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THE EVOLVING CONCEPT OF RESILIENCE

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The Concept of Resilience: Security Implications and Implementation Challenges

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Abstract: Aiming for a more effective and efficient response to diverse and multidimensional threats, an increasing number of defense and security organizations, the United Nations, NATO, and the EU embrace the concept of resilience in their security strategies and policies. This article provides a brief overview of the concept, a sample of definitions used in policy documents, and the types of problems they seek to resolve. Then we introduce the reader to the 15 articles published in the Summer and Fall 2020 issues of *Connections* that present the evolution of the concept of resilience and its implementation by and within political, defense, and law enforcement organizations, as well as its anticipated contribution to cybersecurity, disaster preparedness, peacebuilding, post-conflict restoration and countering hybrid threats.

Keywords: resilience, theory, concept, institutions, police force, crisis management, disaster risk, Sendai framework, critical infrastructure, cybersecurity, maturity, hybrid threats, peacebuilding, stabilization, post-conflict reconstruction, NATO, European Union.

In recent years, the notion of resilience has experienced an astonishing expansion away from the area of its original application and transformation of its meaning. Originally it denoted the aptitude of material (objects and substances) bent, stretched, twisted, or compressed to spring back into the original form – in mechanics, the work required to strain an elastic body to the elastic

limit and “the work performed by the body in recovering from such strain.”¹ In psychological and medical contexts, it was then used metaphorically in cases of illness and setbacks to describe the psychological quality that allows people to be “knocked down by the adversities of life and come back at least as strong as before.”²

Its adoption by a variety of sciences and ‘discourses’ has both augmented and arguably inflated its meaning. In the latter (medical) field, the questions of describing resilience and what creates resilience, how to build resilience, and how to use it in a recovery process after traumatic events became important foci of research and debate. Resilience, thus understood, is more than ‘coping’ with a situation. It entails the (potential) ability to surpass and grow beyond a given state. It is also understood to be a quality that could be strengthened by investing into it adequately. In this sense, ‘resilience’ is now also used in business and environmental studies and defense and security, including human security.

This special two-volume issue (Summer & Fall 2020) of *Connections* focuses on the concept(s) of resilience in the spheres of defense and security (including human security). If usage of the term ‘resilience’ abounds in the non-security field, so it does inside the defense and security field – a situation that for merely pragmatic reasons necessitates a closer investigation of what different interest groups actually mean by the term. Its gross over-use may lead us to believe we understand it in all its implications which, in fact, we may not yet.

In the past decade, the concept of resilience evolved from a purely academic and engineering interest to dedicated incorporation in national and international security policies. One example of the former is Bulgaria’s 2016 cybersecurity strategy “Resilient Bulgaria 2020.”³ The resilience-based approach to cybersecurity, where resiliency is defined as “the ability to anticipate, withstand, recover from, and adapt to adverse conditions, stresses, attacks, or compromises on systems that use or are enabled by cyber resources,”⁴ is turning into a *de-facto* standard guiding both systems engineering and the search for adequate organizational arrangements.

The United Nations embraced the concept at the beginning of this century. In 2005, the World Conference on Disaster Reduction adopted the “Hyogo Framework for Action 2005-2015,” which placed the focus on strengthening

¹ Noah Webster, *Webster's Revised Unabridged Dictionary* (G. & C. Merriam Co, 1913).

² “Resilience,” Center for development of Security Excellence, n.d., accessed August 12, 2020, <https://www.cdse.edu/toolkits/insider/resilience.html>.

³ George Sharkov, “From Cybersecurity to Collaborative Resiliency,” Proceedings of the 2016 ACM Workshop on Automated Decision Making for Active Cyber Defense, Vienna, Austria, October 2016, pp. 3-9, <https://doi.org/10.1145/2994475.2994484>.

⁴ Ronald S. Ross, Victoria Y. Pillitteri, Richard Graubart, Deborah Bodeau, and Rosalie McQuaid, *Developing Cyber Resilient Systems: A Systems Security Engineering Approach*, NIST Special Publication 800-160, vol. 2 (Gaithersburg, MD: National Institute of Standards and Technology, November 2019), p. xiv.

the resilience of nations and communities to disasters.⁵ The United Nations Office defined resilience for Disaster Risk Reduction as “the capacity of a system, community or society potentially exposed to hazards to adapt, by resisting or changing in order to reach and maintain an acceptable level of functioning and structure,” where this capacity “is determined by the degree to which the social system is capable of organising itself to increase this capacity for learning from past disasters for better future protection and to improve risk reduction measures.”⁶ Respectively, the Hyogo Framework for Action emphasized efforts to build resilience through enhanced national and local capabilities to manage and reduce risk and the use of knowledge, innovation, and education to promote a culture of resilience at all levels. The follow-up Sendai Framework for Action, adopted in 2015⁷ with a “renewed sense of urgency,” called for the integration of “both disaster risk reduction and the building of resilience into policies, plans, programmes and budgets at all levels.”⁸

The uncertainty and the unpredictability of the security environment are another reason to embrace the concept of resilience. Given the broad spectrum of threats and security challenges, the proliferation of conventional and unconventional conflicts, the fuzzy boundaries between military, asymmetric and hybrid threats, and the challenges brought by the COVID-19 pandemics, NATO turned to the need to enhance the resilience of each member state and the alliance as a whole.⁹

⁵ *Hyogo Framework for Action 2005-2015: Building the Resilience of Nations and Communities to Disasters*, World Conference on Disaster Reduction, Kobe, Hyogo, Japan, 18-22 January 2005, <https://www.unisdr.org/2005/wcdr/intergover/official-doc/L-docs/Hyogo-framework-for-action-english.pdf>.

⁶ *Hyogo Framework for Action 2005-2015*, p. 4.

⁷ *Sendai Framework for Disaster Risk Reduction 2015-2030*, Third UN World Conference, Sendai, Japan, 18 March 2015, <https://www.undrr.org/publication/sendai-framework-disaster-risk-reduction-2015-2030>.

⁸ *Sendai Framework for Disaster Risk Reduction 2015-2030*, p. 9. The Sendai framework uses a definition of resilience that was updated by UNISDR in 2009: “The ability of a system, community or society exposed to hazards to resist, absorb, accommodate to and recover from the effects of a hazard in a timely and efficient manner, including through the preservation and restoration of its essential basic structures and functions.”

⁹ NATO defines resilience as the society’s ability to resist and recover easily and quickly from such shocks as natural disaster, failure of critical infrastructure, or a hybrid or armed attack. Such ability combines both civil preparedness and military capacity. Robust resilience through civil preparedness in Allied countries is seen as “essential to NATO’s collective security” with a major contribution to “the credibility of NATO’s deterrence and defence.” NATO’s approach is anchored in Article 3 of its founding Treaty: by committing individually to maintaining and strengthening resilience, Allies reduce the “vulnerability of NATO as a whole”; hence resilience a national responsibility. Seven baseline requirements for such national resilience have been agreed – they concern the core functions of “continuity of government, essential services to the population and civil support to the military” (military efforts to defense the Alliance territory and populations needing ‘robust civilian preparedness to reduce po-

Resilience is also the central pillar of the European Union's strategy to deal with multidimensional hybrid threats that combine coercive and subversive measures, including CBRN hazards and disinformation.¹⁰ Again, member states are mainly responsible for strengthening resilience and enhancing response capabilities, while EU institutions reinforce national efforts.

Furthermore, the 2020 EU Security Union Strategy¹¹ and Counter-Terrorism Agenda¹² stress the importance of resilience and, in particular, the resilience of critical infrastructures. Hence, taking into account new policies and the lessons from the implementation of the 2008 European Critical Infrastructure Directive,¹³ the European Commission proposed replacing it with a new directive aimed at enhancing the resilience of critical entities providing essential services in the EU.¹⁴

Resilience has in the meantime been addressed and discussed by scientists, policymakers, and military planners seeking novel ways to increase the safety and security of organizations, communities, industrial sectors, critical infrastructures, armed and security forces and services, and societies in the face of new and unforeseen threats and challenges.

To reflect on conceptual and practical developments and outline options for shaping security and defense policies, we invited authors to comment on:

- the evolution of the concept of resilience
- investing in resilience vs. investing in prevention and preparedness
- measures of effectiveness and measures of performance

tential vulnerabilities – military forces again depend on the civilian and commercial sectors for transport, communications, and basic supplies such as food and water). See “Resilience and Article 3,” *NATO Topics*, Last updated: 16 November 2020, www.nato.int/cps/en/natohq/topics_132722.htm.

¹⁰ “Increasing Resilience and Bolstering Capabilities to Address Hybrid Threats,” Joint Communication to the European Parliament, the European Council and the Council, JOIN/2018/16 final (Brussels: European Commission, 13 June 2018), <https://eur-lex.europa.eu/legal-content/GA/TXT/?uri=CELEX:52018JC0016>.

¹¹ European Commission, “Communication from the Commission on the EU Security Union Strategy,” Brussels, 24 July 2020, COM(2020) 605 final, <https://eur-lex.europa.eu/legal-content/EN/TXT/?qid=1596452256370&uri=CELEX:52020DC0605>.

¹² European Commission, “A Counter-Terrorism Agenda for the EU: Anticipate, Prevent, Protect, Respond,” Brussels, 9 December 2020, COM(2020) 795 final, <https://eur-lex.europa.eu/legal-content/EN/ALL/?uri=COM:2020:795:FIN>.

¹³ “Council Directive 2008/114/EC of 8 December 2008 on the Identification and Designation of European Critical Infrastructures and the Assessment of the Need to Improve Their Protection,” *Official Journal L* 345, 75–82, 23 December 2008, <http://data.europa.eu/eli/dir/2008/114/oj>.

¹⁴ European Commission, “Proposal for a Directive of the European Parliament and of the Council on the Resilience of Critical Entities,” Brussels, 16 December 2020, COM(2020) 829 final, <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=COM:2020:829:FIN>.

- lessons learned and good practices in the implementation of the concept of resilience.

As a result, the Summer and Fall 2020 issues of *Connections* include 15 original articles presenting the evolution of the concept of resilience in the defense and security sector, its implementation by and within political, defense, and law enforcement organizations, as well as its contribution to cybersecurity, disaster preparedness, peacebuilding, post-conflict restoration and countering hybrid threats.

In his foundational article, Peter Rogers proposes to look into the diverse and many origins of the concept of resilience, which make the pursuit of a unified theory both attractive and challenging. However, such difficulty has not deterred politicians and theoreticians alike from claiming to understand and apply the resilience concept to deal with *uncertainty*.¹⁵ Dr. Rogers argues that this desire to both reduce and totalize leads to a misunderstanding of the different points of emergence and the dynamics of the resilience concept.

Drs. Carmit Padan and Reuven Gal propose to map the multitude of definitions of resilience in a two-dimensional matrix, divided into four content categories: social, economic, political, and military.¹⁶ This matrix generates twelve sub-types of resilience and can subsequently be used for a comprehensive definition of resilience and its sub-aspects, as well as for the possible assessment of resilience in its various apparitions.

Resilience was also the dominant issue in discussions during the 2020 Transatlantic Security Jam.¹⁷ Dr. Dinos Kerrigan-Kyrou reports on the Jam's findings, with particular reference to the expectable Post-Covid future. The author states that whereas the pandemic has not created new global power conflicts, it has not resulted in enhanced cooperation needed to enhance resilience and limit human and economic losses. Its spread has exacerbated processes threatening international order, rules-based trade, international cooperation and coordination.

Dr. Nadja Milanova shows how the concept of resilience in defense and security is evolving towards the inclusion of a wide-ranging and multidimensional set of vulnerabilities and across the spectrum of associated military and non-military mitigation strategies. She argues that while corruption and poor governance are now recognized as security threats, the strengthening of defense and related security institutions in both Allied and Partners nations remains to be further embedded as an integral part of the resilience concept (as called for

¹⁵ Peter Rogers, "The Evolution of Resilience," *Connections: The Quarterly Journal* 19, no. 3 (2020): 13-32.

¹⁶ Carmit Padan and Reuven Gal, "A Multi-dimensional Matrix for Better Defining and Conceptualizing Resilience," *Connections: The Quarterly Journal* 19, no. 3 (2020): 33-46.

¹⁷ Todor Tagarev, Raphael Perl, and Valeri Ratchev, "Recommendations and Courses of Action: How to Secure the Post-Covid Future," in *Transatlantic Security: Securing the Post Covid Future*, edited by IBM (Wien: Federal Ministry of Defense, 2020), 18-41.

in the NATO Warsaw Summit Declaration). Institutional resilience based on integrity, transparency, and accountability is critical for ensuring the fulfillment of NATO's resilience commitment and its baseline requirements. These include continuity of government with the ability to make decisions and provide services to the population.

Dr. Marleen Easton and Vanessa Laureys present a case study on the effects of the terrorist attack at Brussels Airport on March 22, 2016, which explores police officers' experiences concerning their coping strategies after the terrorist attack and the (in)formal workplace social support that affected their resilience. The study provides an in-depth analysis into the coping strategies and processes of workplace social support that may contribute to police officers' resilience following a traumatic event. Besides, it offers insights into the police organization's best practices to foster its employees' resilience and job performance.

Mikio Ishiwatari, in "Evolving Concept of Resilience: Soft Measures of Flood Risk Management in Japan," shows how the concept of resilience has been evolving in light of and answer to changes in climate, the socioeconomic environment, technology adaptations, etc. Ishiwatari analyzes areas that affect resilience by reviewing the policy change of flood risk management, particularly soft measures, in Japan. Based on lessons from the evolving concept of resilience, he recommends that developing countries should not only invest in infrastructure but also consider soft measures regarding changes in socioeconomic and natural conditions.

This follow-on Fall 2020 issue of *Connections* includes contributions on resilience in cybersecurity, post-conflict peacebuilding, and human security.

The concept of resilience finds increasing application in the provision of cybersecurity, including attempts at measuring the level of resilience and organizational maturity. In the opening article, Dr. George Sharkov provides an overview of organizational and community cybersecurity and resilience maturity models and cybersecurity indexes and suggests that maturity needs to be placed in the focus of the second-generation national cybersecurity strategies.¹⁸

The contribution by Andras Hugi is dedicated to the development of hybrid warfare and cybersecurity capabilities in the Hungarian Defense Forces. Hugi tracks the application of the concept of resilience in Hungary, presents an elaborate scenario of a hybrid attack against the country, including a cyberattack, and, on that basis, outlines the key measures to strengthen the resilience at the national level and in the armed forces.

The theme of resilience to hybrid influence is then pursued by a team of Georgian authors led by Dr. Shalva Dzebisashvili. In the article "Russian Economic Footprint and the Impact on Democratic Institutions in Georgia," the au-

¹⁸ George Sharkov, "Assessing the Maturity of National Cybersecurity and Resilience," *Connections: The Quarterly Journal* 19, no. 4 (2020): 5-24.

thors provide sound statistical evidence on the Russian influence on Georgia's economy. On the example of media freedom, they claim that above a certain threshold, stronger Russian economic influence is positively correlated with the weakening of Georgian democratic institutes. The authors conclude that Russia's economic footprint has reached the 'redline' of 9 percent of Georgia's GDP, and significant effort is needed to reverse the trend and increase Georgia's resilience in its economic and political dimensions.

The following three articles address the resilience of stabilization and peace operations, and peacebuilding efforts. First, Dr. Philipp Fluri critically reviews the stabilization and reconstruction mission in Afghanistan and concludes that, notwithstanding numerous positive outcomes, it has been unnecessarily ambitious, not tailored to the environment, and aiming to build peace *for* Afghans rather than *with* them. In contrast, peacebuilding missions augmented with measures to enhance resilience, such as those in Guatemala, Liberia, and Timor-Leste, focus on local ownership and dialogue and may thus achieve long-lasting sustainable effects.

In her contribution, Veronica Waeni Nzioki reviews the evolution of international peace operations and how technologies are contributing to their resilience. Advanced technologies, such as drone-mounted sensors, sensor networks, and advanced communications, and innovative ways of their application, can increase the organizational agility and capacity for anticipation and foresight and thus contribute to operational success and peacekeepers' safety.

The contribution by María Julia Moreyra reminds us that women play a crucial role in family, community, and societal resilience. Hence, particularly with the account of the COVID-19 pandemics, the UN Women, Peace and Security Agenda provides a focus on governmental and international efforts to strengthen resilience and increase safety and security.

In the article "After the Crisis: The Role of Resilience in Coming Back Stronger," Giulia Ferraro examines the role of resilience in the disaster management cycle, on par with the prevention, preparedness, and response to crises of various origin. She then looks into the Sendai Framework for Disaster Risk Reduction as a good starting point for elaborating resilience measures and benchmarking within an overarching approach to crises.

Dr. Borislava Manojlovic provides the final contribution to this two-volume special issue of *Connections*. Through a series of problem-solving workshops involving South Koreans and representatives of North Korean communities living in South Korea, she explores the micro-level factors contributing to the resilience to conflict between the South and the North. Dr. Manojlovic finds out that the key to enhancing the resilience to conflict is the quality interaction among community members and promoting understanding, tolerance, and respect through education.

The editors would like to thank the authors for inspiring contributions and the Editorial Board of *Connections* for making these two volumes possible. The

combined contributions allowed us to document the evolution—and the expanding application in security policies—of a concept that may not have come to its end yet. Inevitably, therefore, this examination is preliminary and descriptive. It is certainly worth revisiting the topic in the future to examine what further developments the concept of resilience will experience, the evidence of its contribution to enhancing security, examples of good practice, and innovative ways of strengthening resilience.

Disclaimer

The views expressed are solely those of the author and do not represent official views of the PfP Consortium of Defense Academies and Security Studies Institutes, participating organizations, or the Consortium's editors.

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The Evolution of Resilience

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Abstract: The concept of resilience has roots in many disciplines, making the pursuit of a unified theory very attractive but also very difficult. Yet this has not stopped scholars and politicians from attempting to claim resilience as their flagship concept and build a canon for the 21st century around it. This tendency to reduce or totalize resilience has spawned a host of taxonomies, each seeking to offer the final word on the definitional debate. I argue that this desire to create a unified theory of resilience misapplies the concept, ignores the dynamics of its emergence and the polysemic nature of its use in theory, policy, and practice. This malleability makes resilience at once both a very attractive logic for dealing with uncertainty and a dangerous pathway towards embedding untempered algorithmic systems of coercive prediction into the governance of everyday life. In understanding the emergence of the resilience concept, one must appreciate both the positive and negative potential of this flexible and adaptive notion. I close by suggesting that resilience has gained such traction in recent years in no small part because it represents a shift in the onto-politics of our time, but that we must be careful about which type of resilience gets enacted.

Keywords: resilience, assemblage, post-structuralism, positive critique, problematization.

