10 Fritz, C. 1961, 'Disaster', in Merton, R. K. and R. A. Nisbert (eds.) *Contemporary Social Problems: An Introduction to the Sociology of Deviant Behaviour and Social Disorganization*, New York: Harcourt, p. 672.

11 Solint, 2009, 113.

Complex social systems

To start answering the question, I turn first to the study of complex adaptive systems.¹² Social complexity research offers insights into how individuals behave and relate to each other in social systems.¹³ I am interested in how these systems function, and particularly in how they react to shocks of the kind anticipated when an attack of this nature manages to cause a major disruption to the normal life of a society.

The core argument in this section is that complexity provides a theoretical framework for understanding how human societies and communities function, including how they react to disruptions.¹⁴ By applying some of these insights, it may be possible to strengthen the ability of societies to prevent, manage, withstand and recover from such hybrid threats.

Human social systems are empirically complex.¹⁵ This means that they form a particular type of system that has the ability to adapt, and that demonstrates emergent properties, including self-organizing behaviour. They emerge, and are maintained, as a result of the dynamic and non-linear interactions of the individuals and institutions that make up the system, based on the information available to them locally, and as a result of their interaction with their environment, as well as from the modulated feedback they receive from others in the system.¹⁶

As human social systems are highly dynamic, non-linear, and emergent, it is not possible to find general laws or rules that will help predict with certainty how a particular society or community

will behave in the future, for instance in response to hybrid threats.¹⁷ This uncertainty is an intrinsic quality of complex systems, not a result of imperfect knowledge, or inadequate planning or implementation.¹⁸ This recognition has significant implications for how one can optimally plan for and attempt to manage the fallout from hybrid attacks or other natural or human-induced disasters.

Whereas complicated systems – for example an advanced spacecraft or super-computer – can be comprehensively described and understood through observation and analysis of their components and how they work together to produce a specific effect, a system that is complex cannot be understood via an analysis of its constituent elements.¹⁹ Designing, building and launching a spacecraft into space is highly complicated, but once it is mastered, the same process can be repeated with a reasonable chance of success. In fact, the most frequently used rocket to send people and goods into space is the Soviet Soyuz rocket, which has a core design that has been in use since 1967.²⁰ In contrast, if a particular process helped to sustain peace in one human society, such as the Truth and Reconciliation Commission in South Africa, it cannot be repeated in another context with any reasonable expectation that it will have the same outcome. This irreproducibility is a function of the non-linear dynamic processes in complex systems, including human social systems, and their emergent properties.²¹ In fact, interventions in a complex human social system often produce unforeseen conse-

12 Mitchell, M. 2009, *Complexity: A guided tour*, New York: Oxford University Press.

13 Byrne, D. 1998, *Complexity theory and the social sciences: An introduction*, London: Routledge.

14 Jervis, R. 1997, *System effects: complexity in political and social life*, Princeton: Princeton University Press; Mitleton-Kelly, E. 2003, 'Ten principles of Complexity and enabling infrastructures', in Mitleton-Kelly, E. (ed.) *Complex systems and evolutionary perspectives of organisations: The application of complexity theory to organisations*, London: Elsevier.

15 Byrne, 1998.

16 Cilliers, P. 1998, *Complexity and postmodernism: Understanding complex systems*, London: Routledge; de Coning, C. 2016, 'From peacebuilding to sustaining peace: Implications of complexity for resilience and sustainability', *Resilience*, 4(3): pp. 166-181.

17 Chandler, D. 2014, *Resilience: the governance of complexity*, New York: Routledge.

18 Popolo, D. 2011, *A new science of international relations: modernity, complexity and the Kosovo conflict*, Surrey: Ashgate, p. 209.

19 Morin, E. 2005, 'Restricted complexity, general complexity', in Gershenson C., D. Aerts, and B. Edmonds, *Worldviews, science and us*, Liverpool: University of Liverpool.

20 European Space Agency, 2019, *Soyuz Launch Vehicle: The Most Reliable Means of Space Travel*. Available at: <http://bit.ly/2vYRRGh>. Last accessed 19 May 2021.