Introduction

The concept of resilience has roots in many disciplines, making the pursuit of a unified theory very attractive but also very difficult. The term reappears in many different fields of study and diverse policy portfolios, each with its own dead ends, boundaries, and bridges to be built and debated.¹ If we attempt to under-

¹ Simin Davoudi, "Resilience: A Bridging Concept or a Dead End?" *Planning Theory & Practice* 13, no. 2 (2012): 299-307.

stand this concept in terms of contemporary problems, we must first map articulations of that problem through its antecedents to better disturb our concept in the present. In doing so, the concept of resilience is to be problematized with nuance, highlighting problems in how we have approached it previously and are approaching it now. I argue that approaching resilience as an ‘institution’ of governance allows researchers to better unpack how diverse forms of resilience are reshaping the incentives and constraints on human conduct. The often pessimistic critique of resilience as biopolitics and neoliberalism has not slowed the spread of resilience, only deepened the distance between critical theory and policy. A productive, positive critique using elements of assemblage thinking and a vernacular of new institutional economics allows us to better test how acceptance and enactment of resilience empower, or demand, a rethinking of the contractual relations underpinning social order. I will explore the critique of resilience, point out several limitations, and highlight where contributions are opening up new possibilities for a more constructive engagement. If a broader ontological shift in the foundations of liberal politics is emerging rather than attempting to identify the singular point of critique within a new ‘model’ of social order, resilience may be better approached as part of an ‘interregnum’; which traditional forms of governance and traditional forms of critique are both ill-equipped to explain. I argue that by crossing the divide between traditions of poststructural critique and new institutionalist economics, we can find a common vernacular to explain how diverse articulations of resilience are shaping the conditions of possibility for social order, but many of our traditional assumptions on the stability of a liberal ‘modern’ ontology may require revision. Beyond a ‘simple’ problematization of resilience, a more nuanced and positive critique will likely be required for the social sciences to remain relevant in shaping the institutional form of resilience as it emerges.²

A Critical Concept and a Concept to Critique

It is now widely acknowledged that the resilience concept has a rich etymological past, emerging in the English language via Francis Bacons “*Sylvara Sylvarum*.”³ Bacon explored the asymmetries between human sensibility and the intricacy of natural forces, mentioning resilience only in passing as an action of bouncing back via the repercussive “resilience of echoes.”⁴ It was later used in engineering to describe the obdurate qualities of building materials, evoking elasticity and

² David Garland offers a particularly useful insight into this framing of Foucauldian genealogy around the history of the present. This research offers one approach to repackaging those tools through a more creative engagement beyond the limits of currently understood post-structuralist doctrine. See David Garland, “What Is a ‘History of the Present’? On Foucault’s Genealogies and Their Critical Preconditions,” *Punishment & Society* 16, no. 4 (2014): 365-384, <https://doi.org/10.1177/1462474514541711>.

³ Francis Bacon, *Sylva Sylvarum, or, A Natural History in Ten Centuries* (London: William Lee, 1657).

⁴ Bacon, *Sylva Sylvarum*, 330.

resistance in wooden and steel beams.^{5,6} It has been used to narratively express a characteristic of human perseverance and in developmental psychology enhanced empirically as an integrative framework for investigating the adaptive capabilities of the human mind.⁷ This internalizes resilience but renders it a productive immanence by addressing unexpectedly positive adaptations or recoveries after exposure to adversity.⁸ Perhaps the most influential reading of resilience is drawn from complex social and ecological systems (SES) theory.⁹ ‘To walk back’ became analogous with recovery time after a disturbance¹⁰ but was later developed into resilience as a complex systemic panarchy.¹¹

Repurposing elements of creative-destruction in economic theory, panarchy informs understanding the social and ecological as interdependent systems with *adaptive cycles* of growth, collapse, and reorganization with potential to create a new “metastable equilibrium,” then subject to its own adaptive cycles. Perhaps presciently, Holling and Gunderson brought human and ecological interdependency into focus directly and empirically, a precursor to current readings of complexity in the Anthropocene. By engaging with the complexity of time, space, and scale across diverse and non-complementary systems, social-ecology made a unique contribution to the emerging discourse of resilience. It empowered an instrumental reading of resilience as the capacity of complex interdependent systems to absorb disruptions and “walk back” to stability, informing over a decade of reform in governing of disasters as a cycle of *anticipation, assessment, mitigations* (often encompassing elements of *preparedness* and *prevention*), *response* and *recovery*. It also opened a door for incorporating economic and ecological philosophy via the positive cycles of *revolt* and *remembering* empowering creative-destruction to potentially *transform* a system, i.e., create a new normal past the tipping point. This presentation of complex systems allows for a reading

⁵ On the early 19th Century works of Thomas Young see Alasdair N. Beal, “Thomas Young and the Theory of Structures 1807-2007,” *The Structural Engineer* 85, no. 23 (2007): 43-47.

⁶ Thomas Tredgold, “XXXIV. On the Modulus of Elasticity of Air, and the Velocity of Sound,” *The Philosophical Magazine* 52, no. 245 (2018): 214-216, <https://doi.org/10.1080/14786441808652035>.

⁷ Ann S. Masten, “Resilience in Development: Implications of the Study of Successful Adaptation for Developmental Psychopathology,” in *The Emergence of a Discipline: Rochester Symposium on Developmental Psychopathology*, ed. Dante Cicchetti, vol. 1 (Hillsdale, NJ: Erlbaum, 1989), 261–294.

⁸ Ann S. Masten, “Resilience in Developing Systems: Progress and Promise as the Fourth Wave Rises,” *Development and Psychopathology* 19, no. 3 (2007): 921-930.

⁹ C.S. Holling, “Resilience and Stability of Ecological Systems,” *Annual Review of Ecology and Systematics* 4, no. 1 (1973): 1-23, <https://doi.org/10.1146/annurev.es.04.110173.000245>.

¹⁰ Lance Gunderson and Carl Folke, “Resilience—Now More Than Ever,” *Ecology and Society* 10, no. 2 (2005): 22, <http://www.ecologyandsociety.org/vol10/iss2/art22/>.

¹¹ Lance H. Gunderson and C.S. Holling, eds., *Panarchy: Understanding Transformations in Human and Natural Systems* (Washington, DC: Island Press, 2002).

of “meta-stable equilibrium” as an ongoing process of change, opposing the assumption that civilization can be held in an optimal “steady state” – as per the requirements of a “just in time” model of mass production. Read through resilience, such systems become fragile, easy to disrupt, and thus more vulnerable to negative effects should a disruption occur. Surface tension begins to appear here between the positive potential for transformative change and the need to remember and maintain the current system forms and function. When we translate this ideational framework from systems ecology into the realm of politics and governance, these tensions are exacerbated as practitioners are forced to operationalize the abstract logic within the adherent bounds of their organizations’ traditional patterns of policy generation and implementation. It can be argued that the organizational path dependency in the late Holocene¹² is broadly aligned to the illusory “automatic balancing” of the market-driven by discourses of risk and growth—rather than the distribution of democratic public goods—driven by discourses of rights, freedoms, and access to privileges. This increasingly places exorbitantly instrumental requirements upon practitioners to “solve the problem” in a cost-effective and risk-averse manner, often drawn by “third-way” managerialism into a quantitatively evaluated system optimization to meet performance quotas, even in the face of oversimplified ‘aleatory’ (unreducible natural randomness) or ‘epistemic’ uncertainties (lack of or unreliability of data).¹³ In such conditions, resilience proves elusive to define, impossible to address in a holistic manner and appears woven into the fabric of existing problems, perhaps even deepening them further.¹⁴

These multiple articulations lead to the presentation of resilience as ‘polysemous,’ emergent and contested, difficult to reduce to a singular canonical definition.¹⁵ As the limits of the concept are permeable so has it been rendered amenable to a broad suite of, sometimes contradictory, applications within governance. As a “traveling concept,” it has rhizomatically¹⁶ appeared across diverse

¹² Dryzek elaborates upon these path dependencies using a broader traditional reading of institutions. John S. Dryzek, “Institutions for the Anthropocene: Governance in a Changing Earth System,” *British Journal of Political Science* 46, no. 4 (2016): 937-956.

¹³ Gianluca Filippa, Massimiliano Vasile, Daniel Krpelik, Peter Zeno Korondi, Mariapia Marchi, and Carlo Poloni, “Space Systems Resilience Optimisation under Epistemic Uncertainty,” *Acta Astronautica* 165 (2019): 195-210.

¹⁴ David Chandler, “The End of Resilience? Rethinking Adaptation in the Anthropocene,” in *Resilience in the Anthropocene: Governance and Politics at the End of the World*, ed. David Chandler, Kevin Grove, and Stephanie Wakefield (London: Routledge, 2020), 50-67.

¹⁵ Magali Reghezza-Zitt, Samuel Rufat, Géraldine Djament-Tran, Antoine Le Blanc, and Serge Lhomme, “What Resilience Is Not: Uses and Abuses,” *Cybergeo: European Journal of Geography* (2012), 621, <https://doi.org/10.4000/cybergeo.25554>.

¹⁶ This draws on a similar logic to that of “surveillant assemblages” as discussed by Sean Hier, where expansion of resilience, similar to late-modern surveillance, enables significant transformations ‘in the purpose and intention’ of resilience practices and the operation of nested hierarchies. The intensification of resilience assemblages, in a similar way, informs processes of resilience that produce social control rather than the

policy portfolios,¹⁷ and the politics of resilience as governance has been subject to much debate. More attention is paid to “optimising the inherent capacity of *valued systems* to withstand, absorb and bounce back from crisis” through the lens of security¹⁸ than to the correlations between cognition, beliefs, and *values* at the level of its enactment amongst individual citizen-subjects. The strategic view gives us insight into resilience, but this approach tends to skew that any reading of the morality of resilience to one aligned with the broader ongoing critique of neoliberalism as a system of rule.

Where this approach addresses the subject, the “resilient subject” is couched within “the necessity and positivity of human exposure to danger” as the central driver of becoming more resilient. Yet even here, this narrow view of values implies that resilient growth *only* results from exposure to dangerous trauma and that government is failing to provide a promise of security, tied to a liberal ontology of state-citizen relationships. This fails to incorporate the possibility of encounters that result in resilient growth from the manifestation of prosocial capacities, e.g., *not* panicking, generosity, solidarity, and altruism. Such enactments of prosocial emotions are important in creating a feeling of purpose in life and inform the adoption of a prosocial personal moral compass.¹⁹ This opens a configuration of self that allows for a broader interplay—between system and self—where “the assertive, disengaged self who generates distance from its background (tradition, embodiment) and foreground (external nature, other subjects) in the name of an accelerating mastery of them”²⁰ is coerced or incentivized to become more resilient in thought and deed.

At the *cognitive* level, resilience informs our expectations of each other and organizations (which we are a part of or interact with) at the *onto-political* level as enacted beliefs. Yet this is tricky to navigate as it blurs traditional distinctions—such as subject-object and *praxis-poiesis*—central to the critique of the rationalist, modern project. Such critique unfurls resilience as a *dispositif* of governance, a loose “system of correlation,” and an *ad hoc* totality irreducible to a

implied democratization of the ordering logic underpinning its rhetoric. Sean P. Hier, “Probing the Surveillant Assemblage: On the Dialectics of Surveillance Practices as Processes of Social Control,” *Surveillance & Society* 1, no. 3 (2003): 399-411, <https://doi.org/10.24908/ss.v1i3.3347>.

¹⁷ Peter Rogers, Jim J. Bohland, and Jennifer Lawrence, “Resilience and Values: Global Perspectives on the Values and Worldviews Underpinning the Resilience Concept,” *Political Geography* 83 (2020), 102280, <https://doi.org/10.1016/j.polgeo.2020.102280>.

¹⁸ Chris Zebrowski, *The Value of Resilience: Securing Life in the Twenty-first Century* (London: Routledge, 2015), p. 147, emphasis added.

¹⁹ Brian M. Iacoviello and Dennis S. Charney, “Psychosocial Facets of Resilience: Implications for Preventing Posttrauma Psychopathology, Treating Trauma Survivors, and Enhancing Community Resilience,” *European Journal of Psychotraumatology* 5, no. 1 (2014), 23970, <https://doi.org/10.3402%2Ffejpt.v5.23970>.

²⁰ Stephen K. White, “Weak Ontology and Liberal Political Reflection,” *Political Theory* 25, no. 4 (1997): 502-523, quote on p. 503.

mere expression of sovereign power.²¹ The critique of the resilience *dispositif* argues that, on the one hand, its decentralized conceptual nature denies the critical 'left' of the modernist political project a solid ground from which to destabilize it and, on the other hand, that it appears amenable to co-option by the increasingly neo-liberalizing path dependencies of contemporary governance.²² Yet without embracing the cognitive potential for positive outcomes from resilience, the conceptual ground under the concept appears ever-shifting, as are the value-laden meanings and applications that emerge from each encounter *in situ*. This impacts the epistemology of enactment through which a resilient citizen-subject is conceived, governed and the complementary or contested incentive structures legitimized and/or enacted in the name of "resilience as governance." As "potential imaginaries of resilience – as a policy-making "magic bullet" for problems as diverse as underdevelopment, conflict and environmental crises,"²³ resilience has continued to grow in scope and gain wider traction in the policy. As such, I argue that these imaginaries—emerging with and through "resilience as governance"—may herald the rise of an emergent institution.

Resilience as Institutionalized in Governance

At times, resilience has come to appear easily deployed as a "quasi-universal answer to the problems of government."²⁴ Any such "quasi-universal" concept must have significant repercussions not just for the process of governing but also on *what* is being governed, *who* is being governed, and *how* that governance is enacted. When encountered in this way, resilience has the potential to become a significant influence on political, economic, and social incentive structures, designed into resilient forms of governing. To make a case for the institutionalization of resilience more plainly, one should test the contractual relationships underwriting the nature of change it engenders. Resilience is at heart a collaboration strategy operating within the path dependencies of a competition-driven configuration of governance. How collaborative practices emerge, and are incentivized, should indicate more clearly the nature of any shift in the underpinning contractual relationship between key players, such as citizen-subject, 'market' and 'state.'²⁵

²¹ Bruce P. Braun, "A New Urban Dispositif? Governing Life in an Age of Climate Change," *Environment and Planning D: Society and Space* 32, no. 1 (2014): 49-64, <https://doi.org/10.1068/d4313>.

²² Chandler, "The End of Resilience?"

²³ Chandler, "The End of Resilience?" p. 81.

²⁴ Claudia Aradau, "The Promise of Security: Resilience, Surprise and Epistemic Politics," *Resilience* 2, no. 2 (2014): 73-87, <https://doi.org/10.1080/21693293.2014.914765>, quote on p. 73.

²⁵ One can draw on Stiglitz to reflect more on the intertwining of state and market, for example the tensions in separating production from finance through regulation and the importance of government regulation with regard to financial systems. Joseph E.

A key concern is to unveil if and how “resilience as governance” alters the articulation of contractual relationships between citizen-state-market. Another is to understand the value-shift implied by “ontological drift” in the institutional arrangements underpinning social order. Yet another is to align the change in beliefs to values to the operationalization of legitimate forms of governance through resilient ways of working. The preliminary work undertaken throughout the remainder of this article opens up a different approach for future research, but we must first rethink present uses of resilience more carefully. This helps to illustrate better the ordering logic of contractual relationships so implied by the emergence of resilience, as well as drawing attention to the need to understand shifting institutions emerging within a drifting onto-politics – to which we will return below. One might suggest that the wide deployment of resilience in governance locates this way of thinking and working on the fast track to becoming ‘institutionalized’ both as core business and logic of governance, reshaping what Douglas North has called “the rules of the game” but more evidence is needed to know what trajectory this implies for social order.²⁶ To test this proposition, one can draw on the resilient governance strategies that have been enacted in mitigating crises in recent years.

Increasingly policymakers have emphasized resilience as both a process of governing and as a suite of practical and pragmatic design initiatives driven by a blend of security, disaster, and crisis management but spanning many departments and portfolios.^{27,28,29} In a post-9/11 world, the need to “become more resilient” has been readily accepted as a generalized public good in policy terms but criticized for offering an uninspiring political vision unsuitable for realizing the change it purports to deliver.³⁰ High profile and globally impactful crises have

Stiglitz, “Markets, States and Institutions,” Roosevelt Institute, June 22, 2017, <https://rooseveltinstitute.org/publications/markets-states-and-institutions/>.

²⁶ In this sense, North, Wallis, and Weingast treat institutions not as ‘groups’ or ‘organizations’ which function as coalitions of actors with a common interest, instead they specify institutions as processual in nature as: “the patterns of interaction that govern and constrain the relationships of individuals. Institutions include formal rules, written laws, formal social conventions, informal norms of behaviour, and shared beliefs about the world, as well as the means of enforcement.” Douglass C. North, John Joseph Wallis, and Barry R. Weingast, *Violence and Social Orders: A Conceptual Framework for Interpreting Recorded Human History* (Cambridge: Cambridge University Press, 2009), 15.

²⁷ John Auerbach and Benjamin F. Miller, “Deaths of Despair and Building a National Resilience Strategy,” *Journal of Public Health Management and Practice* 24, no. 4 (2018): 297-300, <https://doi.org/10.1097/PHH.0000000000000835>.

²⁸ Christian Fjäder, “The Nation-State, National Security and Resilience in the Age of Globalisation,” *Resilience* 2, no. 2 (2014): 114-129, <https://doi.org/10.1080/21693293.2014.914771>.

²⁹ David Omand, “Developing National Resilience,” *The RUSI Journal* 150, no. 4 (2005): 14-18, <https://doi.org/10.1080/03071840508522884>.

³⁰ Kate Driscoll Derickson, “Resilience is not Enough,” *City* 20, no. 1 (2016): 161-166, <https://doi.org/10.1080/13604813.2015.1125713>.

diversified this discourse even further. The result has been the emergence of more instrumentalist pragmatism in public policy, focusing on practical capabilities and the needs of practitioners in critical areas of work: such as risk management, supply-chain management, sustainable urban development, critical infrastructure protection, and disaster risk reduction. International organizations, governments, and firms increasingly have resilience strategies or strategic goals for building resilience, and in each case, resilience is interpreted with subtle difference. Combined with rhetorical calls for resilience or salutations to the resilience of the people or nation following crisis events, the idea of resilience and being resilient is, today, firmly established in the common, conceptual and political vernacular of our times. Resilience does not manifest as an explicit totalizing *dispositif* of governance, but as nested assemblages of both human and non-human interactions encountered in different configurations at points of strategic orientation. These encounters serve as points from which the skills and resources for a targeted action can be mobilized, guided by best practice principles and toolkits in each experiment but not as a universal model. As such, it reconfigures the contractual relationships and expectations between individuals and organizations. By analyzing complementary rules and practices, we should therefore address resilience as an *institution* of governance in more depth.

In the cycle of adaptive crisis management, this has manifested as a guiding principle for developing the capabilities of specific organizations to act on particular risks, hazards, or threats. It also informs the perceived capacity of the social order to maintain a robust and healthy function in the face of existential uncertainty or explicit crises. However, resilient governance is not isolated in a black box within ‘politics.’ A concurrent surge in the discussion of economic and organizational forms of resilience has emerged in the private sector, with subtle but significant influence in the broader adoption of quality standards for resilient ways of working at the individual and organizational level.³¹ This has also been a contributor to the growth of philanthropic organizations’ engagement in resilience building efforts where existing organizational practices can stymie the adoption of new ways of working “in a more resilient way” – exemplified by the Rockefeller 100 Resilient Cities campaign. Local-level government organizations are also seeking out new strategies for the adoption of resilience in managing local corruption³² through forms of community engagement³³ and weathering

³¹ Yossi Sheffi, *The Resilient Enterprise: Overcoming Vulnerability for Competitive Advantage* (Cambridge, MA: MIT Press, 2005); Yossi Sheffi, *The Power of Resilience: How the Best Companies Manage the Unexpected* (Cambridge, MA: MIT Press, 2015).

³² Rabiul Islam, Greg Walkerden, and Marco Amati, “Households’ Experience of Local Government during Recovery from Cyclones in Coastal Bangladesh: Resilience, Equity, and Corruption,” *Natural Hazards* 85, no. 1 (2017): 361-378.

³³ Deborah Platts-Fowler and David Robinson, “Community Resilience: A Policy Tool for Local Government?” *Local Government Studies* 42, no. 5 (2016): 762-784, <https://doi.org/10.1080/03003930.2016.1186653>.

austerity³⁴ or managing competing interests in island communities.³⁵

In all of these, and more, diverse encounters flexibility in the operational interpretations of “resilience as governance” provides insight into the strategic adoption of constraints or incentives influencing the conditions of possibility for human conduct, both implied and enacted through the interplay of complementary rules and practices. These constraints or incentives are enacted formally and informally, for example, in individuals’ cognitive conduct in their daily lives, i.e., informal socially constructed ‘cultural’ values³⁶ and as diverse formal contractual relations between individuals, markets and, organizations,³⁷ manifest in governance. “Being resilient” presents a concurrent stream of work in synch with the operational instrumental protocols and practices, but this emergent arena is not the governance of external risk, hazard, or threat; instead, emphasizing the conduct and immanent vulnerabilities of the resilient subject as a legitimate arena of governance. This amorphous evolution of a contested concept has stimulated a vigorous critique of resilience, which must also be addressed.

The Critique of Resilience

Central to the emergence of the critique of resilience has been the drive to problematize resilience properly. A body of critical scholarship has built on post-structural readings of both biopolitical³⁸ and neoliberal³⁹ narratives. Indeed, so vociferous has been the critique emerging from these fields that resilience has been decried as politically debased and intellectually exhausted, creating “pernicious forms of subjugation it burdens people with, its deceitful emancipatory claims that force people to embrace their servitude as though it were their liberation, and the lack of imagination the resiliently minded possess in terms of transforming the world for the better.”⁴⁰ Yet, the advance of resilience thinking and prac-

³⁴ Vivien Lowndes and Kerry McCaughie, “Weathering the Perfect Storm? Austerity and Institutional Resilience in Local Government,” *Policy & Politics* 41, no. 4 (2013), 533-549, <https://doi.org/10.1332/030557312X655747>.

³⁵ David Chandler and Jonathan Pugh, “Islands of Relationality and Resilience: The Shifting Stakes of the Anthropocene,” *Area* 52, no 1 (2020): 65-72, <https://doi.org/10.1111/area.12459>.

³⁶ Avner Greif and Joel Mokyr, “Cognitive Rules, Institutions, and Economic Growth: Douglass North and Beyond,” *Journal of Institutional Economics* 13, no. 1 (2017): 25-52, <https://doi.org/10.1017/S1744137416000370>.

³⁷ Julio Faundez, “Douglass North’s Theory of Institutions: Lessons for Law and Development,” *Hague Journal on the Rule of Law* 8, no. 2 (2016): 373-419.

³⁸ Chris Zebrowski, “Governing the Network Society: A Biopolitical Critique of Resilience,” *Political Perspectives* 3, no. 1 (2009), <http://www.politicalperspectives.org.uk/wp-content/uploads/2010/08/Vol3-1-2009-4.pdf>.

³⁹ Jonathan Joseph, “Resilience as Embedded Neoliberalism: A Governmentality Approach,” *Resilience* 1, no. 1 (2013): 38-52, <https://doi.org/10.1080/21693293.2013.765741>.

⁴⁰ Brad Evans and Julian Reid, “Exhausted by Resilience: Response to the Commentaries,” *Resilience* 3, no. 2 (2015): 154-159, quote on p. 154.

tice has not been slowed by this critique; instead, it has accelerated. Critics have wrestled with this problem, Walker and Cooper suggesting that the resilience episteme empowers reabsorption of critique into “an agenda of resource management that collapses ecological crisis into the creative destruction of a truly Hayekian financial order.”⁴¹ The case for a counter-systemic critique is not made here on ontological grounds, as the logic of critique underpinning this approach requires the neoliberal system and its concomitant assumption of undisputed liberal institutions to hold its shape. When such assumptions are made, they tend towards the narrowing of focus in the pursuit of generating a totality for the purpose of critique, i.e., *resilience is*. I argue that this defies the contingent obligations of a polysemous and relational assemblage—in the act of defining resilience by what it *is*, the boundaries and permeating oscillations of meaning through which resilience is manifest are blurred—to be better revealed by interrogation of how it is *enacted*. The neoliberal critique seeks delineation to assert *intersection* or *interpenetration* at critical moments where they should describe and analyze *interplay* in the relative and situated context of the specific encounter through the complementary rules and practices of its operation. Many such critiques of resilience through the lens of neoliberalism reflect an ambient form of melancholic attachment to the radical politics of pre-1989 socialism, also dependent on the liberal ontology for its *raison d’être*.⁴² Such critique appears to actively capitulate to the “end of history” as empowering an inevitable reabsorption cycle, where any possibility of a progressive or democratic alternative surviving within capitalism is impossible. Any progressive change is to be predictively co-opted by an amorphous and open-ended process of neoliberalization.

I argue this is too narrow a reading for the onto-politics of resilience, whose future is not yet determinable. For good or bad, each encounter with resilience opens new possibilities. Perhaps the greatest mistake is to actively foreclose or disavow both the concept itself and the variations in politics—forms of knowing, doing, and acting—that resilience offers to us. There is no contesting that there is potential for resilience to be a destructive influence, yet there are also possibilities for it to open new spaces for reclamation of politics by engaged citizens. These are tangible, empirically verifiable, and relevant to our wider project of interrogating what democratic politics has been, is now, and may become in future.⁴³

⁴¹ Jeremy Walker and Melinda Cooper, “Genealogies of Resilience: From Systems Ecology to the Political Economy of Crisis Adaptation,” *Security Dialogue* 42, no. 2 (2011): 143-160, <https://doi.org/10.1177%2F0967010611399616>, quote on p. 157.

⁴² This melancholy of the left might be due to an “over-attachment to a past political identity, even in its failure” for whom progressive change is only meaningful if tied to the advancement of their ideological limitations. Neda Atanasoski and Kalindi Vora, “Postsocialist Politics and the Ends of Revolution,” *Journal for the Study of Race, Nation and Culture* 24 (2018): 139-154, quote on p. 143, <https://doi.org/10.1080/13504630.2017.1321712>.

⁴³ See for example Bruce E. Goldstein, ed., *Collaborative Resilience: Moving Through Crisis to Opportunity* (Cambridge, MA: MIT Press, 2011); and Bruce Evan Goldstein,

It is difficult to contest the evidence that resilience as governance does not apply to all citizens evenly and may be instrumental in deepening existing and creating new inequalities – i.e. “resilience for whom?”^{44,45,46,47} Despite raising troubling issues in the instrumentalist interpretation of resilience the critical narrative has relied heavily on a post-structuralist reading of power that does not integrate well with the changing dynamics of governance, nor the ‘onto-political’ shift underpinning the spread of resilience in policy and practice. Discussion has begun more recently to move away from openly antagonistic criticism towards a proactive discussion of resilience as a complex assemblage read in the context of a destabilized liberal ontology.⁴⁸ This approach opens the possibility of resilience as more than a new skin for old wine tied to the critique of neoliberalism,⁴⁹ opening access to a broader rethinking of power itself, the relations of force emerging from resilience thinking, and the conditions of possibility for a different ‘politics’ to grow. Through this engagement with the ontology underpinning politics, the concept is now being seen, for good or ill, as part of an ongoing, fundamental shift in the way we “know things” about a complex world in the emerging Anthropocene.^{50,51}

Where the neoliberal critique has failed to deal with the underpinning ontological challenges to politics and science more broadly, this approach rather embraces the destabilization of traditional boundaries of knowledge: “The Anthropocene enables ‘a movement of thought that is truly counter-systemic’ because

Anne Taufen Wessells, Raul Lejano, and William Butler, “Narrating Resilience: Transforming Urban Systems Through Collaborative Storytelling,” *Urban Studies* 52, no. 7 (2015): 1285-1303, <https://doi.org/10.1177/0042098013505653>.

⁴⁴ Raven Cretney, “Resilience for Whom? Emerging Critical Geographies of Socio-Ecological Resilience,” *Geography Compass* 8, no. 9 (2014): 627-640, <https://doi.org/10.1111/gec3.12154>.

⁴⁵ Amanda Fitzgerald, “Querying the Resilient Local Authority: The Question of ‘Resilience for Whom?’,” *Local Government Studies* 44, no. 6 (2018): 788-806, <https://doi.org/10.1080/03003930.2018.1473767>.

⁴⁶ Hugo Herrera, “Resilience for Whom? The Problem Structuring Process of the Resilience Analysis,” *Sustainability* 9, no. 7 (2017), 1196, <https://doi.org/10.3390/su9071196>.

⁴⁷ Sara Meerow and Joshua P. Newell, “Urban Resilience for Whom, What, When, Where, and Why?” *Urban Geography* 40, no. 3 (2019): 309-329, <https://doi.org/10.1080/02723638.2016.1206395>.

⁴⁸ David Chandler, Stephanie Wakefield, and Kevin Grove, eds., *Resilience in the Anthropocene: Governance and Politics at the End of the World* (London: Routledge, 2020).

⁴⁹ Marc Welsh, “Resilience and Responsibility: Governing Uncertainty in a Complex World,” *The Geographical Journal* 180, no. 1 (2014): 15-26, <https://doi.org/10.1111/geoj.12012>.

⁵⁰ Chandler, Grove, and Wakefield, eds., *Resilience in the Anthropocene*.

⁵¹ Kevin Grove and David Chandler, “Introduction: Resilience and the Anthropocene: The Stakes of ‘Renaturalising’ Politics,” *Resilience* 5, no. 2 (2017): 79-91, <https://doi.org/10.1080/21693293.2016.1241476>.

time and space enter and thereby destabilize the idea of a separate ‘inside.’”⁵² By destabilizing the notion of ‘inside’ and ‘outside,’ the Kantian division between the human and the natural world through the artifice of reason is collapsed.⁵³ This allows for a renegotiation of institutional order at the level of subject-object, renegotiating the boundaries of sentient life itself within the confines of a moral custodianship of our ecological capacity to exist. In terms of a socio-ecological reading of resilience, the social order of the Anthropocene has moved out of the ‘exploitation’ and ‘conservation’ phases where the system can be optimized for those best suited to its current configuration and past the tipping point into the release and reorganization phase – or the ‘back loop.’⁵⁴ Chandler has suggested that the Anthropocene “is not just another problem or crisis to be ‘solved’ or ‘bounced-back’ from or ‘recouped’ but rather a sign that modernity was a false promise of salvation, one that has brought us to the brink of destruction.”⁵⁵ Indeed, the concept of “dwelling in the ruins”⁵⁶ moves beyond the prediction of a darker side to resilience and instead seeks to explore the contemporary ‘ruins,’ where by “biopolitical doubling, we now manage other life to secure human life.”⁵⁷ This argument suggests that managing the effects of the exigencies of neoliberal rule—rather than the causes—resilient governance creates a cascade of deferment “papering over the cracks” but not delivering solutions.⁵⁸ Rather than critically engaging with resilience as a means for progressive politics in the space between nature and human action, this is pre-emptively presented as the death knell of “coercive resilience” as a system of governance due to exposure of its failure to deal with anthropocentric accountability in the light of a collapsing modernist project. Thus, this “coerced resilience” is “created as a result of anthropogenic inputs such as labour, energy and technology, rather than supplied by the ecological system itself. In the context of production systems, coercion of resilience enables the maintenance of high levels of production,”⁵⁹ which ends in a counter-productive deepening of crises wherever resilience is adopted.

⁵² Chandler, Grove, and Wakefield, eds., *Resilience in the Anthropocene*, 82.

⁵³ Chandler, Grove, and Wakefield, eds., *Resilience in the Anthropocene*.

⁵⁴ Stephanie Wakefield, “Inhabiting the Anthropocene Back Loop,” *Resilience* 6, no. 2 (2018): 77-94.

⁵⁵ David Chandler, “Resilience and the End(s) of the Politics of Adaptation,” *Resilience* 7, no. 3 (2019): 304-313, <https://doi.org/10.1080/21693293.2019.1605660>.

⁵⁶ Stephanie Wakefield, “Infrastructures of Liberal Life: From Modernity and Progress to Resilience and Ruins,” *Geography Compass* 12, no. 7 (2018): 123-177, <https://doi.org/10.1111/gec3.12377>.

⁵⁷ Stephanie Wakefield and Bruce Braun, “Oystertecture: Infrastructure, Profanation and the Sacred Figure of the Human,” in *Infrastructure, Environment, and Life in the Anthropocene*, ed. Gregg Hetherington (Durham, NC: Duke University Press, 2018), 193-215, <https://doi.org/10.1215/9781478002567-012>.

⁵⁸ Chandler, Grove, and Wakefield, eds., *Resilience in the Anthropocene*, 83.

⁵⁹ Lucy Rist, Adam Felton, Magnus Nyström, et al., “Applying Resilience Thinking to Production Ecosystems,” *Ecosphere* 5, no. 6 (2014), 73, <https://doi.org/10.1890/ES13-00330.1>, quote on p. 3.

The Limits of Critique: Emergence, Complexity and Positive Politics

Emergence and complexity are important aspects of the approach to resilience discussed in this article, as they relate to the nature of the fundamental onto-political shift implied by resilience as governance and open ways to address the pessimism of the critique discussed above. When thought of as a shift in the 'onto-politics'⁶⁰ of our time, i.e., the politics of 'being,'⁶¹ resilience enacted represents a manifold transformation in the rules of the game underpinning social interactions. It also potentially transforms the political subject and the conditions of possibility for politics, as understood by the socio-contractual relationships that have defined modernity. The subject and the structure become unfixed, destabilized by the uncertainty of crisis and the need to govern the effects of these crises when they arise without disrupting the orderly flow of capital or undermining the fabric of social order.

The critique identifies conceptual fault lines between the theory and enactment of resilience but rarely offers progressive solutions as the decentralized enactment as governance leads to different articulations of its emergent onto-politics. Emergence becomes a problem for the critique in aligning the output of problematization with a program of meaningful action to influence a better kind of resilience. Contemporary scientific empiricism requires hard certainties with optimized outputs and outcomes, but the transformation we are engaged in has not 'happened' so much as they are woven into a temporal cycle with perpetually uncertain results. Multitudes of variables are in play and cannot be exhaustively listed, as they range, and are not limited to: the emergent Anthropocene and concomitant climate crisis; the exigencies of rampant free-market capital; the reordering of human interactions emerging from artificial intelligence, machine learning and algorithmic forms of governance; creeping authoritarianism in 'third-way' politics and the wider reformation of the liberal political order emerging from the prematurely proclaimed "end of history." Yet history continues to accrue new complexities in defiance of such proclamations, weaving ever-more-complex assemblages of interdependency, which I have elsewhere called a process of *interplay*.⁶² The ongoing changes cannot be neatly boiled down to a disciplinary approach, a singular canon of theory, method, nor any single mode of critique, for they are not neatly diachronic or bounded in nature as rational reductionism or deductive science would prefer. Rather transformation has become an emergence of the interregnum, a porous ill-defined new normal from

⁶⁰ There are several critical engagements with this concept emerging in recent research, of particular note being David Chandler, *Ontopolitics in the Anthropocene: An Introduction to Mapping, Sensing and Hacking* (London: Routledge, 2018).

⁶¹ David Chandler and Julian Reid, "'Being in Being': Contesting the Ontopolitics of Indigeneity," *The European Legacy* 23, no. 3 (2018): 251-268, <https://doi.org/10.1080/10848770.2017.1420284>.

⁶² Peter Rogers, *Resilience & the City: Change, (Dis)Order and Disaster* (Farnham: Ashgate, 2012).

which one must attempt to engage with the complexities of a shifting ‘onto-politics’ as they move towards an uncertain end reconfiguration.

Engagement with the onto-politics of resilience aims to open the black box of unintended consequences for pragmatic appraisal of its complementary rules and practices. Though still in development as a coherent project, this approach challenges the assumed “resilience dividend.”⁶³ In asking if changes empowered by resilience are worthy of institutionalization into the logic of our social order or undermine the core strength of liberal democratic politics, this does not reject resilience but seeks to align the configuration of onto-politics towards an inclusive, democratizing project. The goal is not to seek a particular rational ‘truth’ of resilience as it appears in rational models or normative framings of the idea. Rather to harness these diverse encounters with resilience to challenge the normative institutions (i.e., “rules of the game”) emerging from its enactment, and to foster them towards collaborative and participatory practices that are more complementary to liberal democratic first-order principles than to the exigencies of market-oriented and algorithmic systems of governing. This tests a (more) reflexive theorization of practical interventions resilience empowers in the governance of everyday life. At the level of institutional rules and practices, it is a challenge to materialist conceptions of knowing, post-structuralist critique, and the promissory politics of citizen-state relations where resilience informs redrawn parameters within contractual expectations, e.g., tied to notions of citizenship, rights, and responsibilities.

A shift empowered by the spread of resilience as an institutional pillar of governance requires a rethinking of the constraints underpinning what government is and what governance does. This demands that we pay attention to the “politics of being” underpinning the governance of problematic populations in times of perpetual crisis, and more so how it is *enacted*. These enactment strategies have significant implications for how the socio-contractual relationships between citizen and state are to play out. The institutionalized “rules of the game” which empower contractual interactions between individuals, organizations and markets influence in turn what forms of expectations we have of our core democratic institutions, such as human rights, property rights, and, more broadly, the formal and informal relations of force by which an order for everyday life is established. This informs the conditions of possibility for a resilient form of social order, for resilient individuals to act within complex, interdependent systems of influence. Bearing these factors in mind, the emergence and complexity problems require a careful and thoughtful problematization. However, that problematization must have space for a positive outcome if it is to remain progressive and, more importantly, accessible to practitioners in the situated context of their specific organization and its remit.

⁶³ Judith Rodin, *The Resilience Dividend: Being Strong in a World Where Things Go Wrong* (Philadelphia, PA: Public Affairs, 2014).

The Problem with Problematization

I have argued that if problematization is to lead to positive outcomes, becoming more resilient and governing for resilience should be engaged with critically but positively. The biopolitical and neoliberal critiques of resilience appear to struggle with how to explain the ontological tension between what resilience was thought to be and what it is becoming. The onto-politics of a resilient social order expressly challenges some of the fundamental assumptions enmeshed within the onto-politics of modernity – including traditional programs of opposition or resistance and boundaries between human and natural systems.⁶⁴ Resilience may represent a more nuanced shift in the underlying principles and mechanisms of governance than a simple reproduction of economic governmentalities neoliberalism allows for. The framed focus of governance from the causes of social problems to the management of their effects, or as Aradau suggests “from the promise of security to the non-promise of resilience”⁶⁵ might be better understood within the context of the ontological interplay between configurations of resilience.

This promissory shift represents an onto-political change in the relationship between the citizen-state-market. Whilst the state retains an implied responsibility for the survival of the citizen-subject under a ‘neoliberal’ model of social order, contractual freedoms are ceded to a curated market, incentivized choice from within preferred option sets are rationally refined as a means of open access to privileges. However, the automatic balancing of the system is an impolite fiction. Combined with ongoing transformations in governance practice, the incentive structure for “becoming resilient” prioritizes citizen responsibilities to participate in the survival of not just the “body politic” but the entire planet. In this sense, it can be read as a call for individuals to take personal responsibility with an intent to engage, but often enacted problematically where elements of coercion dominate the collaborative and participatory potential of an emergent onto-politics of resilience.