21 Preiser, R., R. Biggs, A. De Vos, and C. Folke, 2018, 'Social-Ecological Systems as Complex Adaptive Systems: Organizing Principles for Advancing Research Methods and Approaches', *Ecology and Society* 23(4).

quences and create new problems.²² As will be further explained below, this non-linearity plays a critical role in the emergence and self-regulation of complex adaptive systems.²³

However, before going into the implications of complexity thinking for managing hybrid threats, which is the focus of the next section, let us first unpack in more detail what is meant by dynamic systems, non-linearity and self-organization, as these are some of the key concepts that will feature again in the subsequent analysis and findings.

Dynamic systems

A system can be defined in a very general sense as a collection of interacting elements, for instance individuals that together produce, by virtue of their interactions, some form of system-wide behaviour such as community- or society-level behaviour. In other words, a system is a community of elements that, as a result of their interconnections, form a whole.²⁴ Human societies are complex systems that emerge from the interconnections and interactions among individuals and social institutions that identify themselves with that society.²⁵ The 2011 World Development Report defines institutions as "...the formal and informal 'rules of the game', which include formal rules, written laws, organizations, informal norms of behaviour, and shared beliefs – as well as the organizational forms that exist to implement and enforce these norms".²⁶ Some systems like machines or computers are static, but in complex systems like human societies, the system and its institutions change over time. In other words, it is dynamic.²⁷

In complex systems, the whole has properties that cannot be found in the constituent elements or in the sum of their properties.²⁸ In social systems, for instance, society as a whole develops and

sustains norms, identities, structures or hierarchies and behaviours that serve the common needs of the community. When studying people as a part of a society or socio-ecological system, as opposed to studying them as individuals, a different side of their being, including aspects related to their role in a family, in their society and in their ecology is revealed.²⁹ The African philosophy of *Ubuntu* covers this well in its saying: we are who we are in relation to others.³⁰

In moving from the individual to the community and society, one comes across organization. Complex systems cannot do without hierarchy and structure, but in complex systems hierarchy is not hard-wired or externally determined and controlled; the hierarchy of a complex system is emergent and self-organized and thus changes with the system as it adapts and evolves in response to its environment.³¹ The vitality of the system depends on its ability to transform itself, including its structure and hierarchy.³²

The last aspect of system dynamics that should be discussed is the role of boundaries and borders in complex systems. Complex systems are open systems, and this implies that interactions take place across their boundaries.³³ These interactions take place with other systems and the environment. Not all sub-systems are neighbours physically; some are virtually linked – in human social systems agents far away from each other may link up via social media, for instance, and collaborate, coordinate and otherwise influence each other's systems. In this way, these social systems are entangled, even if they are not physically connected.³⁴

Non-linearity

The second characteristic of complexity that is important to discuss is that in complex systems the

22 Aoi, C., C. de Coning & R. Thakur (eds.) 2007, *The unintended consequences of peacekeeping operations*, Tokyo: United Nations University Press.

23 Cilliers, 1998.

24 Mitchell, M. 2009, *Complexity: A guided tour*, New York: Oxford University Press.

25 Jervis, 1997; Byrne, 1998.

26 World Bank, 2011, *Conflict, Security and Development: World Development Report 2011*, Washington D.C.: World Bank, p. 41

27 Cilliers, 1998.

28 Morin, 2005.

29 Schmidt, J. 2013, 'The empirical falsity of the human subject: A new materialism, climate change and the shared critique of artifice', *Resilience*, 1(3): pp. 174-192.

30 Gibson, J. M. 2002, 'Truth, justice and reconciliation: Judging the fairness of amnesty in South Africa', *American Journal of Political Science*, 46(3): pp. 540-556.

31 Cilliers, P. 2001. 'Boundaries, hierarchies and networks in complex systems', *International Journal of Innovation Management*, 5(2): pp. 135-147.