Problematizing the complexity woven through the emergence of a “resilient social order” requires us to draw on a number of encounters with the resilience concept. It is uncertain *if there even is* a singular ontology underpinning resilience nor if this is inherently an ontology of transformation. Rather than fixity or security, resilience cannot hold fixed concepts of access to rights and privileges that have traditionally underpinned ordering institutions. Liberal and democratic philosophies of the social contract, the rule of law, human rights (broadly), and the presence of enforceable expectations regarding contractual protections of basic rights—for example, access to organizations, property ownership, exchanges and service provisions (more narrowly)—can be useful as a form of crit-

⁶⁴ Here I am drawing on Blaser’s reading of political ontology. Mario Blaser, “Ontological Conflicts and the Stories of Peoples in Spite of Europe,” *Current Anthropology* 54, no. 5 (October 2013): 547–568, <https://doi.org/10.1086/672270>.

⁶⁵ Aradau, “The Promise of Security,” 75.

ical engagement but have to date been framed poorly by biopolitical and neoliberal theorizations. This is also where the differing conceptions of power underpinning a new institutional economics approach clashes most with the post-structuralist readings of power tied to a (dated) critique of capitalism. The pursuit of a unified ideologically coherent ontology is not encouraging in such conditions. Indeed, it does not seem useful or desirable in the face of so many versions of resilience deployed in so many different ways.

As there are many permutations of resilience drawn from a rich history, this concept must be critically engaged with not as unified, but as a multiplicity with negative *and* positive configurations. This is essential if we are to understand the influence and importance of resilience as an institutional rule adding constraints or incentives to human action. As such, while the framework of institutions as processual can align notionally with the discussion of biopolitics and governmentality, the way in which they engage with access to privilege and the use of violence as a driver of social ordering is different and should be interrogated more deeply.

If resilience is a concept best understood as “in the process of becoming”—*in statu nascendi*⁶⁶—then one can appreciate the multitude of encounters as a complex diffusion within and through which the *interplay* configures distinct yet mutually permeable conditions of possibility. The effect of these conditions of possibility, enacted as relations of force, will be encountered differently in each situated context. Sovereign power still exists but no longer promises security in traditionally understood terms; the contract is instead coordinated by agent-based decision-making amongst conditions of possibility configured by a blend of sovereign intent, individual agency and market-configured options layered in complex assemblages of contractual relations. Disciplinary power is not confined to the legitimate use of violence by sovereign actors of ‘the state’ but rather distributed through locally encountered pre-configurations of the options from which one can choose, embedded in sovereign power but transformed *in statu nascendi* by increasingly impersonal, automated forms of algorithmic translation. Traditional limits of violence are blurred and blended with the impersonal stochastic configuration of choices, rendered legible through the concomitant interface by which the individual gains access to their choices. Increasingly the blurring of such distinctions by the adoption of algorithmic governance principles leads to more impersonal, less visible relations of force, where access to privileges is increasingly limited by algorithmic curation, rather than ‘opened’ by market-led freedom of choice. Sovereign power does not impose order on the market but rather relies on the market to configure access to privilege based on automatically balancing egalitarian populism, led by the abstract, rational, calculative individual subject.

⁶⁶ Peter Rogers, “The Etymology and Genealogy of a Contested Concept,” in *The Routledge Handbook of International Resilience*, ed. David Chandler and Jon Coaffee (Abingdon, UK: Routledge, 2017), 13-25.

This is a form of ‘onto-politics’ that challenges the reliance of Foucault on distinctions of ‘sovereign’ and ‘population’ as the key loci of violence. It also challenges North’s linear reading of social order as defined by politics, economic, and social relations, where the dynamics of these exchanges are limited to the legitimate use of violence. Neither adequately problematize the complexity of context or the willing submersion of rationally neurotic citizens, subjectified by the legacy of cold war theory and public choice economics as complicit in the co-production of new ‘softer’ forms of non-material violence, informing the revision of liberalism. Nor do they adequately address the emergence of a ‘flatter’ ethics of the Anthropocene, collapsing human nature distinctions in ways that directly challenge “sacral faith” in the fundamentalism of finance.⁶⁷ Such forms of power are essentially iterative and emergent, but not static, as they operate within the conditions of possibility for individual cognition – i.e., the “freedom to choose” in competition with the “right to life.” If we assume that market institutional logics have increasingly subsumed those democratic logic implied by the “public sphere”—through, for example, the rise of algorithmic governance as a means for editing access to privileges—then this period of transformation would see institutions of democracy become less stable, even as market-oriented institutions become more influential and less accountable to sovereign power. We have seen some early signs that this is an active feature of the interregnum in recent years, with questions over the legitimacy of the democratic process emerging even in the “land of the free,” following the 2008 financial crisis and the 2016 presidential election. Yet, given the complexity of the resilience conundrum and the permeation of the onto-politics of resilience into governance as an institutional principle of ordering a positive critique might yet encourage a return to the more emancipatory conditions of possibility immanent to the discourse of resilient transformation as an enactment of altruism.

Positive Critique over Open-ended Problematization

Problematizations are a good way to engage with the emergent, the contingent, and the complex. As a strategy for researchers, it empowers us to systematically identify and examine potential problems and identify where theoretical assumptions may have become outdated.⁶⁸ For some researchers, problematizations offer a means to develop a “history of the present,”^{69,70} tracing historical antecedents of particular problems relative to the configuration of key variables, such as

⁶⁷ Luca Mavelli, “Neoliberalism as Religion: Sacralization of the Market and Post-truth Politics,” *International Political Sociology* 14, no. 1 (2020): 57-76, <https://doi.org/10.1093/ips/olz021>.

⁶⁸ Manos Gkeredakis and Panos Constantinides, “Phenomenon-based Problematization: Coordinating in the Digital Era,” *Information and Organization* 29, no. 3 (2019), 100254, <https://doi.org/10.1016/j.infoandorg.2019.100254>.

⁶⁹ Stuart Elden, *Mapping the Present: Heidegger, Foucault and the Project of a Spatial History* (London: Bloomsbury, 2002).

⁷⁰ Garland, “What Is a “History of the Present”?”

moral, political, economic, military, geopolitical or juridical institutions and the practices of organizations.⁷¹ They also address how certain individuals, populations, and forms of conduct become seen as “problems to be solved” in these relative contexts. Using this approach, problematization helps explore and explain the interplay of technologies, authorities, subjectivities, and strategies in complex systems.⁷²

The ‘problem’ with a problematization of resilience is, first, the diversity of applications to which it can be put, or what I have called the diversity of ‘encounters’ one can have,⁷³ and second, the tendency toward criticism over critique when engaging with ontological challenges to pre-interregnum practices of critique. There is a tendency to imply diachronic boundaries embedded in a historicism that reifies absolutist or authoritarian readings of power and sovereignty tied to classical liberal concepts of contractual rights and obligations. If outdated and outpaced by social and technological challenges to social ordering that could not have been thought of in the enlightenment or during industrial revolutions, these concepts are likely to need revision. Overly bio-political approaches have struggled to transcend this legacy contributing many detailed etymologies, taxonomies and genealogical appraisals of resilience but failing to grasp the significance of the contextual encounter as a space to bring theory and empirical research together with policy and practice. The Anthropocene approach has opened the door to a positive reading but struggled to articulate a progressive path for governance.

Where encounters seek to harness the ‘polysemic’⁷⁴ nature of resilience, they initially encouraged the treatment of resilience along disciplinary grounds, fueling a host of narrower literature reviews.^{75,76,77} Traction appeared to be gained in areas of disaster and crisis management, sustainable development, disaster risk reduction, hazard mitigation, and security related to terrorism,⁷⁸ but

⁷¹ Nikolas Rose, *Governing the Soul: The Shaping of the Private Self* (New York: Routledge, 1990).

⁷² Rose, *Governing the Soul*, pp. xi-xii.

⁷³ Rogers, *Resilience & the City*.

⁷⁴ For an overview of resilience and polysemy see Reghezza-Zitt, et al., “What Resilience Is Not: Uses and Abuses”; and Rogers, “The Etymology and Genealogy of a Contested Concept.”

⁷⁵ Ran Bhamra, Samir Dani, and Kevin Burnard, “Resilience: The Concept, A Literature Review and Future Directions,” *International Journal of Production Research* 49, no. 18 (2011): 5375-5393, <https://doi.org/10.1080/00207543.2011.563826>.

⁷⁶ Patrick Martin-Breen and J. Marty Anderies, “Resilience: A Literature Review,” Institute of Development Studies, 2011, <https://opendocs.ids.ac.uk/opendocs/handle/20.500.12413/3692>.

⁷⁷ Adrian DuPlessis VanBreda, *Resilience Theory: A Literature Review* (Pretoria, South Africa: South African Military Health Service, 2011).

⁷⁸ Jon Coaffee and David Murakami Wood, “Security is Coming Home: Rethinking Scale and Constructing Resilience in the Global Urban Response to Terrorist Risk,” *Interna-*

have reappeared in areas as diverse as financialization,⁷⁹ housing,⁸⁰ and more recently in critical discussions of algorithmic governance.⁸¹ The academic response to the emergence of the resilience concept was overwhelmingly critical;⁸² yet, this has not slowed the adoption of resilience as powerful rhetoric in policy, as an influential core business function of organizations in public and private life and as a challenge to our understanding of contractual relationships between citizens, state and markets.

Approaching resilience as a form of ‘onto-politics’ opens this up to further detailed exploration. Chandler presents the onto-political as more than “the assertion of a new reality in opposition to an old account.” If one engages with the institution of resilience productively, it should be possible to logically render sensible the relative connections between the dividing and sorting practices involved in managing problematic populations and the logic of the underpinning incentive structures; both in terms of the masking and coercive tendencies of resilience done poorly and the emancipatory and democratizing potential as a form of collaborative, participatory politics. This aligns well with the study of resilience, as it has appeared in many of these domains throughout its ongoing evolution. In the game-theoretic terms of institutional economics, resilience as an effective institution should raise the benefits of cooperative solutions or increase the cost of non-conformance to the underlying logic. In these terms, the underlying onto-politics of resilience should be of great interest to us. This is where the genealogical problematization of the concept becomes important to consider in more depth, but the pessimistic lens placed upon current critique using emergence and complexity in the Anthropocene tend to *a priori* foreclose the possibility of a progressive politics existing.

Conclusion

While skeptical of the pessimism inherent in much of the critique, one cannot say that the concerns are unfounded. Problems are clearly present in the piecemeal and partial nature of resilient governance, with many articulations of resilience struggling to find purchase amongst the path dependency of risk-averse

tional Relations, 20, no. 4 (2006): 503-517, <https://doi.org/10.1177/0047117806069416>.

⁷⁹ Iain Hardie, *Financialization and Government Borrowing Capacity in Emerging Markets* (London and New York: Palgrave Macmillan, 2012).

⁸⁰ Graham Squires and Iain White, “Resilience and Housing Markets: Who Is It Really for?” *Land Use Policy* 81 (2019): 167-174, <https://doi.org/10.1016/j.landusepol.2018.10.018>.

⁸¹ David Chandler, “Algorithmic Governance: Actor Networks and Machinic Correlation,” Western Political Science Association (WPSA) annual convention “The Politics of Climate Change,” San Diego, California, 2019, accessed October 15, 2020, www.wpsanet.org/papers/docs/WPSA%20algorithmic%20governance.pdf.

⁸² Julian Reid, “The Disastrous and Politically Debased Subject of Resilience,” *Development Dialogue* 58, no. 1 (2012): 67-79.

governance organizations and subject to exploitation for wealth creation by private sector organizations. The implications of greater coordination between algorithmic and surveillance systems within governance through the immediate requirements of crises are a very real threat to the progressive politics I have suggested. COVID-19 tracking apps have been at the bleeding edge of a renegotiation of the institutional relations of force between citizen-state-market demonstrating the fragility of traditional socio-contractual assumptions during the emergent interregnum. Such examples must be a future focus for researchers of resilience less concerned with what resilience *is* and more concerned with what resilience *does*.⁸³ This brings our attention back to the operant *enactment* of resilience within existing and emergent incentive structures for the purpose of understanding the institutional logic of governance in practice.

The polysemous nature of resilience encourages us to appreciate the contextual embedding of the concept where it is encountered,⁸⁴ and there are many encounters with resilience to explore that expose what resilience does in different configurations. As Grove states, “resilience is slowly transforming thought and practice in ways that often fly under the radar of conventional forms of analysis and reflection both critical and applied.”⁸⁵ Balancing the current resilience concept with its institutionalization helps us fly low enough to see and determine the articulation of shifting contractual relationships and their complementary rules and practices. Drawing on historical antecedents of the concept and current critical articulations expose this need for a more balanced understanding of the potential public good, but with a sober awareness of the dangers posed by resilience done badly.

Disclaimer

The views expressed are solely those of the author and do not represent official views of the PFP Consortium of Defense Academies and Security Studies Institutes, participating organizations, or the Consortium’s editors.

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⁸³ Kevin Grove, *Resilience (Key Ideas in Geography)* (Abingdon, UK: Routledge, 2018), p. 4.

⁸⁴ Rogers, “The Etymology and Genealogy of a Contested Concept.”

⁸⁵ Grove, *Resilience*, p. 4.



Research Article

A Multi-dimensional Matrix for Better Defining and Conceptualizing Resilience

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Abstract: The emerging challenges for the resilience of nations and societies, as well as for communities and individuals, are numerous and diverse. Nevertheless, the multiplicity of definitions existing in the literature for resilience, as well as the discrepancies between them, make it difficult to evaluate, operationalize, or to compare resilience research findings across studies. The purpose of the current article is to provide a coherent and general definition for the term resilience and other sub-types of this general concept. This will be achieved through presenting a two-dimensional matrix, divided into four *content* categories (social, economic, political, and military) and three *level* categories (individual, community, and State). The recent COVID-19 pandemic may advocate Global as a fourth level, yet its full implication is too premature to be assessed. The proposed matrix generates twelve cells, which present twelve different sub-types of resilience. Subsequently, this matrix can be used for a comprehensive definition of resilience and its sub-types, as well as for possible assessments of resilience at its various faces.

Keywords: Resilience, definitions for resilience, taxonomy of resilience.

Introduction

Literature surveys on resilience clearly demonstrate the fact that definitions of resilience vary according to the approach, discipline, or subject matter upon

which these definitions are based.^{1,2,3,4,5} One can find different definitions of resilience even within a specified discipline.⁶ The multiplicity of definitions and the discrepancies between them make it difficult to evaluate, operationalize, or compare resilience research findings and hence to promote the accumulated knowledge on resilience based on them.⁷ The purpose of the present article is to provide a coherent and general definition of resilience since, as far as we know, there is no academic work that separates the multiplicity of approaches regarding resilience. Moreover, drawing from an inclusive definition for resilience we offer a series of specific definitions for twelve sub-types of resilience.

It is our contention that a strong basis for conceptualizing resilience, as well as for measuring and implementing the perceptions that exist at its core, can be achieved mainly through differentiation and specification – of separate levels and distinct domains. The conceptualization proposed here is based on a multi-dimensional resilience categorical matrix. The matrix comprises two dimensions—‘content’ and ‘level’—which in turn comprise respectively three and four categories. Moreover, it is based on a general and very common definition of resilience and implies a more specific definition to each of the twelve ‘cells’ generated by this four-by-three matrix.

Reconceptualizing Resilience

Out of the numerous definitions of the term ‘resilience’ in the literature, it is still possible to point out three prevailing characteristics that appear in most of them.

¹ Philippe Bourbeau, “Resilience and International Politics: Premises, Debates, Agenda,” *International Studies Review* 17, no. 3 (September 2015): 374-395, <https://doi.org/10.1111/misr.12226>.

² Carl Folke, et al., “Resilience and Sustainable Development: Building Adaptive Capacity in a World of Transformations,” *AMBIO: A Journal of the Human Environment* 31, no. 5 (August 2002): 437-440, <https://doi.org/10.1579/0044-7447-31.5.437>.

³ Steven M. Southwick, et al., “Resilience Definitions, Theory, and Challenges: Interdisciplinary Perspectives,” *European Journal of Psychotraumatology* 5, no. 1 (October 2014), 25338, <https://doi.org/10.3402/ejpt.v5.25338>.

⁴ “Definitions of Community Resilience: An Analysis,” *A CARRI Report*, <https://s31207.pcdn.co/wp-content/uploads/2019/08/Definitions-of-community-resilience.pdf>.

⁵ Gemma M. Balmer, Julie-Ann Pooley, and Lynne Cohen, “Psychological Resilience of Western Australian Police Officers: Relationship between Resilience, Coping Style, Psychological Functioning and Demographics,” *Police Practice and Research: An International Journal* 15, no. 4 (2014): 270-282, <https://doi.org/10.1080/15614263.2013.845938>.

⁶ “Definitions of Community Resilience.”

⁷ Dmitry M. Davydov, et al., “Resilience and Mental Health,” *Clinical Psychology Review* 30, no. 5 (July 2010): 479-495, <https://doi.org/10.1016/j.cpr.2010.03.003>.

- Resilience is perceived as an ability (or a capacity or capability – but not as a reaction, response, a trait, or a process) of a person, a group, a community, or a society.^{8,9,10,11,12}
- Resilience involves a dynamic change or transformation of behavior.^{13,14,15}
- Resilience is typified by a dynamic adaptive capacity of a system to adjust to an evolving situation.^{16,17}

A precondition for the existence of resilient behavior is the occurrence of a disruption. This is because the need for resilience appears only in a state where a system's equilibrium is interrupted. The disruption can be man-made, e.g., war, terror, violence, or can be caused by nature, e.g., earthquake, tsunami, floods, etc., as long as it causes a significant disturbance in people's routine life.¹⁸

⁸ Byron Egeland, Elizabeth Carlson, and L. Alan Sroufe, "Resilience as Process," *Development and Psychopathology* 5, no. 4 (Fall 1993): 517-528, <https://doi.org/10.1017/S0954579400006131>.

⁹ George A. Bonanno, "Loss, Trauma, and Human Resilience: Have We Underestimated the Human Capacity to Thrive After Extremely Aversive Events?" *American Psychologist* 59, no. 1 (2004): 20-28, quote on p. 20, <https://doi.org/10.1037/0003-066X.59.1.20>.

¹⁰ Betty J. Pfefferbaum, et al., "Building Resilience to Mass Trauma Events," in *Handbook of Injury and Violence Prevention Interventions*, ed. Lynda S. Doll, Sandra E. Bonzo, David A. Sleet, James A. Mercy, and E. N. Haas (Atlanta: Springer, 2007), 347-358.

¹¹ Dean Ajdukovic, Shaul Kimhi, and Mooli Lahad, *Resiliency: Enhancing Coping with Crisis and Terrorism*, NATO Science for Peace and Security series, Vol. 119 (Amsterdam: IOS Press, 2015).

¹² Melissa Parsons, et al., "Top-down Assessment of Disaster Resilience: A Conceptual Framework using Coping and Adaptive Capacities," *International Journal of Disaster Risk Reduction* 19 (October 2016): 1-11, <https://doi.org/10.1016/j.ijdrr.2016.07.005>.

¹³ Neil W. Adger, "Social and Ecological Resilience: Are They Related?" *Progress in Human Geography* 24, no. 3 (2000): 347-364, <https://doi.org/10.1191/030913200701540465>.

¹⁴ Fikret Berkes and Helen Ross, "Community Resilience: Toward an Integrated Approach," *Society & Natural Resources* 26, no. 1 (2013): 5-20, <https://doi.org/10.1080/08941920.2012.736605>.

¹⁵ Jean-Christophe Gaillard, "Vulnerability, Capacity and Resilience: Perspectives for Climate and Development Policy," *Journal of International Development* 22, no. 2 (March 2010): 218-232, <https://doi.org/10.1002/jid.1675>.

¹⁶ David Fletcher and Mustafa Sarkar, "Psychological Resilience: A Review and Critique of Definitions, Concepts, and Theory," *European Psychologist* 18, no.1 (2013): 12-23, <https://doi.org/10.1027/1016-9040/a000124>.

¹⁷ Carmit Padan and Meir Elran, *The "Gaza Envelope" Communities: A Case Study of Societal Resilience in Israel (2006-2016)*, Memorandum No. 188 (Tel Aviv: Tel Aviv University, Institute for National Security Studies, 2019).

¹⁸ Meir Elran, *Israel's National Resilience: The Influence of the Second Intifada on Israeli Society*, Memorandum no. 81 (Tel Aviv: Jaffee Center for Strategic Studies, Tel Aviv University, January 2006).

In order to generate a broad definition, from which we will derive the specific definitions for each sub-type of resilience included in our proposed matrix, we present the following definition:

Resilience is the capacity of a system (an individual/community/state) to behave, during a crisis or following a disruption, in an adaptive way, in order to return to a previous or even improved level of functioning.

A Multi-dimensional Matrix

The comprehensive definition mentioned above can serve as the core for several specific definitions, representing twelve distinct types of resilience which are created by the intersection of two relevant dimensions: *content* and *level*.

The content dimension in the forthcoming matrix is comprised of four domains: social, economic, political, and security/military. While, evidently, these are not the only domains in which resilient behavior can be studied (environment, climate, and culture are sampled examples of additional domains where resilience plays a major role), these four provide a better prospect for the examination across different levels, as will be demonstrated soon. The main *raison d'être* of the content dimension is the assertion that the resilience capacities required in these four domains are not necessarily identical. From an ontological perspective, each domain represents a distinct category.¹⁹

The level dimension involves three levels of reference: The individual, the community, and the state. The recent COVID-19 pandemic, affecting all countries severely across all continents, evidently advocates yet a fourth level – global. It is also possible to add various intermediate levels to this dimension as well, such as family, regional (or ethnic), or organizational level. However, in the current discussion, we will focus on these three fundamental levels.

The matrix generated from combining the *content* and the *level* dimensions produces twelve cells, each representing a sub-type of resilience (see Table 1).

Table 1. A Multi-dimensional Matrix for Representing Twelve Types of Resilience.

		Content Categories			
		Social	Political	Economic	Security
Level categories	Individual				
	Community				
	State				

¹⁹ Christian Fjäder, "The Nation-state, National Security and Resilience in the Age of Globalization," *Resilience: International Policies, Practices and Discourses* 2, no. 2 (2014): 114-129, <https://doi.org/10.1080/21693293.2014.914771>.

The Individual Level

I. Individual Resilience under Personal-Social Emergency

Here we focus on resilience at its mostly psychological meaning. Accordingly, the definition of individual (personal) resilience under social emergency is as follows:

The capacity of an individual to behave, during a personal social crisis or following disruption of a social nature, in an adaptive way, in order to return to a previous or even improved level of functioning.

This type of resilience can be demonstrated at extreme cases of loss (such as a death in the family²⁰), family crises (e.g., divorce or painful separation), imminent threats (an emerging fatal disease, an impending lawsuit), or prolonged uncertainty.²¹ Of special interest are studies attempting to unfold sources of resilience among individuals suffering post-traumatic stress disorders (PTSD) following severe disruptions.²²

The most cited factors regarding this type of resilience are social support^{23,24}, family stability^{25,26}; relevant information and communication²⁷; positive ap-

²⁰ An Hooghe and Robert A. Neimeyer, "Family Resilience in the Wake of Loss: A Meaning-Oriented Contribution," in *Handbook of Family Resilience*, ed. Dorothy S. Becvar (New York: Springer, 2013), 269-284.

²¹ William R. Saltzman, "The FOCUS Family Resilience Program: An Innovative Family Intervention for Trauma and Loss," *Family Process* 55, no. 4 (December 2016): 647-659, <https://doi.org/10.1111/famp.12250>.

²² Christine E. Agaibi and John P. Wilson, "Trauma, PTSD, and Resilience: A Review of the Literature," *Trauma, Violence, and Abuse* 6, no. 3 (July 2005): 195-216, <https://doi.org/10.1177/1524838005277438>.

²³ Zehava Solomon and Avital Laufer, "In the Shadow of Terror: Changes in World Assumptions in Israeli Youth," *Journal of Aggression, Maltreatment & Trauma* 9, no. 3-4 (2005): 353-364, https://doi.org/10.1300/J146v09n03_06.

²⁴ Scott E. Wilks and Christina A. Spivey, "Resilience in Undergraduate Social Work Students: Social Support and Adjustment to Academic Stress," *Social Work Education* 29, no. 3 (2010): 276-288, <https://doi.org/10.1080/02615470902912243>.

²⁵ Helena Syna Desivilya, Reuven Gal, and Ofra Ayalon, "Long-term Effects of Trauma in Adolescence: Comparison between Survivors of a Terrorist Attack and Control Counterparts," *Anxiety, Stress, & Coping* 9, no. 2 (1996): 135-150, <https://doi.org/10.1080/10615809608249397>.

²⁶ Brian H. Walker et al., "Resilience, Adaptability, and Transformability in the Goulburn-Broken Catchment, Australia," *Ecology and Society* 14, no. 1 (2009): 12, <http://www.ecologyandsociety.org/vol14/iss1/art12>.

²⁷ Patricia H. Longstaff and Sung-Un Yang, "Communication Management and Trust: Their Role in Building Resilience to 'Surprises' such as Natural Disasters, Pandemic Flu, and Terrorism," *Ecology and Society* 13, no. 1 (2008): 3-17, <https://www.ecologyandsociety.org/vol13/iss1/art3>.

proach to life²⁸; optimism^{29,30}; ability to regulate emotions.³¹ Cyrulnik found that individuals who have enjoyed good attachment relations in their childhood and who had a developed verbal ability are typified with a high level of resilience in their adulthood.³²

II. Individual Resilience under Political Emergency

Undoubtedly, political crises and prolonged political conflicts can have an adverse effect on individuals and challenge their personal resilience. Typical examples for this 'cell' from the last century include the black demonstrations and the civil-rights movement activities in the US during the 60s, the prolonged and deadly conflict in Northern Ireland, and the breakdown of countries like the Soviet Union, Yugoslavia, and Czechoslovakia. Accordingly, the definition of resilience for this particular 'cell' is as follows:

The capacity of an individual to behave, during a political crisis or following disruption of a political nature, in an adaptive way in order to return to a previous or even improved level of functioning.

The most cited factors regarding this type of resilience are identification with a higher entity (peoplehood, nation, ethos, religion); patriotism³³; a deep justification of the conflict or its consequences; the role of a leading figure in the ongoing conflict, who may serve as a model to many individuals.

III. Individual Resilience under Economic Emergency

The definition of resilience in this particular 'cell' is as follows:

The capacity of an individual to behave, during an economic crisis or following disruption of an economic nature, in an adaptive way, in order to return to a previous or even improved level of functioning.

²⁸ Ji Hee Lee, et al., "Resilience: A Meta-Analytic Approach," *Journal of Counseling & Development* 91, no. 3 (July 2013): 269-279, <https://doi.org/10.1002/j.1556-6676.2013.00095.x>.

²⁹ Lee, et al., "Resilience."

³⁰ Akshay Malik, "Efficacy, Hope, Optimism and Resilience at Workplace – Positive Organizational Behavior," *International Journal of Scientific and Research Publications* 3, no. 10 (October 2013): 1-4, www.ijsrp.org/research-paper-1013/ijsrp-p2274.pdf.

³¹ Allison S. Troy and Iris B. Mauss, "Resilience in the Face of Stress: Emotion Regulation as a Protective Factor," in *Resilience and Mental Health: Challenges Across the Lifespan*, ed. Steven M. Southwick, Brett T. Litz, Boston University, Dennis Charney, and Matthew J. Friedman (Cambridge University Press, 2011), 30-44, <https://doi.org/10.1017/CBO9780511994791.004>.

³² Boris Cyrulnik, *The Whispering of Ghosts: Trauma and Resilience* (New York: Other Press, 2005).

³³ Eyal Lewin, *National Resilience during War: Refining the Decision-Making Model* (Lanham, MD: Lexington Books, 2012).

An economic calamity may become even a greater threat to an individual, compared to a political one, to the extent of becoming a total disaster for many. This was the case, for example, in the American “Great Depression” during the 1930s, Germany’s economic collapse and hyperinflation following the defeat in World War I, or the 2011 East Africa drought.

The most cited factors regarding this type of resilience are level of continuous income; the scope of savings and occupational stability; education; and health services.³⁴

IV. Individual Resilience under Security (Military) Emergency

We denote here attributes of resilience that characterize individuals, mostly civilians, who find themselves in war situations, or under prolonged military threat, repeated terror acts, or protracted security hazard. Such was the situation for thousands of individuals in New York City after the 9/11 attacks, during the ‘Troubles’ period in Northern Ireland, as well as in many countries in Africa, Central America, and South-East Asia throughout the recent decades. The definition of resilience in this particular ‘cell’ is as follows:

the capacity of an individual to behave during a security crisis (e.g., war, fatal riots, terror attacks, counter-insurgency) or following disruption of this nature, in an adaptive way, in order to return to previous or even improved level of functioning.

The most cited factors regarding this type of resilience are previous experience in similar situations; the amount of relevant and well-run information flow regarding the threats; amplified engagement in threat-related activities.³⁵ For individual victims of mass terrorist attacks, the support of family and community members can be crucial.^{36,37} Similarly, support and guidance to the ‘Helpers’ (health and welfare agents) contribute to the resilience of both the helpers and the helped.³⁸

³⁴ Jerusalem Institute and the Ministry of Environmental Protection, “Sustainability Outlook 2030: A Vision of Sustainability to Israel – 2030,” 2012, accessed September 2, 2020, <https://jerusalemstitute.org.il/en/projects/sustainability-outlook-2030>.

³⁵ Reuven Gal and Richard S. Lazarus, “The Role of Activity in Anticipating and Confronting Stressful Situations,” *Journal of Human Stress* 1, no. 4 (1975): 4-20, <https://doi.org/10.1080/0097840X.1975.9939548>.

³⁶ Desivilya, Gal, and Ayalon, “Long-term Effects.”

³⁷ Helena Syna Desivilya, Reuven Gal, and Ofra Ayalon, “Extent of Victimization, Traumatic Stress Symptoms, and Adjustment of Terrorist Assault Survivors: A Long-term Follow-up,” *Journal of Traumatic Stress* 9, no. 4 (1996): 881-889, <https://doi.org/10.1002/jts.2490090416>.

³⁸ Reuven Gal, “Colleagues in Distress: ‘Helping the Helpers,’” *International Review of Psychiatry* 10, no. 3 (1998): 234-238, <https://doi.org/10.1080/09540269874826>.

The Community Level

V. Communal Resilience under Social Emergency

The focus here is on communal social resilience – whether a small settlement, a particular social association (e.g., a church congregation), a tribe, or a neighborhood. The definition of resilience in this particular ‘cell’ is as follows:

The capacity of a community to behave, during a social crisis or following disruption of a social nature, in an adaptive way, in order to return to a previous or even improved level of community functioning.

The most cited factors regarding this type of resilience are social capital^{39,40,41}; leadership⁴²; a sense of belonging (also defined as place attachment⁴³); organizational efficacy⁴⁴; trusted communication resources.⁴⁵

VI. Communal Resilience under Political Emergency

There are numerous cases where communities are required to show their resilience under unique political crises. Typically, such crises may develop because of a severe dispute between rival leaders within a community, extreme internal conflicts on issues such as religion, education, or other communal disruptions. Accordingly, the definition of community resilience at the political level is as follows:

The capacity of a community to behave, during a political crisis or following disruption of a political nature, in an adaptive way, in order to return to a previous or even improved level of community functioning.

Quite like the previous ‘cell,’ the most cited factors regarding this type of resilience are: trust in the local leaders, solidarity, the strength of local-patriotism,

³⁹ Daniel P. Aldrich, *Building Resilience: Social Capital in Post-Disaster Recovery* (Chicago: University of Chicago Press, 2012).

⁴⁰ Daniel P. Aldrich and Michelle A. Meyer, “Social Capital and Community Resilience,” *American Behavioral Scientist* 59, no. 2 (2015): 254-269, <https://doi.org/10.1177/0002764214550299>.

⁴¹ Brian Walker and David Salt, *Resilience Thinking: Sustaining Ecosystems and People in a Changing World* (Washington: Island Press, 2012).

⁴² Odeya Cohen, et al., “The Conjoint Community Resiliency Assessment Measure as a Baseline for Profiling and Predicting Community Resilience for Emergencies,” *Technological Forecasting and Social Change* 80, no. 9 (November 2013): 1732-1741, <https://doi.org/10.1016/j.techfore.2012.12.009>.

⁴³ Aldrich, *Building Resilience*.

⁴⁴ Padan and Elran, *The “Gaza Envelope” Communities*.

⁴⁵ Fran H. Norris, et al., “Community Resilience as a Metaphor, Theory, Set of Capacities, and Strategy for Disaster Readiness,” *American Journal of Community Psychology* 41, no. 1-2 (2008): 127-150, <https://doi.org/10.1007/s10464-007-9156-6>.

the organizing ethos within the community, the will to fight, and the faith in the righteousness of the community's way.⁴⁶

VII. Communal Resilience under Economic Emergency

Communities, as independent entities, may undergo severe economic crises. A typical example is that of certain communities that have made their living predominantly on one specific source (a mine, a major industry, a corporation). When that source ceased its productivity, such communities collapsed into an economic catastrophe. Yet, some communities, under similar circumstances, managed to recuperate. The definition of resilience in this particular 'cell' is as follows:

The capacity of a community to behave, during an economic crisis or following disruption of an economic nature, in an adaptive way, in order to return to a previous or even improved level of community functioning.

The most cited factors regarding this type of resilience are labor and employment; human capital (education, food, health); housing, household, and social capital; Informal reciprocal relationships between individuals and families, as well as broader social networks, such as community organizations.⁴⁷

VIII. Communal Resilience under Security (Military) Emergency

This category does not necessarily pertain to a whole-war situation (in which case the community is just a component in a whole-State effort). Rather, we focus here on situations where a community, or several, are under a security danger or a military threat. The danger could be a terrorist attack or a lethal military attack explicitly aimed against this community. The definition of resilience in this particular 'cell' is as follows:

the capacity of a community to behave, during a security crisis or following a security-related disruption, in an adaptive way, in order to return to a previous or even improved level of community functioning.

In recent years, the concepts of "urban resilience" and "resilience design" have been developed in different cities worldwide, such as London and New York. These concepts refer to using the idea of resilience not merely to aid recovery from attacks but for incorporating counter-terrorism design principles to deter, detect, and delay potential attacks.⁴⁸

⁴⁶ Lewin, *National Resilience during War*.

⁴⁷ Patrick Martin-Breen and J. Marty Anderies, "Resilience: A Literature Review," (Brighton: Institute of Development Studies, the Resource Alliance and the Rockefeller Foundation, 2011), accessed September 2, 2020, <https://opendocs.ids.ac.uk/open docs/handle/20.500.12413/3692>.

⁴⁸ Antônio Sampaio, "Resilience Gains Ground in Counter-Terrorism Strategies," *Jane's Intelligence Review* 29, no. 12 (2017): 18-21.

The most cited factors regarding this type of resilience are adequate emergency preparedness and accumulated experience,^{49,50} social capital, community efficacy, trust in local leadership and services (education, health, emergency), the ratio of ex-military service members in the community, and the level of trust in higher security authorities. The criticality of communal resilience as well as the diversity of its components generated countless attempts to assess and predict resilience indicators at the community level.⁵¹

The State Level

National resilience – preliminary remarks: While resilience at the individual and community levels is typically operational and frequently tangible, it becomes much more abstract and elusive at the State level. Furthermore, although dealing with resilience at the national level may postulate the inclusion of resilience resources from all the individuals and communities in the State, the “total sum” of the national resilience is not a simple, additive accumulation of all these resources.

IX. State Resilience under Social Emergency

There are numerous examples of nation-wide crises that required the resilience of the entire state and its society: A case of top leader assassination, internal uprising, revolution or civil war; prolonged terror attacks; natural disasters, such as a severe tsunami, earthquake, environmental disaster, or a major pandemic. Accordingly, the definition of State resilience under social crisis is as follows:

the capacity of a State to behave, during a nation-wide social crisis or following disruption of a social nature, in an adaptive way, in order to return to previous or even improved level of social functioning.

The most cited factors regarding this type of resilience are national leadership, solidarity, patriotism, national ethos, willingness to fight and faith in the righteousness of the way, optimism.⁵²

⁴⁹ Mooli Lahad and Uri Ben-Nesher, “Community Coping: Resilience Models for Preparation, Intervention and Rehabilitation in Manmade and Natural Disasters,” in *Phoenix of Natural Disasters: Community Resilience*, ed. Kathryn Gow and Douglas Paton (New York: Nova Science Publishers, 2008), 195-208.

⁵⁰ Padan and Elran, *The “Gaza Envelope” Communities*.

⁵¹ Susan L. Cutter, Christopher G. Burton, and Christopher T. Emrich, “Disaster Resilience Indicators for Benchmarking Baseline Conditions,” *Journal of Homeland Security and Emergency Management* 7, no. 1 (2010), <https://doi.org/10.2202/1547-7355.1732>.

⁵² Lewin, *National Resilience during War*; Gabi Ben-Dor, Daphna Canetti, and Eyal Lewin, *The Social Component in National Resilience – The Israeli Home Front Leading up to the Fighting in Gaza, National Survey* (Haifa: Haifa University, 2010); Elran, *Israel’s National Resilience*; Reuven Gal, “Social Resilience in Times of Protracted Crises: An Israeli Case Study,” *Armed Forces & Society* 40, no. 3 (2014): 452-475, <https://doi.org/10.1177/0095327X13477088>; Shaul Kimhi, et al., “Individual, Community, and National Resilience in Peace Time and in the Face of Terror: A Longitudinal Study,”

X. State Resilience under Political Emergency

This is the type of resilience exhibited by a whole society when a nation undergoes a political crisis. Typically, such crises happen at the eve—or the aftermath—of a political revolution or coup d'état. However, even dramatic political transformations without bloodshed may require societal resilience to adapt and return to normal functioning. Similarly, cases of major societal debates, lack of consensus, or extreme cases of political corruption can evoke an acute need for national-societal resilience. Accordingly, the definition of State resilience regarding a political crisis is as follows:

the capacity of a State to behave, during a nation-wide political crisis or following disruption of a political nature, in an adaptive way, in order to return to a previous or even improved level of functioning.

The most cited factors regarding this type of resilience are trust in political and public institutions^{53,54}; patriotism, social integration, and optimism⁵⁵; state's status and reputation internationally⁵⁶; perceived trustworthiness of the information transmitted to the citizens⁵⁷; political corruption⁵⁸; corporate social responsibility.⁵⁹

XI. State Resilience under Economic Emergency

Relevant examples here are the “Great Depression” in the US during the 30s of the last century or the hyperinflation in Weimar Germany in the 1920s. Accordingly, the definition of State resilience under an economical crisis is as follows:

The capacity of a State to behave, during a nation-wide economic crisis or following disruption of an economic nature, in an adaptive way, in order to return to a previous or even improved level of functioning.

Journal of Loss and Trauma 22, no. 8 (2017): 698-713, <https://doi.org/10.1080/15325024.2017.1391943>.

⁵³ Kimhi, et al., “Individual, Community, and National Resilience.”