32 Chapman, J. 2002, *System Failure*, London: Demos.

33 Cilliers, P. 2002, 'Why we cannot know complex things completely', *Emergence*, 4(1/2): pp. 77-84.

34 Wendt, A. 2015, *Quantum mind and social science*, Cambridge: Cambridge University Press.

causal patterns of the interactions are non-linear. Jervis argues that one often intuitively expects linear relationships. For example, if a little foreign aid slightly increases economic growth, it is expected that more aid should produce greater growth.³⁵ However, an important characteristic of complex systems is that the relationships between variables in a system are dynamic and disproportionate.³⁶

Three characteristics of non-linearity in complex systems help in understanding this dynamic better. The first characteristic is that the outputs generated by complex systems are not proportionate to their input; that is, they are asymmetrical.³⁷ The second aspect is that non-linear systems do not follow a pre-determined, and thus predictable, cause-and-effect path.³⁸ Nor can such a path, once traced in hindsight, be replicated to generate the same effect. A third aspect of non-linearity is that it cannot be reduced to something simpler, like a set of laws or rules or an algorithm that can help predict the behaviour of the system.³⁹ Non-linearity thus helps to explain why the behaviour of complex systems, including human social systems, is uncertain and unpredictable.

As these characteristics demonstrate, common-sense understanding of complexity is often closely associated with the concepts of disorder, chaos and randomness because one typically explains non-linearity as the opposite of the linear, the logical and the orderly.⁴⁰ It is thus important to emphasize that in complex adaptive systems non-linearity is not associated with disorder. In fact, non-linearity is an essential ingredient in the processes of emergence and self-organization that generate order in complex systems.⁴¹ Non-linearity is the element that distinguishes a complex system from a deterministic or mechanical system. A rocket or any sophisticated man-made mechanism may be complicated, but it is fully knowable, predictable and, therefore, controllable in principle. Hence, it is also unable to do anything that

is not pre-programmed or designed. In contrast, the non-linearity in complex systems, including human social systems, is what makes it possible for these systems to adapt, to innovate and to evolve, namely to create something new that goes beyond the parts that make up the system. Non-linearity is thus an essential part – in effect a pre-condition for emergence, self-regulation and adaptation in complex systems.⁴²

Self-organization

Self-organization refers to the ability of a complex system to organize, regulate and maintain itself without needing an external or internal managing or controlling agent.⁴³ The economy is an example of a self-organizing social system that most people can relate to. It continuously responds to a large number of factors without requiring a central controlling agent. The organization of the economic system as a whole comes about as a result of the interaction between the various agents (individuals and institutions like central banks and private companies) that constitute the system and its environment. There is no single agent or group of agents that control the economic system, but there are many agents that try to influence the behaviour of the system. As a result of these interactions, and the feedback effects they have on each other, the economy self-organizes spontaneously. This is an emergent process that comes about as a result of the cumulative and collective interaction of all the agents in the system.⁴⁴ The economy is just a sub-set of the larger social system it is a part of, and all human social systems, all societies, are similarly self-organizing.⁴⁵

Three of the core characteristics of complex adaptive systems, namely systems dynamics, non-linearity and self-organization have now been introduced. In the following sections, the focus is on the implications that complexity has for how civilian or social institutions are likely to respond to hybrid threats.

35 Jervis, 1997.

36 Kiehl, D. 1995, 'Chaos theory and disaster response management: lessons for managing periods of extreme instability', in Koehler, G. A. (ed.), *What disaster response management can learn from chaos theory*, Sacramento, CA: California Research Bureau.

37 Meadows, D. H. 1999, *Leverage points: Places to intervene in a system*, Hartland: The Sustainability Institute.

38 Morin, 2005.

39 Cilliers, 1998.

40 Ramalingam, B. 2013, *Aid on the Edge of Chaos: Rethinking International Cooperation in a Complex World*, Oxford: Oxford University Press.

41 Mitchell, 2009.

42 Cilliers, 1998.

43 Luhmann, N. 1995, *Social systems*, Stanford, Cal: Stanford University Press.

44 Cilliers, 1998.

45 Kaufmann, M. 2013, 'Emergent self-organisation in emergencies: Resilience rationales in interconnected societies', *Resilience* 1, pp. 53–68, p. 65.