⁵⁴ Shaul Kimhi and Yarden Oliel, “National Resilience, Country Corruption and Quality of Life: An International Study,” *The International Journal of Social Sciences and Humanities Invention* 6, no. 5 (2019): 5430-5436, <https://doi.org/10.18535/ijsshi/v6i5.05>.

⁵⁵ Kimhi and Oliel, “National Resilience, Country Corruption.”

⁵⁶ Fjäder, “The Nation-state, National Security and Resilience.”

⁵⁷ Starr Roxanne Hiltz and Jose J. Gonzalez, “Assessing and Improving the Trustworthiness of Social Media for Emergency Management: A Literature Review,” in *Norwegian Information Security Conference NISK 2012*, University of Nordland, Bodø, 19-21 November 2012.

⁵⁸ Kimhi and Oliel, “National Resilience, Country Corruption.”

⁵⁹ Peter Rodriguez, et al., “Three Lenses on the Multinational Enterprise: Politics, Corruption, and Corporate Social Responsibility,” *Journal of International Business Studies* 37 (2006): 733-746, <https://doi.org/10.1057/palgrave.jibs.8400229>.

The most cited factors regarding this type of resilience are a nation's GDP, national monetary reserves, annual inflation rates, employment rates, international rank (e.g., Gini Index); national financial-market policies.⁶⁰

XII. State Resilience under Security (Military) Emergency

This category refers to a situation where a State's resilience is ultimately challenged by a total war or extreme upsurge of terrorism. Our definition for State resilience under war-related emergencies is:

the capacity of a State to behave during a nation-wide security crisis or following a security-related disruption, in an adaptive way, in order to return to a previous or even improved level of functioning.

The most cited factors regarding this type of resilience are charismatic leadership; national ethos, collective fear, and fighting enthusiasm⁶¹; trust in security-related institutions (e.g., military, police); patriotism; optimism; and social integrity.⁶² When focusing on military indices of resilience, the list is comprised of the military strength (material, moral and doctrinal) and military leadership,⁶³ perceived level of deterrence, national security strategy, and perception.⁶⁴

Table 2 summarizes the most cited components for building resilience in each of the twelve 'cells' generated by our multi-dimensional matrix.

Summary

This article refers to resilience as it was developed in the social sciences. It provides a conceptual framework for defining resilience, both generally and particularly, in relation to a specific domain. Our contention is that this framework can provide a set for possible measurements and assessments of resilience at different levels and domains. Furthermore, we hope that this conceptual framework will serve as an analytical mechanism for further examination of the many aspects of resilience and for comparative studies on this subject. In fact, we contend that using the conceptual matrix offered in this article will enable states to better learn and map their strengths and weaknesses, hence assisting them to

⁶⁰ *OECD Economic Outlook, Interim Report March 2020*, OECD iLibrary, Volume 2019, Supplement 2, accessed September 2, 2020, www.oecd-ilibrary.org/economics/oecd-economic-outlook/volume-2019/issue-2_7969896b-en.

⁶¹ Lewin, *National Resilience during War*.

⁶² Shaul Kimhi, et al., "Individual, Community, and National Resilience."

⁶³ Carmit Padan and Uzi Ben-Shalom, "The Place of Military Leadership in Israel in Light of the IDF Strategy," in *IDF Strategy in the Perception of National Security*, ed. Meir Elran, Gabi Siboni, and Kobi Michael (Tel Aviv: Tel Aviv University, Institute for National Security Studies, 2016), 165-171 [in Hebrew].

⁶⁴ Tim Prior, "Resilience: The 'Fifth Wave' in the Evolution of Deterrence," in *Strategic Trends 2018: Key Developments in Global Affairs*, ed. O. Thränert and M. Zapf (Zurich: Center for Security Studies, ETH Zurich, 2018), 63-80.

guide their system's attitudes and behaviors (including individuals, communities, etc.).

Table 2. A Multi-Dimensional Matrix.

		Content Categories			
		Social	Political	Economic	Security
Level Categories	Individual	Social support and family stability; Relevant information and communication; Positive approach to life; Optimism; Ability to regulate emotions; Genetic, epigenetic, developmental, psychosocial, and neurochemical factors; Good attachment and verbal ability in childhood	Identification with higher hierarchy; Patriotism; Justification of the conflict or its consequences; Role of leading figure	Level of continuous income; Scope of savings; Occupational stability; Education and health services.	Previous experience in similar situations; Relevant information; Optional participation in threat-related activities; Support of family and community members
	Community	Social capital; Leadership; Sense of belonging; Organizational efficacy; Adaptive ability; Trusted communication resources	Trust in local leadership; Ideology; Hope; Solidarity; Local patriotism; Community ethos; Faith in the righteousness of the community's way	Labor and employment; Human capital (education, food, health); Housing and land; Social Capital; Informal reciprocal relationships; Community organizations	Emergency preparedness; Accumulated experience; Level of trust in high-security authorities; Proportion of military personnel in the community; Trust in local leadership; Existence of essential services

State	Leadership; Solidarity; Patriotism; National ethos; Willingness to fight; Faith in the righteousness of the Nation's way; Optimism	Trust in political and public institutions; Political stability; Patriotism, social integration, and optimism; Reliable information; International status; Lack of corruption; Corporate social responsibility.	GDP; National monetary reserves; Annual inflation rates; Employment rates; International rank (e.g., Gini Index); National financial-market policies	Charismatic leadership; National Ethos; Collective Fear and fighting enthusiasm; Trust in security-related institutions; Patriotism, optimism and social integrity; Military strength; Level of state deterrence; National Security perception

from afar through using different strategies of governance. This process would, in the final analysis, help states to improve their various systems' abilities to build back better.

Disclaimer

The views expressed are solely those of the authors and do not represent official views of the P&P Consortium of Defense Academies and Security Studies Institutes, participating organizations, or the Consortium's editors.

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2020 Transatlantic Security Jam: Resilience Going Forward

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Abstract: The 2020 Transatlantic Security Jam brought together military professionals and experts from a wide range of related disciplines. Their goal was to discuss and to analyze how NATO and its partners, including the European Union, can develop and enhance capabilities to address new and emerging security challenges. The online Security Jam took place soon after the start of one of the greatest asymmetric challenges we have seen – the COVID-19 pandemic. The pandemic has challenged every assumption on what is meant by security and resilience that we have had since the end of the Second World War. With this in mind, the participants proposed how we can both adapt to and proactively foresee emerging security challenges now and in the future. This article summarizes the discussions which took place and the proposals put forward. These proposals include a much more holistic approach to addressing security challenges that transcend the traditional ‘siloed’ or ‘compartmentalized’ approach we have grown so accustomed to.

Keywords: NATO, EU, asymmetric, emerging security challenges, security jam.

The May 2020 Security Jam focused on non-traditional challenges. Interestingly, the innovative solutions are also non-traditional. One of the clearest messages to arise from the Jam was the need to develop systems, processes, and institutions to predict and prepare for future challenges. In other words, to move beyond seeing problems in silos and hierarchical sectors and seeing a broader, holistic picture. (Indeed, this is something addressed directly 17 years ago in Chapter 13 of the 9/11 Commission Report). This is especially true, as it was strongly

argued through the discussions when these challenges are unpredictable or unknown; the famous “Unknown Unknowns.” Throughout the debates in the six topic areas, there was an emphasis on sharing information, planning, and assisting one another—in both NATO and the European Union (EU)—to help prevent security challenges from occurring and minimize their impact when they do occur. The notion of unusual or asymmetric/ hybrid challenges was particularly emphasized, and it was felt that these types of challenges would be the greatest test to both NATO and the EU over the coming years. One of the key questions we can draw from the discussions is how this helps us in NATO—and the EU—anticipate new challenges? In particular, how does this help in developing resilience?

A theme running through all of the discussions was the ability to share information in order to be able to ‘see’ new security challenges that are on—or even over—the horizon. These challenges will be asymmetric in nature – pandemics such as COVID-19 but also new pandemics that we do not yet know of; environmental challenges including climate change and poor air quality leading to public health issues; terrorism in changing forms; nefarious actors and states acting outside norms in cyberspace, misinformation and fake news, research and development and intellectual property theft, and human rights across the world. All of these are asymmetric or ‘unusual’ challenges that we perhaps do not yet have the ability to address with ‘traditional’ political and military structures designed for the Cold War. To increase resilience, what are the possible ‘non-traditional’ solutions for non-traditional challenges?

Role of Technology

In 2018 US House Representative Will Hurd highlighted the fact that people working in the financial sector will often have a better understanding of state-sponsored cybercrime than the government intelligence services themselves.¹ Rep Hurd argued that there needs to be not only better information sharing between private and public sectors to counter new threats, but the whole belief that it is government that understands threats and challenges better than business is perhaps an outdated assumption. As was made very apparent in the Jam – when we are dealing with new, asymmetric challenges that blur the lines between military and non-military threats, these old beliefs that “government knows more” may no longer be valid. There was strong backing for much closer collaboration between companies specializing in technology on the one hand and government on the other. Connected to this, another traditional assumption was challenged: The idea that a government—or an organization such as NATO or the EU—has a full, comprehensive understanding of a security problem before they issue a tender to industry. It was strongly suggested in the Jam that governments and international organizations may not fully understand the security

¹ 2018 Aspen Cyber Summit. Available at <https://www.aspeninstitute.org/events/2018-aspen-cyber-summit/>.

problem they wish industry to solve. Therefore, there should be far closer collaboration with the technology companies to enable them to help define the problem in the first place and indeed provide possible solutions. In short, assumptions about who understands a problem or a security challenge that has stood for decades need to be reassessed to create the most resilient environment.

Artificial Intelligence (AI) was seen as central to the collaboration with the tech companies. However, it was made clear in the Jam that AI is only as good as the initial information that is entered into the program. There is no substitute for accurate and clear “on-the-ground” data to feed into these AI models. Several examples were given where AI has been highly ineffective and even dangerous when the wrong information had been entered into the AI. While AI is crucial, it is only as good as the information proved by people – there is no substitute for on-the-ground intelligence to develop resilience.

While there was a strong call for much more integrated EU-NATO collaboration in the defense sector, there was also a recognition of the importance of the non-defense tech companies, such as Facebook, Google, Apple, and Amazon. In particular, the fact that the traditional security companies may no longer have a monopoly of the knowledge required for security – especially in the areas of emerging security challenges that sit outside “traditional” military boundaries. Because of this, NATO and especially the EU (which has strong regulatory powers), may need to change their relationship with these companies from “poacher/gamekeeper” to a much more collaborative relationship, it was argued. This may well enable huge development in addressing security challenges. It would also help address new and emerging challenges by using AI and, eventually, quantum computing. This is especially important if European economies are to successfully challenge the Chinese tech companies such as Tencent, Alibaba, and Huawei.

EU and NATO – Creating New Structures to Work Together

While the European countries (including the UK) spend more than Russia and China combined on defense, Europe at present has major challenges acting as a single defense actor. This is because of multiple duplications of defense programs across Europe and a lack of a single strategic and procurement strategy, thereby reducing resilience and the ability to plan and to predict future security challenges. Because of this, the Jam proposed the idea of a “Military Schengen Zone” that facilitates the movement of personnel and goods across Europe, reducing procedural obstacles, building on the success of the European Defence Agency and the gradual EU military integration occurring under Permanent Structured Cooperation (EU PESCO).

It was argued that significantly more integrated NATO-EU cooperation is needed to address emerging security challenges. Indeed, it was suggested by one participant that the initial “slow reaction to COVID-19” (before the response improved significantly) “highlights several deficiencies of both the EU and NATO.”

All the discussants agreed that international cooperation and international society post-COVID-19 should be based around several core principals, including:

- Pooling resources and expertise;
- Restructuring of power and leadership;
- Developing a flexible framework for EU and NATO decision-makers to make decisions to streamline and fast-track decision making;
- Improved coordination and sharing of information between NATO and the EU – including developing early warning mechanisms and avoiding EU / NATO duplication;
- Empowering citizens and the whole population to have much better situational awareness of emerging security challenges;
- Developing a “whole of society” approach;
- Better horizon scanning and enhancing resilience capabilities;
- Creating a better understanding of resilience, including aspects such as health and public trust;
- Investing in defense but realizing that security challenges are both military and “non-military”;
- Working together to provide an alternative narrative to disinformation and misinformation.

Both NATO and the EU have their own emergency resilience coordination centers – EADRCC² (Euro-Atlantic Disaster Response Coordination Centre) and ERCC³ (Emergency Response Coordination Centre). It was felt that while both organizations have done outstanding work, especially during COVID-19, there is much more potential for these organizations. The discussants argued that member states of NATO and the EU could be utilizing these two bodies far more effectively than they presently do. Ideas were put forward regarding how the request to these organizations for action could be greatly streamlined. An idea put forward was that first responders and regional officials may be able to request EADRCC or ERCC action, rather than having to request assistance via central government channels, which can take several days when a rapid emergency response is desperately required. In summary, it was strongly argued that NATO’s EADRCC and the EU’s ERCC do exceptional work, but the broad understanding of these organizations and especially the local ability to directly request assistance in an emergency needs to develop and streamline very soon.

² NATO EADRCC, https://www.nato.int/cps/en/natohq/topics_117757.htm.

³ EU ERCC, https://ec.europa.eu/echo/what/civil-protection/emergency-response-coordination-centre-ercc_en.

New European, Transatlantic, and Global Institutions to Address New Challenges

The role of institutions—both existing and potential—was highlighted considerably in the Jam. Of course, NATO and the EU were the focus of this analysis as two of the primary institutions in global affairs. Also of particular note was the Hybrid Centre of Excellence in Helsinki. Interestingly, Hybrid COE⁴ not only addresses hybrid resilience challenges but is itself a hybrid institution. Any EU or NATO state can become a member but, it is not actually a NATO or EU institution – it operates in a “third sphere,” outside the direct control of NATO or the EU, enabling forward-looking and dynamic decision-making. The Jam considered hybrid COE to be crucial for the resilience of the EU and NATO.

The Jam also proposed new institutions to help address evolving security challenges faced by the EU and NATO, and to increase resilience. Perhaps the most ambitious proposal was a “Marshall Plan 2.0.” This would focus on investment in new sectors and new infrastructure. A key part of this would be investing strongly in research and development, with particular support to small and medium-sized companies. Also proposed was a World Pandemic Security Organization to ensure effective coordination, communication, harmonization, planning, and inclusive cooperation among countries and regional alliances.

Other proposals to increase resilience included:

- A “NATO-Pacific Forum,” to include the NATO Alliance plus Australia, Japan, New Zealand, and South Korea, and Columbia to address the challenges from China;
- NATO-EU Cooperation Center of Excellence, based on the current NATO COEs, but focusing on how NATO and EU cooperation can be developed and enhanced;
- Combating Fake News and Misinformation: a Strategic Communications Task Force dedicated to countering attacks on EU public opinion;
- NATO Hub for the South at Joint Force Command, Naples, working closely with EU EUROPOL (law enforcement) and FRONTEX (EU border control), and other multinational centers to build a counter-hybrid network.

New Solutions for Resilience May Transcend the Historic “Nation State” Approach

The Jam may have also produced some unexpected results.

During COVID-19, many have proposed the re-emergence of the nation state as the ultimate arbiter of international policy. There is a perception that in the Nationalism vs. Globalism debate, it is Nationalism that has come out on top recently. However, the Jam placed huge emphasis and indeed trust in organiza-

⁴ Hybrid COE, <https://www.hybridcoe.fi>.

tions that are not nation-state-based, such as the European Centre of Excellence for Countering Hybrid Threats (Hybrid COE). There was also a determination to create new institutional structures to address new and emerging security challenges. In other words, while the Jam proposed that it is the inadequacies of the State structure which may have prevented a more resilient and effective approach.

Unresolved Resilience Issues

Perhaps the clearest ‘unresolved’ issue is: How exactly will the proposed ideas be executed? What is their practicality? The challenge might be summed up as, “Is what looks good on paper so good in practice?”

What is the timetable for these proposals to happen? How will they be budgeted and financed? Will individual countries need to borrow money—or will institutions such as the EU—or even NATO be given the authority to borrow and finance initiatives? How will the newly proposed institutions be comprised? Will they act on unanimity (like NATO)? Will they act on a combination of unanimity and majority voting (like the EU)? What will be their legal structures – will they be semi-autonomous from the countries, like the EU? Or will they be a straight-forward reflection of their countries’ positions, like NATO? Indeed, one of the most interesting unresolved questions is: should these new institutions be composed of nation-states at all, and if they are not composed of nation-states, what should they be consist of? The EU is an example of an organization that consists of Member States (the Council), direct democracy of EU citizens (the European Parliament), an executive (the Commission), and a judiciary (the European Court of Justice). Should the new institutions proposed be reflective of this system? Or should they be like NATO, which consists only of Member States? Should they have a powerful executive (like the EU Commission)? What of the democratic accountability of these proposed institutions? In sum, the Jam superbly addressed:

- What resilience problems are and why they matter?
- What the possible resilience solutions are?

But the questions that remain are:

- How will these resilience solutions happen?
- When will they happen?
- Where will they happen?

Comprehensive Research Required into Feasibility of Proposed Resilience Ideas

These unanswered questions lead us to what further research is required. More research is needed to:

- analyze the proposals made. This is important if NATO and the EU are to justify the resources and, indeed, the time to pursue these ideas. It is crucial that this research is objective and impartial in order to reach the best possible analysis;
- understand how the proposals can be taken forward.

Topics that should be analyzed include:

- Human development gains, including broader societal gains arising from our ability to anticipate security challenges early and deal with these challenges in an effective way;
- Financial costs and financial gains;
- Risks—especially the “unintended consequences”—of taking forward proposals made during the Jam;
- Public “buy-in” to the ideas. In recent years, governments have been accused—rightly or wrongly—of taking forward ideas without consulting their populations and understanding their concerns. Research is required to ascertain whether these ideas proposed in the Jam address public concerns. What consultation can there be with societal groups to further develop these ideas? Indeed, it was specifically proposed in the Jam that empowering citizens and the whole population to have much better situational awareness of security is a key to developing our security. More research is needed into exactly how we do this. Modern AI and computer simulations can indeed enormously help in this task, but they are not a substitute for close and integrated public and stakeholder consultation – including consultation with the military;
- What is the role of current institutions such as Hybrid COE (NATO / EU), EADRCC (NATO), and ERCC (EU)? Before investing time and resources into developing new proposed institutions to improve resilience, there is an argument that we might investigate the further expansion—and possible further autonomy—of structures that already exist. One of the proposals put forward in the Jam was the application of Nordic-style⁵ civil preparedness/resilience and could be a model for the EU and NATO. How could such a “Nordic approach” be reflected across Europe and North America? Would such an approach invalidate the need to form new institutions? In other words – can we work with what “we already have”? Or do we need to create new institutions?

⁵ See, for example, Christer Pursiainen, “Critical infrastructure resilience: A Nordic model in the making?” *International Journal of Disaster Risk Reduction* 27 (March 2018): 632-641. Also see: Alberto Giacometti and Jukka Teräs, *Regional Economic and Social Resilience: An Exploratory In-Depth Study in the Nordic Countries* (Stockholm: Nordregio, 2019), <https://doi.org/10.30689/R2019:2.1403-2503>.

The Jam identified new security problems – not only arising from COVID-19 but the potential for such “unknown unknowns” to occur again and again in future years. It proposed clear solutions to improve resilience, although more research is required to ascertain how these solutions can be put into practice. The role of the military in this new environment—where clear boundaries no longer exist—is incredibly unclear. New threats and challenges transcend the boundaries between military and non-military challenges, and yet we are, on the whole, operating in old structures within a new environment where these old assumptions are breaking down rapidly.

The role of objective strategic analysis and advising has perhaps never been more important; organizations such as the Partnership for Peace Consortium (PfPC) have worked closely with military academies and national governments across all NATO and Partner nations and almost all EU countries for over two decades. The PfPC has identified key aspects for change, and it is this type of analysis that is so crucial if we are to address these new asymmetric threats and challenges and become resilient. COVID-19 was not the first emerging security challenge we have faced, and it certainly will not be the last. In-depth strategic analysis—based on the invaluable findings of Security Jam 2020—is crucial for the resilience challenges we now face.

Disclaimer

The views expressed are solely those of the author and do not represent official views of the PfP Consortium of Defense Academies and Security Studies Institutes, participating organizations, or the Consortium’s editors.

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Research Article

Strengthening the Resilience of Political Institutions and Processes: A Framework of Analysis

Ioan Mircea Pascu and Nicolae-Sergiu Vintila

Abstract: Conventional as well as atypical threats and vulnerabilities tend to undermine the core principles and functioning mechanisms of democratic societies. This article examines internal weaknesses and foreign intervention operations seeking the manipulation of the electorate and thus diminishing legitimate political participation and questioning the very essence of democracy. The analytical focus is on manipulation and disinformation mainly through mass media and social network platforms. This is increasing the risk of undermining public confidence and trust in democratic institutions and processes. The main argument is that democratic institutions and processes can and must be made more resilient. The article provides a framework of analysis for the resilience of political institutions and processes and investigates current initiatives, including of EU and NATO, to strengthen resilience.

Keywords: resilience, democratic resilience, disinformation, computational propaganda, post-truth, sharp power, democracy, foreign influence operations.

Democracy itself is under assault from foreign governments and internal threats, such that democratic institutions may not flourish unless social data science puts our existing knowledge and theories about politics, public opinion, and political communication to work. These threats are current and urgent, and, if not understood and addressed in an agile manner, will further undermine European democracies.¹

¹ Samuel C. Woolley and Philip N. Howard, eds., *Computational Propaganda: Political Parties, Politicians, and Political Manipulation on Social Media*, Oxford Studies in Digital Politics (Oxford: Oxford University Press, 2018), p. 245. <https://doi.org/10.1093/oso/9780190931407.001.0001>.

The “end of history” as announced by Francis Fukuyama² three decades ago has certainly ended. This is a sobering time for the dream of the inevitable advance of liberal democracy. Analysts, liberals, and rivals alike agree that democracy is “in recession,”³ “in retreat,”⁴ that the international liberal, rules-based order, is at least fracturing if not dissipating altogether.

Our working hypothesis and the core argument of this article is that democratic institutions and processes can and must be made more resilient both to extreme political events and crises *and* to “normal emergencies.” The article analyses *political resilience*, meaning saving democracy, and keeping it clean. We will focus on a limited number of challenges, in particular on the *manipulation of the electorate*—making someone vote against his or her initial intention—thus *diminishing legitimate political participation and undermining public confidence and trust in democratic institutions and processes*. The analytical focus will be on manipulation and misinformation conducted mainly through mass media and social network platforms.

Bolstering the resilience of democratic institutions and processes is a topic that has increased importance due to the fact that challenges are coming not only from the *growing fragility of liberal democracy* and from domestic political actors but often result from *foreign political influence operations* and even state-sponsored operations against NATO and EU member states (increasingly including cyber espionage, direct interference in electoral processes, critical infrastructure vulnerability scanning, disruptive attacks, as well as propaganda and disinformation campaigns⁵). These operations represent a *serious security threat to our societies*.⁶

Trust in political institutions and processes, in particular electoral participation, is a key indicator of the viability and legitimacy of democracy. It should be seen in correlation with other critical challenges and threats to established as well as newer democracies as the abuse of executive power, corruption and

² Francis Fukuyama, “The End of History?” *The National Interest*, no. 16 (Summer 1989): 3-18.

³ Larry Diamond, “The Democratic Rollback. The Resurgence of the Predatory State,” *Foreign Affairs* 87, no. 2 (March/April 2008): 36-48.

⁴ Freedom House, *Democracy in Retreat: Freedom in the World 2019* (Washington, DC: Freedom House, 2019), https://freedomhouse.org/sites/default/files/Feb2019_FH_FITW_2019_Report_ForWeb-compressed.pdf.

⁵ Patryk Pawlak, “Horizontal Issues,” in *After the EU Global Strategy – Building Resilience*, ed. Florence Gaub and Nicu Popescu (Paris: European Union, Institute for Security Studies, 2017), 17, https://www.iss.europa.eu/sites/default/files/EUISSFiles/After_EU_Global_Strategy_Resilience.pdf.

⁶ Julian King, “Democracy Is under Threat from the Malicious Use of Technology. The EU Is Fighting Back,” *The Guardian*, July 28, 2018, www.theguardian.com/commentisfree/2018/jul/28/democracy-threatened-malicious-technology-eu-fighting-back.

state capture by political elites, the rise of authoritarianism and populism,⁷ that are and can be aggravated by direct interference from non-democratic foreign powers. This interference stems from the competition between democratic and authoritarian major international actors, a result of the shift towards a multipolar distribution of power in the global system.

Undermining trust and manipulation of public opinion were predominantly used in domestic politics by internal actors and just subsequently employed in the international relations power play.

Today, two major interrelated trends make imperative the assessment of how democratic institutions are undermined. Equally necessary and urgent is the implementation of measures to counter the threats and increase the resilience of democratic institutions and processes.

The first trend stands at the intertwining between technology, social, and political malicious actions. It is generally acknowledged that social media and the new electronic means of dissemination and the automation of messages enable communication at the speed of light. Although the internet has immense democratic potential, information and the technology for dissemination might be and often are *weaponized* for attaining political goals, mostly targeting the subversion of consolidated democracies. Such a political strategy that uses computational means is closely associated with the deliberate generation and use of misinformation, targeting political adversaries and the democratic processes and institutions as such, at a scale and magnitude unseen until now. (As early as 2014, the World Economic Forum identified the rapid online spread of misinformation as one of the top 10 perils to society⁸).

The second essential trend is the exponential *increase of foreign influence operations*, interfering in and undermining fundamental political processes from elections to a broad spectrum of “hybrid attacks” to undermine democracy. “Hybrid threats” are defined as coordinated and synchronized actions that deliberately target democratic states and institutional vulnerabilities through political, economic, military, civil, and information-related means.⁹

Foreign influence operations by autocratic powers, understood as manifestations of “sharp power,”¹⁰ use extensively and in a concerted manner, *inter alia*,

⁷ Timothy D. Sisk, “Democracy’s Resilience in a Changing World,” in *The Global State of Democracy: Exploring Democracy’s Resilience* (Stockholm: International IDEA, 2017), 34-61, <https://iknowpolitics.org/sites/default/files/idea-gsod-2017-report-en.pdf>.

⁸ World Economic Forum, “Top 10 Trends of 2014,” in *Outlook on the Global Agenda 2014*, <http://reports.weforum.org/outlook-14/top-ten-trends-category-page/10-the-rapid-spread-of-misinformation-online>. For a detailed analysis see Wooley and Howard, eds., *Computational Propaganda*, 168.

⁹ The European Centre of Excellence for Countering Hybrid Threats, Hybrid CoE, “Hybrid Threats,” <https://www.hybridcoe.fi/hybrid-threats>.

¹⁰ Christopher Walker and Jessica Ludwig, “The Meaning of Sharp Power: How Authoritarian States Project Influence,” *Foreign Affairs*, November 16, 2017, www.foreignaffairs.com/articles/china/2017-11-16/meaning-sharp-power. According to Walker and Ludwig: “Authoritarian influence efforts are ‘sharp’ in the sense that they pierce,

the above-mentioned technological tools. In this context, the actions sponsored by the Russian Federation represent the most concerning and well-documented cases of foreign influence operations.¹¹

It is critical to understand how democratic processes and institutions can be attacked both by internal political actors and by foreign rivals and adversaries, by undermining the trust of people in democracy through political manipulation using the new communication technologies. For that, we need to make a short introduction to recent advances in information technology and the specifics of *computational propaganda*, an extremely powerful new communication tool used against democratic actors and institutions worldwide. Powerful and often anonymous political actors have used computational propaganda techniques to interfere in national elections, perpetrate political attacks, spread disinformation, censor and attack journalists, and create fake trends.

This analysis is performed from a *political science perspective*, yet it is clear that technical data should be presented to a broader audience outside the confined space of the specialists in information technology. Decision-makers and public opinion must be aware that “coordinated efforts are even now working to seed chaos in many political systems worldwide. Some militaries and intelligence agencies are making use of social media as conduits to undermine democratic processes and bring down democratic institutions altogether.”¹² Specialists in computational propaganda warn that describing the phenomenon only from a technical standpoint (as a set of variables, models, codes, and algorithms) will create the delusion of propaganda being “unbiased and inevitable,” and ask for complementing the technical description with social and political assessments, which will equally present the harmful and dubious intentions and actions of the actors that use the computational propaganda tool.

According to Wooley and Howard, “computational propaganda is a term that neatly encapsulates this recent phenomenon—and the emerging field of study—

penetrate, or perforate the political and information environments in the targeted countries. In the ruthless new competition that is under way between autocratic and democratic states, the repressive regimes’ sharp power techniques should be seen as the tip of their dagger. These regimes are not necessarily seeking to ‘win hearts and minds,’ the common frame of reference for soft power efforts, but they are surely seeking to manipulate their target audiences by distorting the information that reaches them.”

¹¹ As the US National Intelligence Council concludes in 2017, Russian efforts (to influence the 2016 US presidential election) represent the most recent expression of Moscow’s longstanding desire to undermine the US-led liberal democratic order, but these activities demonstrated a significant escalation in directness, level of activity, and scope of effort compared to previous operations. See National Intelligence Council, “Background to ‘Assessing Russian Activities and Intentions in Recent US Elections’: The Analytic Process and Cyber Incident Attribution,” January 6, 2017, www.dni.gov/files/documents/ICA_2017_01.pdf.

¹² Wooley and Howard, eds., *Computational Propaganda*, 3.

of digital misinformation and manipulation.”¹³ *Computational propaganda is in fact a political strategy that relies on computational enhancement.* Detailed research has shown that social media platforms are “vehicles for manipulative disinformation campaigns.” “Computational propaganda, therefore, forms part of a suite of dubious political practices that includes digital astroturfing,¹⁴ state-sponsored trolling,¹⁵ and new forms of *online warfare* known as PsyOps or InfoOps wherein the end goal is to manipulate information online in order to change people’s opinions and, ultimately, behavior.” Automation, scalability, and anonymity are hallmarks of computational propaganda.¹⁶ Data-driven techniques and tools like automation (bots – *automatic software built to mimic real, human users*) and algorithms (decision-making code) allow small groups of actors to megaphone highly specific, and sometimes abusive and false, information into mainstream online environments.¹⁷

The use of “Big Data”¹⁸ for political campaigning and, often, manipulation of the electorate is another highly concerning challenge to the functioning of democracy. Specialized data analytics companies are gathering information on the

¹³ Wooley and Howard, eds., *Computational Propaganda*, 4.

¹⁴ *Astroturfing* is the process of seeking electoral victory or legislative relief for grievances by helping political actors find and mobilize a sympathetic public using the Internet. This campaign strategy can be used to create the image of public consensus where there is none, or to give a false impression of the popularity of a candidate or public policy idea – see Howard (2005), quoted in Wooley and Howard, eds., *Computational Propaganda*.

¹⁵ Trolling is, according to the Urban Dictionary, “the deliberate act (by a Troll – noun or adjective) of making random unsolicited and/or controversial comments on various internet forums with the intent to provoke an emotional knee jerk reaction from unsuspecting readers to engage in a fight or argument.” Tech Policy, “State-sponsored trolling is rampant throughout the world – including the US,” *MIT Technology Review*, July 19, 2018, www.technologyreview.com/f/611694/state-sponsored-trolling-is-rampant-throughout-the-world-including-in-the-us/. State-sponsored trolling: “Using fake accounts, bots, and coordinated attacks by legions of followers, governments make it extremely difficult to distinguish between public opinion and sponsored trolls.”

¹⁶ Wooley and Howard, eds., *Computational Propaganda*, 7.

¹⁷ According to Wooley and Howard, “The use of bots for malicious purposes, including undermining democratic institutions, is particularly concerning, as—according to recent data, bots generate almost half of all Web traffic—an extraordinary proportion,” Wooley and Howard, eds., *Computational Propaganda*, 8.

¹⁸ The term is associated with the 2001 definition by the industry analyst Doug Laney who described the “3Vs”: volume, variety, and velocity, as the key “data management challenges.” According to the Oxford English Dictionary, big data is “data of a very large size, typically to the extent that its manipulation and management present significant logistical challenges.” The data sets to be analyzed are too large or complex to be dealt with by traditional data-processing application software. Most relevant for the use of big data in digital campaigning were the use of predictive analytics, user behavior analytics, or certain other advanced data analytics methods that extract value from data.

identities, beliefs, and habits of the potential voters, who can be afterward targeted with specific messages designed to influence and change their political decisions.

The Facebook/Cambridge Analytica data scandal related to the Leave.EU campaign during the June 2016 referendum in Britain and the Trump election campaign generated the most intense parliamentary and public scrutiny as well as legal responses to the risks of using voters profiling and illegal gathering of their personal data. The profiles of 87 million Facebook users were hijacked to identify their subconscious biases and trigger anxieties for manipulating their political decisions. Analysts agree that it is difficult to evaluate the degree to which the use by the campaigns of the data sets created by Cambridge Analytica for micro-targeting—individualized political messaging—swayed the public opinion and changed the results of the 2016 votes in the UK and the US. The need for greater oversight over the use of social network platforms by political campaigns during the electoral process was recognized immediately and democratic governments are initiating legal and regulatory responses.

The weaponization of on-line fake news and disinformation poses a serious security threat to our societies. The subversion of trusted channels to peddle pernicious and divisive content requires a clear-eyed response based on increased transparency, traceability and accountability. Internet platforms have a vital role to play in counter-ing the abuse of their infrastructure by hostile actors and in keeping their users, and society, safe.

EU Security Commissioner Julian King¹⁹

The European Commission's *Communication on Tackling Online Disinformation*²⁰ defines disinformation as "verifiably false or misleading information that is created, presented and disseminated for economic gain or to deceive the public intentionally, and in any event to cause public harm." It clarifies that this definition excludes reporting errors, satire and parody, partisan news and commentary, or illegal content. It distinguishes between verifiably false news and misleading information.

Trust in democratic institutions can also be undermined by *political campaigns* based on false/fake news distributed through more traditional mass media as well as widely by social media platforms. This is particularly concerning as,

¹⁹ EU Commission, "Tackling Online Disinformation: Commission Proposes an EU-wide Code of Practice," April 26, 2018, https://europa.eu/rapid/press-release_IP-18-3370_en.htm.

²⁰ European Commission, "Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions – Tackling Online Disinformation: A European Approach, Shaping Europe's Digital Future, Brussels, April 26, 2018, <https://ec.europa.eu/digital-single-market/en/news/communication-tackling-online-disinformation-european-approach>.

until recently, political representation was mainly done through elected representatives, like the members of parliament, and now citizens are expressing themselves directly, being more vulnerable to these campaigns.

Our understanding of present-day threats and vulnerabilities to democratic political systems needs to consider the damaging use of fake, sensational, and other forms of “junk news” during sensitive political moments over the last several years. O’Connor synthesizes the phenomenon accurately: “We live in an age of misinformation – an age of spin, marketing, and downright lies. Of course, lying is hardly new, but the deliberate propagation of false or misleading information has exploded in the past century, driven both by new technologies for disseminating information—radio, television, the internet—and by the increased sophistication of those who would mislead us.”²¹

The main goal of the disinformation campaigns is to create an emotional decision-making environment to replace reason and factual-based judgment as a working method.

Furthermore, the current intellectual debate on the “post-truth society” reveals that some political strategists are openly embracing challenging truth itself “as a strategy for the political subordination of reality.” “Thus, what is striking about the idea of post-truth is not just that truth is being challenged, but that it is being challenged as a mechanism for asserting political dominance.”²² We risk ending up in parallel realities, being difficult to distinguish which one is true.

A relevant case study for foreign influence operations is the increasingly well-documented attempts by Russia to “undermine unity, destabilise democracies and erode trust in democratic institutions. This pattern has been repeated in the EU: from the influence operations in the run-up to the 2016 referendum in the Netherlands about the EU-Ukraine Association Agreement; continued cyber-attacks to further reduce trust in the wake of the UK EU membership vote; Kremlin-affiliated media promotion of polarising issues during the 2017 German election; and pro-Kremlin bots engaging in a coordinated ‘disruption strategy’ over Catalonia in 2017, along with Kremlin-backed news platforms.”²³ In the *Report on the Investigation into Russian Interference in the 2016 Presidential Election*, Special Counsel Robert S. Mueller concluded that “The Russian government interfered in the 2016 presidential election in a sweeping and systematic fashion.”²⁴

²¹ Cailin O’Connor and James Owen Weatherall, *The Misinformation Age: How False Beliefs Spread* (New Haven, CT: Yale University Press, 2019), 11.

²² Lee McIntyre, *Post-Truth* (Cambridge, MA: MIT Press, 2018), Chapter 1, Kindle Edition.

²³ Naja Bentzen, “Foreign Influence Operations in the EU,” *European Parliamentary Research Service Briefing*, July 2018, [http://www.europarl.europa.eu/RegData/etudes/BRIE/2018/625123/EPRS_BRI\(2018\)625123_EN.pdf](http://www.europarl.europa.eu/RegData/etudes/BRIE/2018/625123/EPRS_BRI(2018)625123_EN.pdf).

²⁴ U.S. Department of Justice, Special Counsel Robert S. Mueller, III, *Report on the Investigation into Russian Interference in the 2016 Presidential Election*, Volume 1 (Washington, D.C., March 2019), <https://cdn.cnn.com/cnn/2019/images/04/18/mueller-report-searchable.pdf>.

According to the European Parliament *Resolution on EU strategic communication to counteract propaganda against it by third parties*: “Russian strategic communication is part of a larger subversive campaign to weaken EU cooperation and the sovereignty, political independence and territorial integrity of the Union and its Member States.” The European Parliament “urges Member State governments to be vigilant towards Russian information operations on European soil and to increase capacity sharing and counterintelligence efforts aimed at countering such operations.”²⁵

The spectrum of threats and undermining actions to democratic institutions and processes is broader than briefly introduced in the paper. There is increasing consensus both at national and inter-governmental level that *increasing democratic resilience* can prepare better responses to shocks and stresses, including those generated and disseminated via computational means.

The *notion of ‘resilience’* is extensively used in different domains from biology and ecology to disaster response, development, humanitarian aid, democracy, foreign policy, society as a whole, critical infrastructures, cyber, etc. Therefore, in the last two decades, the notion was perceived by most analysts as a ‘buzzword’ that maintains, nevertheless, its practical utility when applied to a context-specific framework.