Implications of complexity

What can one learn from the study of complexity that can help increase the likelihood that, in the face of hybrid threats, the civilian population and their social institutions will find ways to cooperate and organize, so that a positive outcome becomes more likely? The overview of complex adaptive systems in the previous section has generated three clear implications.

Firstly, uncertainty and unpredictability are inherent characteristics of complex systems. This means that risk mitigation and hybrid threat response plans that are based on linear casual assumptions and pre-determined plans or response templates are very likely to be ineffective. This is because the actual hybrid attack is likely to be different in important ways from what has been anticipated and planned for. The ways that civilian populations actually respond are also likely to differ from the template options.⁴⁶ This does not mean that one cannot plan and invest in preparedness, but it does imply that hybrid threat response plans and preparations need to differ from conventional approaches in that they need to reflect a mindset and organizational structure that enable them to anticipate and cope with uncertainty, and that allow them to be resilient, regardless of the type of crisis faced.

Secondly, the study of complexity has shed light on how complex adaptive systems self-organize. Self-organization in the social context refers to the various processes and mechanisms a society uses to manage itself, including in times of crisis. It speaks to the ability of a society to manage its tensions, pressures, disputes, crises and shocks without descending into disorder and violence. The implication is that responses to hybrid threats that manage to leverage the self-organizing ability of a society or community are much more likely to be

effective than responses that rely on a pre-determined plan or a top-down coordination system.⁴⁷

It means that in addition to the traditional civil defence and emergency response capacities, relevant national and local authorities need to plan and prepare for involving civil society and the private sector, and to do so in a way that does not disrupt, but instead makes proactive use of the ability of communities and civil society organizations to self-organize.⁴⁸ New skillsets that may be needed include the ability to facilitate (as opposed to direct) social response processes and the ability to stimulate and modulate (as opposed to control) the sharing of information and the coordination of the civilian response.

Thirdly, the study of complexity shows that the optimal way for complex social systems to cope with uncertainty is to employ an adaptive approach. One can prepare for natural disasters like fire, floods, earthquakes, and so on because although it may not be known when they might occur, they are natural events that follow certain known patterns. Hybrid threats differ in that they are human-induced and designed to cause maximum social disruption, taking into account known civil and disaster management capacities and plans.⁴⁹ Pre-planned response strategies are thus at best unlikely to anticipate the kind of attack that will actually occur, and at worst may have been anticipated by those responsible for orchestrating the attack. Blindly following the pre-determined plan may therefore be exactly what the attackers anticipated and cause more harm than good. Complex systems cope with uncertainty by continuously adapting to changes in their environment. The lesson for hybrid threat responses is that they need to be adaptive to the changing needs of the emergent situation.⁵⁰

46 Cullen, P. 2018, *Hybrid threats as a new 'wicked problem' for early warning*, Strategic Analysis 8, Helsinki: The European Centre of Excellence for Countering Hybrid Threats.

47 Boulton, J., P. Allen & C. Bowman, 2015, *Embracing Complexity: Strategic Perspectives for an Age of Turbulence*, Oxford: Oxford University Press.

48 Brusset, E., C. de Coning & B. Hughes (eds.) 2016, *Insights from Complexity Thinking for Peacebuilding Practice and Evaluation*, London: Palgrave.

49 Cullen, 2018.

50 Rietjens, S. 2020, *A warning system for hybrid threats – is it possible?*, Strategic Analysis 2020, Helsinki: The European Centre of Excellence for Countering Hybrid Threats.

The implication for those engaged in hybrid threat preparedness, crisis response and civil defence is that the optimal way to effectively manage a hybrid threat crisis is to engage in an adaptive process with the affected community that is context- and time-specific, and that generates solutions that are emergent from an engagement with the community and the specific hybrid attack.⁵¹ Planning and preparedness thus shift away from a pre-planned step-by-step response strategy approach carried

out by emergency officials, to a pre-planned process approach, where emergency officials, relevant authorities, civil society and the private sector engage in a collaborative adaptive process designed to find emergent context-specific solutions.⁵² In the latter approach the engagement process is pre-planned, but the content and outcome are context-specific and need to emerge from the process itself.

51 De Coning, C. 2018, 'Adaptive Peacebuilding', *International Affairs*, 94(2): pp. 301–317.
52 De Coning, 2016.

Resilience and adaptation

Resilience does not have one commonly agreed definition, but is most broadly understood as an ability to manage, withstand and recover from shocks.⁵³ Carl Folke et al. add to this general definition that withstanding a shock means retaining or recovering essentially the same function, structure, feedback and therefore identity.⁵⁴ In the hybrid threat context, I will define civilian resilience as the ability of a society to prevent, manage and recover from hybrid attacks without losing its essential values, cohesion and identity.

Adaptive capacity is defined as the ability to thrive in an environment characterized by change.⁵⁵ In the hybrid threat context, it refers to the ability of a society to adjust to disruptive change, to take advantage of opportunities, and to respond to consequences.⁵⁶ Resilience and adaptive capacity are complementary and mutually reinforcing. Adaptive capacity emphasizes the extent to which civil society and social institutions are able to adapt to rapid or drastic change, namely their flexibility and agility in the face of crisis. Resilience emphasizes the ability of these social institutions to prevent, manage and recover from the effects of a disruption.⁵⁷ The more adaptive capacity a society has, the more resilient it will be. Resilience is broader than adaptive capacity in that it also covers reducing vulnerability and managing risks, for instance by taking various preventative actions, as well as covering other forms of managing and responding to shocks beyond adapting to change.⁵⁸

Both resilience and adaptive capacity rely on social capital. Social capital refers to the resources and other public goods that individuals and social institutions can access via networks and communities. Social capital is defined by the OECD as networks together with shared norms, values and

understandings that facilitate co-operation within or among groups.⁵⁹ In other words, it refers to how social networks facilitate understanding and trust, and enable people to work together in the process.

Resilience, adaptive capacity and social capital, taken together, are thus about the ability of a society or community to sustain its essential values, cohesion and identity. Collectively, they describe a society's or community's systemic capacities to organize itself, and to learn and adapt, in response to a significant disruption such as the kind of hybrid threat scenario anticipated above.

The focus on resilience reflects a shift away from the aspiration to control how a society will respond to an unfolding disaster or hybrid threat. In its place, the emphasis is on supporting and enhancing the self-organizing capacities of social systems to cope with, adapt to, and bounce back from disruptive changes. Two ways in which one can attempt to modulate or strengthen the constructive or positive effects of self-organization in a society or community is by facilitating and modulating the flow of information and by stimulating the emergence and interconnectedness of networks. As Solint writes:

“Civil society is what succeeds, not only in an emotional demonstration of altruism and mutual aid but also in a practical mustering of creativity and resources to meet the challenges. Only this dispersed force of countless people making countless decisions is adequate to a major crisis. It is the neighbours who are first responders and who assemble the impromptu kitchens and networks to rebuild. And it demonstrates the viability of a dispersed, decentralized system of decision-making.”⁶⁰

53 Joseph, J. 2018, *Varieties of Resilience: Studies in Governmentality*, Cambridge: Cambridge University Press, p. 3.

54 Folke, C., S. R. Carpenter, B. Walker, M. Scheffer, T. & J. Rockström, 2010, 'Resilience thinking: integrating resilience, adaptability and transformability', *Ecology and Society*, 15(4).

55 Joseph, 2018, 14.

56 Engle, N. 2011, 'Adaptive capacity and its assessment', *Global Environmental Change*, 21(2): p. 648.

57 Dahlberg, R. 2015, 'Resilience and complexity: Conjoining the discourses of two contested concepts', *Culture Unbound*, Volume 7: pp. 541-557.

58 Chandler, 2014.

59 Keeley, B. 2007, *Human Capital: How what you know shapes your life*, OECD, Paris, p. 102.

60 Solint, 2009, 305.

The conventional approach would be that in a crisis situation there is no time to discuss the problem, one just has to act according to a pre-designed emergency plan, managed by trained and experienced emergency officials. This may be valid for life-saving actions such as search and rescue operations in the wake of a natural disaster. However, in the context of the kind of hybrid threat scenario addressed here, where the objective is to disrupt social cohesion and public trust, and where saving lives depends on sustained social cooperation over a number of days (or, in the example of the COVID-19 pandemic, several months), the emphasis has to be on investing in, and mobilizing the resilience that already exists in the society.

Local authorities and emergency management officials tend to respond to sudden-onset disasters by tightening command and control, in the belief that in the face of potential chaos and civil unrest, formal hierarchical organizational responses, often linked to emergency powers, are needed to take back control in the aftermath of a natural or human-induced disaster. According to Solint:

“The premise was that people were sheep, except when they were wolves, and the solution was to find out how best to herd them...These assumptions are reinforced by the media and popular post-apocalypse films, and at times also as part of disaster preparedness scenario exercises where civilians are often encouraged to play rioters and looters.”⁶¹

In contrast, an adaptive approach provides those that need to engage with and influence a complex social system with a methodology designed to cope with this complexity and uncertainty. Instead of using a pre-designed blueprint, or a top-down control model, an adaptive approach is a conscious method of engaging with a particular society to develop an intervention together with them from

the bottom up, in a continuous iterative adaptive learning process.⁶² The aim is to stimulate self-organization, not to control how a community will act. An adaptive approach is thus a specific methodology for coping with the complexity, uncertainty and unpredictability encountered when attempting to influence complex social systems.

It is difficult for authorities and emergency agencies that have been professionally trained to take control in a disaster or rescue context and to trust an adaptive process that relies on resilience and self-organization. The key is to recognize the essential difference between natural disasters and human-induced hybrid threats, and the difference between saving lives in a sudden-onset disaster setting and maintaining social cohesion and public trust in a slow-onset attack on society itself. The trigger may be a sudden-onset event such as a dramatic loss of electricity, and responding to that event may require emergency life-saving action. However, the real target in a hybrid threat context is disrupting the social order, and sustaining social cohesion and public trust is not something that can be achieved by emergency officials, the police or national and local authorities – although they do have a role in it.

Social cohesion and public trust have to be maintained and sustained by social institutions, civil society, the private sector and government authorities working collaboratively. When comparing the different national responses to the COVID-19 pandemic, for example, one can see that pre-existing levels of public trust and social cohesion are an important indicator of potential social capital. Yet actual actions during an unfolding crisis, and the degree to which people are participating in and co-shaping the outcome, are critical in determining the degree to which potential resilience is realized, under stress, in practice.⁶³

61 Solint, 2009, 129.

62 De Coning, 2018.

63 Kleinfeld, 2020.

Conclusion and recommendations

This paper has explored how civilian populations, and social institutions, as distinct from government or organized civil defence, may respond to significant disruptions caused by hybrid threats. In particular, I was interested in exploring what can be done to strengthen the self-organizing, resilience and adaptive capacities of the civilian population and social institutions when such attacks are a likely risk.

To do that I turned to complexity theory to help provide an understanding of how self-organizing processes generate and sustain resilient and adaptive societies, communities and social institutions. The paper explained how systems dynamics, non-linearity and self-organization combine and interact to generate complex systems effects, and what the implications are for how civilian or social institutions are likely to respond to hybrid threats. The paper looked specifically at self-organization, resilience, adaptive capacity and social capital to better understand how civil society organizations can be mobilized to prevent and respond to hybrid threats.

Although one can foresee the likelihood of the kind of hybrid threats addressed in this paper, actual instances have been limited and one is thus forced to learn from similar situations where civilians have come under significant social pressure, such as in situations of natural disaster and civil conflict. The adaptive methodologies that have emerged from the lessons learned from these contexts could also potentially be useful in hybrid threat situations where the centre of gravity is social cohesion and public trust, and where one of the main challenges is the uncertainty and unpredictability of the complex nature of the problem set that needs to be managed.

How do international, regional and national civil defence organizations, and the emergency agencies and local governments they work with, prepare for coping with hybrid threats in the midst of all this complexity and uncertainty? And how can they strengthen the resilience and adaptive capac-

ity of their communities and citizens to prevent or manage the fallout of some form of hybrid attack?

In this recommendations section I look into the ways in which civil society and the private sector; local government and emergency services; national government and civil defence agencies; and multilateral organizations can take steps to build the resilience of their civilian populations to withstand hybrid threats.

Civil society and the private sector

Civil Society Organizations (CSOs), such as special interest groups, religious organizations, sports clubs, and so forth can play an important role in responding to hybrid threats because they can serve as nodes and networks for information sharing, for organizing the distribution of relief goods, and for mobilizing their members. In many cases, CSOs represent the social bonds that individuals are most actively invested and engaged in at the community level. Some CSOs are also part of a national body and have strong links with their peers in neighbouring communities.

In the kind of critical infrastructure scenario where there is a breakdown in normal communication channels, and in other hybrid threat scenarios, such as attempts to undermine public trust during elections or in response to other critical periods, CSO networks may be an effective instrument for word-of-mouth communication, coordination and outreach. CSOs usually already represent a cell-like organizational structure where word-of-mouth information can flow up and down through a few nodes and reach many people in a relatively short time. In the event of a critical loss of all electronic information, where public authorities don't have access to their databases and if they don't have alternative back-up systems, CSOs are likely to have the means to generate information such as the names and locations of their members and families at the local level. The self-organizing capability of CSOs can thus help authorities and the affected community to share information, to mobilize

volunteers, and to verify that people are safe, and they can be used to undertake an assessment of their members' needs, for example.

As the research conducted by Fritz (1961) and others has shown, people are likely to spontaneously help each other in these kinds of situations, and they will organize themselves, often using existing CSOs as a springboard.⁶⁴ Utilizing the adaptive capacity and resilience of CSOs as a way to stimulate and facilitate community self-organization to respond to hybrid threats can be enhanced in several ways. Firstly, CSOs can be used to raise awareness of the risk of disruptions that could be caused by hybrid threats and how to prepare for such an eventuality. Public authorities responsible for civil defence should encourage households to maintain a reserve stock of essential equipment, medicine and food, and CSOs can reinforce this message and in some cases help to verify, renew and maintain such stocks. Secondly, CSOs can be engaged in preparedness planning and exercises. Local government, civil defence and emergency services should maintain a database of local civil society organizations and contact persons in a way that can be accessible even if there is no electricity and internet access. Similarly, CSOs should maintain a contact list of their members in the same accessible way, taking into account the potential loss of internet access and electricity. CSOs can be engaged in meetings where possible emergency scenario planning is discussed, and invited to be a part of exercises where their systems of reaching out to their members are tested. This needs to be voluntary and it needs to be recognized that this is not the purpose for which these CSOs have been established. In Europe and elsewhere, there is also privacy legislation that limits the degree to which private information can be stored and shared, which needs to be taken into consideration. Some CSOs may be more willing than others to play a role in civil defence, such as volunteer rescue organizations, volunteer first aid organizations, and so on. CSOs representing minority groups or those with special needs such as people with disabilities are particularly important to engage, as these

groups can easily be neglected in an emergency or public trust crisis if they are not part of the planning and preparations from the outset.⁶⁵

Most of the services that will be disrupted in the scenario sketched earlier, such as communication (mobile phone networks, radio and television stations and internet providers), food (supermarkets), fuel supply, public transport and electricity supply, are managed by private sector companies. The private sector is thus also an important stakeholder and it would be important to identify and map the private sector resources available in communities, and to keep such databases up to date and easily available in emergency situations. Those companies that are responsible for key stocks and services should be involved in preparedness training and exercises. A comprehensive response will duly require coordination and cooperation across the public sector, private sector and civil society.

Local government and local emergency services

Local government authorities and especially the emergency services have a duty to plan and prepare for emergencies, but may be less aware of the risk of hybrid threats and the special needs that such threats may generate. Civil defence and other relevant authorities should therefore work with local government and emergency services to raise awareness of the risk of hybrid threats and to help them plan and prepare for such eventualities. In particular, they need to be informed about the special nature and demands of hybrid threats and how these may differ from the more conventional sudden-onset emergencies they typically prepare for. This would have to take place through training and exercises together with CSOs and the private sector.

As other emergencies have shown, most recently again in the context of the COVID-19 pandemic, generating and maintaining the cooperation of the public is critical.⁶⁶ Hybrid threats in particular require a mindset where CSOs and the private sector are understood and engaged as critical stakeholders and partners, not as victims or

⁶⁴ Fritz, 1961.

⁶⁵ Freedman, J., G. Hoogensen Gjørsv & V. Razakamaharavo, 2021, 'Identity, Stability, Hybrid Threats and Disinformation', *Revista ICONO* 14, <https://doi.org/10.7195/ri14.v19i1.1618>. Last accessed 19 May 2021.

⁶⁶ Hoogensen Gjørsv, G. 2020, *Coronavirus, invisible threats and preparing for resilience*, NATO Review, 20 May 2020.

potential risks that need to be controlled. Local government and emergency services will need education and training that enable them to understand how facilitating and stimulating community and CSO self-organization can help them to prevent, mitigate and respond to hybrid threats. To do so they will need to first develop an understanding of the special characteristics of hybrid threats, and how managing their effects differs from other kinds of emergency response strategies. They would then need to prepare, train and conduct exercises for different scenarios together with their civil society and private sector partners. As the people, organizations, companies and institutions involved will continuously change, this needs to become part of a regular schedule and is not something that is ever achieved or ends. Threats and potential scenarios are also likely to be dynamic, and preparedness options duly need to be continuously adapted to new risks and anticipated future developments.

The role of the government, local authorities and emergency responders, in addition to their primary roles, should therefore be to act as facilitators and enablers for community self-organization. They can provide advice, support, resources and infrastructure. Local government, civil defence and emergency services can provide guiding principles, explain desired outcomes, facilitate dialogue and bring partners and stakeholders together, share good practices, and support the further development of these networks by offering facilities, financial support and tools, such as communication equipment.⁶⁷

National governments and civil defence agencies

National government agencies, including those responsible for civil defence functions, need to ensure that the necessary enabling legislation and policies are in place and implemented. Whilst local government authorities are most likely to be the primary implementers of these policies, the national and regional governments need to set the requirements and hold the local authorities accountable for undertaking the necessary education, planning, training and preparations.

In the case of an actual hybrid attack, there will also be a need for regional and national coordination and information sharing, so the structures enabling this will need to be put into place, and regularly tested, with table-top and field exercises. For example, in the United Kingdom the 2004 Civil Contingency Act makes local authorities and businesses responsible for drawing up contingency plans. The Act provides for the establishment of Regional Resilience teams, Regional Resilience Forums and Regional Civil Contingencies Committees that are responsible for regional risk maps, co-ordination plans, information sharing and training exercises.⁶⁸

National authorities can fund research into specific areas, including hybrid threat motives, moduli operandi, scenarios, preparedness options, and so forth. They can also share lessons gained from experiences elsewhere, and identify and share best practices, for instance across municipalities. To do that, training institutions need to be given the task and resources to develop training and exercise packages, to train regional and local institutions to undertake the training, to facilitate exercises, and to gather best practices and lessons learned.

Multilateral organizations, such as the European Union and NATO

Multilateral organizations such as the European Union and NATO also have a role in terms of raising awareness among their member states, establishing coordination mechanisms, enabling support and assistance where necessary among countries, especially in border regions, encouraging and funding research, and identifying and sharing lessons. This requires political commitments and decisions, and the establishment of institutions that can develop the expertise and help to coordinate the implementation of the decisions of the member states. In Europe a centre – the European Centre of Excellence for Countering Hybrid Threats – has been established in Helsinki, initially by nine member states of the EU/NATO, following a joint EU/NATO recommendation.⁶⁹

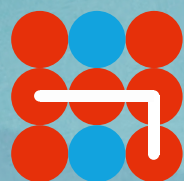
⁶⁷ Joseph, 2018, 43.

⁶⁸ Joseph, 2018.

⁶⁹ For more information about the European Centre of Excellence for Countering Hybrid Threats, see <https://www.hybridcoe.fi/what-is-hybridcoe/>.

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