In the simplest definition, resilience refers to *the capacity to absorb and recover from any type of stress or shock*. Definitions become more complex yet not always more convincing when the term is associated with a specific system or goal to be attained. Without entering the debate on the usefulness or otherwise of the term, we can agree with Rhinard²⁶ that any specific approach needs to clarify the following five central questions: (1) *what is resilience?*, respectively the value of a broad and expansive or of a narrow definition; (2) *who (or what) should be resilient?*, meaning the priorities set by different academic disciplines for the resilient individual, community, state or society as a whole; (3) *when can we expect resilience to happen?*, i.e., resilience can be understood either as a “bounce-back” capacity taking place after an extreme event has hit or as “anticipatory resilience” taking place before a disturbance actually occurs and, in the best scenario, even preventing it from happening; (4) *what kinds of events do we hope to be resilient against?* – crises that are outside the realm of imaginable (“black swans”²⁷) or focus on “normal emergencies,” where resilient systems absorb and adapt to these problems and prevent them from becoming even worse;

²⁵ European Parliament, “EU Strategic Communication to Counteract Anti-EU Propaganda by Third Parties, European Parliament Resolution of 23 November 2016 on EU Strategic Communication to Counteract Propaganda against It by Third Parties (2016/2030(INI)),” www.europarl.europa.eu/doceo/document/TA-8-2016-0441_EN.pdf.

²⁶ Mark Rhinard, “Horizontal Issues,” in *After the EU Global Strategy*, 25-27.

²⁷ Nassim Nicholas Taleb, *The Black Swan: The Impact of the Highly Improbable*, 2nd ed, (New York: Random House, 2010).

and finally (5) *can resilience be engineered?*, focusing on the effectiveness of designed public policies for building resilience.²⁸

The International Institute for Democracy and Electoral Assistance explores solutions for building *democratic resilience*: the ability of democratic ideals, institutions, and processes to survive and prosper when confronted with challenges and the crises they may produce.²⁹

In IDEA's definition, "resilience refers to properties of a political system to cope, survive and recover from complex challenges and crises that represent stresses or pressures that can lead to a systemic failure."³⁰ According to Sisk, "chief among the *properties of resilient social systems* are: 1) *Flexibility*: the ability to absorb stress or pressure; 2) *Recovery*: the ability to overcome challenges or crises; 3) *Adaptation*: the ability to change in response to a stress to the system; and 4) *Innovation*: the ability to change in a way that more efficiently or effectively addresses the challenge or crisis."³¹

Fostering state and societal resilience as well as the resilience of democratic institutions and processes are interrelated and should be designed in a coordinated manner. This is also true for policies that respond to specific, sub-system level problems, thus ensuring the resilience of critical infrastructures, respectively cyber-, energy- or climate-change resilience, just some examples, should be coordinated and integrated into the overall efforts of increasing state and societal resilience.³² Analysts consider that democracy can enhance and contribute to the community, societal, and state resilience. Democratic systems are, under certain conditions, more flexible and able to adapt to change and embrace innovation. It is, therefore, of critical importance that democratic resilience is ensured and enhanced.

Resilience building must be context-specific as there are no one-size-fits-all solutions for approaching different challenges, vulnerabilities, and threats and reinforcing the capability of social systems to absorb and recover from any kind of stress and shock.

Thus, it is necessary to have specific resilience-building measures to respond to each of the challenges that undermine democratic institutions and processes.

²⁸ Rhinard, "Horizontal Issues," 27.

²⁹ Sisk, "Democracy's Resilience in a Changing World."

³⁰ Timothy D. Sisk, "Democracy and Resilience: Conceptual Approaches and Considerations," Background Paper (Stockholm: International Institute for Democracy and Electoral Assistance, 2017), 5, <https://www.idea.int/gsod-2017/files/IDEA-GSOD-2017-BACKGROUND-PAPER-RESILIENCE.pdf>.

³¹ Sisk, *Democracy and Resilience*, 5.

³² Some authors consider resilience a form of *governmentality*. According to Joseph, resilience, despite its claims to be about the operation of systems, is, in practice, closer to a form of governance that emphasizes individual responsibility. Nevertheless, if building resilience is understood simply as good governance, the usefulness of the term is doubtful. See Jonathan Joseph, "Resilience as Embedded Neoliberalism: A Governmentality Approach," *Resilience: International Policies, Practices and Discourses* 1, no. 1 (2013), 38-52, <https://doi.org/10.1080/21693293.2013.765741>.

Policies to increase democratic participation, respond to disinformation campaigns, counter hybrid threats, enhance cyber and infrastructure resilience, etc., need to be coordinated at national and intergovernmental levels. The EU and NATO are developing and implementing complex resilience-building measures at the level of their member states, as well as in close EU-NATO cooperation, boosted by strengthening the strategic partnership as defined by the two Joint Declarations approved in Warsaw in June 2016 and Brussels in May 2018.³³

Building resilience is *a core element of the collective defense* of the North Atlantic Alliance.³⁴ Strengthening state and societal resilience is key to the EU approach to the security of the Member states and the Union, particularly for the relations with the partners in the South and the East, as presented in the EU's Global Strategy for Foreign and Security Policy.³⁵ The EU has adopted *key documents on resilience*, including on countering disinformation.³⁶ A very relevant initiative, in this context, is the self-regulatory Code of Practice on Disinformation

³³ "Joint Declaration by the President of the European Council, the President of the European Commission, and the Secretary General of NATO," Warsaw, July 8, 2016, <https://www.consilium.europa.eu/media/24293/signed-copy-nato-eu-declaration-8-july-en.pdf>; and "Joint Declaration on EU-NATO Cooperation by the President of the European Council, the President of the European Commission, and the Secretary General of the North Atlantic Treaty Organization," Brussels, July 10, 2018, www.nato.int/cps/en/natohq/official_texts_156626.htm.

³⁴ NATO official text, "Commitment to Enhance Resilience Issued by the Heads of State and Government Participating in the Meeting of the North Atlantic Council in Warsaw, 8-9 July 2016," https://www.nato.int/cps/en/natohq/official_texts_133180.htm. For an analysis see: Jamie Shea, "Resilience: A Core Element of Collective Defence," *NATO Review*, March 30, 2016, <https://www.nato.int/docu/review/2016/Also-in-2016/nato-defence-cyber-resilience/EN/index.htm>. A relevant perspective on NATO's national resilience obligations in Madeleine Moon, "NATO's National Resilience Obligations," *RUSI Commentary*, March 15, 2019, <https://www.rusi.org/commentary/NATOs-National-Resilience-Obligations>.

³⁵ "The EU will foster the resilience of its democracies, and live up to the values that have inspired its creation and development. These include respect for and promotion of human rights, fundamental freedoms and the rule of law. They encompass justice, solidarity, equality, non-discrimination, pluralism, and respect for diversity. Living up consistently to our values internally will determine our external credibility and influence." "Shared Vision, Common Action: A Stronger Europe. A Global Strategy for the European Union's Foreign and Security Policy," June 2016, 15, and "State and Societal Resilience to Our East and South," 23-28, https://eeas.europa.eu/archives/docs/top_stories/pdf/eugs_review_web.pdf.

³⁶ European Commission, High Representative of the Union for Foreign Affairs and Security Policy, "Joint Communication to the European Parliament and the Council. A Strategic Approach to Resilience in the EU's External Action," June 7, 2017, <https://eur-lex.europa.eu/legal-content/en/TXT/?uri=celex:52017JC0021>; European Commission, "Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions – Tackling Online Disinformation: A European Approach," Brussels, April 26, 2018, <https://ec.europa.eu/digital-single-market/en/news/communication-tackling-online-disinformation-european-approach>.

agreed in September 2018 by representatives of online platforms, leading social networks, and the advertising industry agreed to address the spread of online disinformation and fake news.³⁷

A significant number of commonly agreed actions, implemented jointly by EU and NATO, focus on resilience building, particularly on countering hybrid threats, analysis, and coordinated strategic communication to spot disinformation and communicate a credible narrative, cyber defense, etc.³⁸ It is also worth mentioning the activity of the NATO STRATCOM Centre of Excellence and of the European Centre of Excellence for Countering Hybrid Threats functioning as a neutral facilitator between the EU and NATO through strategic discussions and exercises.³⁹

International organizations—both intergovernmental and non-governmental like the OECD, various UN agencies, and IDEA International—have proposed specific frameworks for building and strengthening the state, societal and democratic resilience. A comparative analysis of these initiatives at the level of democratic states, EU and NATO, and other international organizations, as well as of the public-private initiatives for implementing specific resilience policies, goes well beyond the scope of this article.

A certain number of *measures to restore trust in democratic institutions*, counter disinformation and fake news, and act against computational propaganda are nevertheless worth mentioning. In essence, there is a need for basic, solid political education for the citizens and the electorate, as well as actions to counter foreign interference and specific measures of surveillance up to the vote. “The life-long development of critical and digital competences, in particular for young people, is crucial to reinforce the resilience of our societies to disinformation.”⁴⁰ The measures proposed by the US National Democratic Institute can offer good practices for countering disinformation in politics, particularly elections, respectively by conducting research on disinformation vulnerability and resilience; monitoring disinformation and computational propaganda in elections; strengthening political party commitments to information integrity; helping social media platforms and tech firms “design for democracy”; sharing tools to detect and disrupt disinformation and rebuilding trust in institutions and processes through democratic innovation.⁴¹

The advance of democracy at a global scale has had its ebbs and flows in recent history and we believe that the democratic form of government will prove its attractiveness and resilience in spite of current serious challenges. In the end,

³⁷ European Commission, “Code of Practice on Disinformation,” September 26, 2018, <https://ec.europa.eu/digital-single-market/en/news/code-practice-disinformation>.

³⁸ EEAS, “EU-NATO Cooperation – Factsheets,” June 17, 2020, https://eeas.europa.eu/headquarters/headquarters-homepage/28286/eu-nato-cooperation-factsheet_en.

³⁹ European Centre of Excellence for Countering Hybrid Threats, “Functions of Hybrid CoE,” <https://www.hybridcoe.fi/>.

⁴⁰ European Commission, “Tackling Online Disinformation.”

⁴¹ National Democratic Institute, “Info/tegrity. An NDI Initiative to Protect the Integrity of Political Information,” <https://www.ndi.org/infotegrity>.

it is a new and elevated form of the age-old battle for winning minds and hearts. Established democracies are more and more aware of the new challenges and started substantive legal and regulatory work on enhancing the resilience of democratic institutions and processes. The challenges and threats presented in the article indicate a long-term trend with evolutions that are difficult to predict. The legal and regulatory response frameworks will need to be coordinated and continuously adapted to the rapidly changing threat environment.

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Institutional Resilience and Building Integrity in the Defense and Security Sector

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Abstract: The concept of resilience in defense and security is evolving towards the inclusion of a wide-ranging and multidimensional set of vulnerabilities and associated mitigation strategies across the spectrum of military and non-military mechanisms of response. This article argues that while corruption and poor governance are now recognized as a security threat, as articulated in the NATO Warsaw Summit Declaration, the strengthening of defense and related security institutions in both Allied and partner countries remains to be further embedded as an integral part of the concept of resilience. Institutional resilience based on integrity, transparency, and accountability is critical for ensuring the fulfillment of NATO's resilience commitment and its baseline requirements, which include *inter alia* continuity of government with the ability to make decisions and provide services to the population. Corruption and poor governance undermine public trust and perpetuate instability and fragility. NATO's Building Integrity policy contributes to the fulfillment of the Alliance's three core tasks – collective defense, crisis management, and cooperative security. NATO's work on Projecting Stability vis-à-vis partners has recognized the role of good governance as a component of improving partners' resilience. This needs to be further institutionalized through consistent efforts at strengthening defense institutions. The contribution of institutional resilience to NATO's defense and deterrence task needs to be further conceptualized. The article argues for a more consistent approach to operationalizing Building Integrity as an integral part of the concept of resilience and the need for robust institutional capabilities to mitigate vulnerabilities stemming from the risk of corruption as a security threat.

Keywords: NATO, defense and security sector, institutional resilience, Building Integrity, BI, transparency, accountability, corruption, good governance.

Introduction

Resilience is one of those newly coined concepts that is witnessing an exponential increase in use across a wide range of areas and international organizations. The ubiquity of the concept is at once promising as it focuses on the causal effect of a host of factors and their interlinkages but is also exposed to the danger of being overused—and thus misused—without the development of its solid foundation and conceptual framework. In this regard, will the potential of the concept of resilience be used by international organizations as a true signpost for practical solutions to complex problems, or is it going to be used as a “fig leaf” when it is impossible to reconcile the under-ambitious and the over-ambitious extremes of their policy-making agendas?

A perusal of the use of resilience across international organizations as part of their agenda and policy-making shows the following trends. In the UN discourse, resilience has been introduced in the context of sustainable development, whereby the resilience of social and ecological systems is used as a measure for the implementation of the Sustainable Development Goals (SDGs). The United Nations (UN) approach to resilience is geared primarily towards risk reduction and disaster management and seeks to provide an analytical framework of indicators to measure sustainability within this context.

On its part, the Organization for Economic Cooperation and Development (OECD) emphasizes the need for collaboration among different policy communities working on different risks within the framework of development strategies. The OECD definition of resilience points to “the ability of households, communities, and nations to absorb and recover from shocks, whilst positively adapting and transforming their structures and means for living in the face of long-term stresses, change and uncertainty.”¹ By introducing the resilience systems analysis, the OECD has advocated for more effective, cross-sectoral, and multidimensional programming through examining the interlinkages of different risks and vulnerabilities. On its side, the resilience agenda of the World Bank spans the areas of disaster risk management, climate change, and infrastructure as having an impact on development outcomes.

With its Global Strategy of 2016, the European Union has adopted an expansive approach to resilience, making it an integral part of its foreign policy role and objectives and one of the five priorities in its external action, alongside the other four priorities, namely the EU security, an integrated approach to conflicts, cooperative regional orders, and global governance.² In this sense, the approach to resilience in the context of the 2016 Global Strategy is a departure from the

¹ OECD, “Guidelines for Resilience Systems Analysis: How to Analyse Risk and Build a Roadmap to Resilience” (OECD Publishing, 2014), www.oecd.org/dac/Resilience%20Systems%20Analysis%20FINAL.pdf.

² “Shared Vision, Common Action: A Stronger Europe. A Global Strategy for the European Union’s Foreign and Security Policy,” June 2016, https://eeas.europa.eu/archives/docs/top_stories/pdf/eugs_review_web.pdf.

earlier usage of this concept by the European Union, which had its primary focus on development and humanitarian affairs, as formulated in “The European Approach to Resilience: Learning from Food Security and Crises” (2012), the Council Conclusions on the EU’s approach to Resilience (2013) and the Action Plan for Resilience in Crisis Prone Countries (2013). In the EU parlance, the scope of resilience extends to the state and to societies, whereby “resilient society featuring democracy, trust in institutions, and sustainable development lies at the heart of a resilient state,” while resilience itself is defined as “the ability of states and societies to reform, thus withstanding and recovering from internal and external crisis.”³ In this regard, the broader and multifaceted concept of resilience as developed and utilized by the European Union presupposes a broad range of pathways across a multitude of areas such as fostering “the resilience of democracies,” strengthening “the resilience of critical infrastructure, networks and services” as well as to “nurture societal resilience also by deepening work on education, culture and youth to foster pluralism, coexistence and respect.”⁴ In geopolitical terms, resilience is a strategic priority for the European Union in its neighborhood policies across the east and the south, and also admits the interconnectedness between the internal and external dimensions of its operationalization.

NATO’s Approach to Resilience

Similarly, as in the domain of sustainable development, the concept of resilience in defense and security is also evolving towards the inclusion of a wide-ranging and multidimensional set of vulnerabilities and associated mitigation strategies across the spectrum of military and non-military mechanisms of response. In this regard, NATO’s resilience agenda tends to grow and take on new tasks as the understanding of risk factors and possible counter-strategies evolves with time.

The notion of resilience of NATO member states through maintaining and developing their individual and collective defense capacity is anchored in the Alliance’s founding treaty of 1949 and, in particular, Article 3. This implicitly defined internal dimension of resilience in terms of capabilities and collective defense capacity is operationalized through NATO’s defense planning and capabilities development process. The London Declaration issued at the NATO Leaders’ Meeting on 3-4 December 2019 expands the conceptual scope of resilience by including, for the first time, the societies of NATO countries, alongside the resilience of critical infrastructure and energy security as well as secure and resilient systems to ensure the communications security of NATO countries. Apart from the resilience of societies, articulated explicitly for the first time, the other areas have already been part of NATO’s resilience agenda.

The stronghold of NATO’s resilience agenda lies within the area of civil preparedness, which comes as a necessity out of the rapidly changing security envi-

³ “Shared Vision, Common Action.”

⁴ “Shared Vision, Common Action.”

ronment and the strengthened defense and deterrence posture of the Alliance given the increased terrorist and hybrid threats targeting civil population and critical infrastructure on the Euro-Atlantic territory. At the Warsaw Summit in 2016, Allied leaders decided to enhance NATO's resilience to the full spectrum of threats and agreed on seven baseline requirements for national resilience against which member states can measure their level of preparedness.⁵ These include assured continuity of government and critical government services; resilient energy supplies; ability to deal effectively with people's uncontrolled movement, resilient food and water resources; ability to deal with mass casualties; resilient civil communications systems; and resilient civil transportation systems.

The COVID-19 crisis tested the resilience preparedness of the Alliance and its member states, including in the health sector, which has not been explicitly identified as a distinct area of requirements prior to this, for example, in terms of medical stockpiles and preparedness in situations of pandemics. The pandemic tested the NATO mechanisms in place for consultations and coordination in times of an emergency and the speed of response to mitigate the consequences of the health crisis in both NATO countries and partners through the rapid response capacities vested into the Euro-Atlantic Disaster Response Coordination Centre (EARDCC) as NATO's principal civil emergency response mechanism. The COVID-19 crisis also exposed other aspects of resilience that need to be factored in, such as responding to disinformation in crisis situations and forging capacity to bounce back quickly from the negative social and political impact of the spread of false news in a crisis-stricken context. In parallel, the response to the pandemic has brought forward issues related to the robustness and reliability of supply chains in a fast-moving environment that warrants rapid response whereby oversight and control are expected to be limited and minimized and thus leading to the increase of the risk of fraud and mismanagement of resources. Therefore, while for NATO the resilience agenda is firmly anchored within the context of the Alliance's collective defense core task and its ensuing defense and deterrence posture and civil preparedness, the list of risks and vulnerabilities, to which resilience measures need to be developed and put in place in an anticipatory manner will inevitably grow.

The Resilience Agenda: Anticipating Risks and Vulnerabilities

In sum, the COVID-crisis has demonstrated the unpredictability and complexity of the resilience agenda and has put to test the resilience thinking of international organizations and national governments. The Global Risks Report 2020 of the World Economic Forum, published in January 2020, does not list pandemics or infectious diseases among the top ten risks in terms of their likelihood to oc-

⁵ NATO official text, "Commitment to Enhance Resilience Issued by the Heads of State and Government Participating in the Meeting of the North Atlantic Council in Warsaw, 8-9 July 2016," https://www.nato.int/cps/en/natohq/official_texts_133180.htm.

cur.⁶ For 2020, the risks with the highest expected likelihood to occur are predominantly of an environmental nature, followed by two technological risks (data fraud and theft and cyberattacks), one societal (water crisis), one geopolitical (global governance failure), and one economical (asset bubble). In terms of impact, the first two highest-rated risks are climate action failure and weapons of mass destruction, the latter being the only risk of a geopolitical nature in this list, while the impact of infectious disease is ranked at the tenth place. Compared with previous years, the pandemic was perceived as a risk in 2007 in the fourth place in the ranking and in 2008 in the fifth place, which coincides with the outbreak of H5N1 virus infection. In the subsequent years, however, the perception of a pandemic risk has decreased, and it never made it to the first ten risks with the highest likelihood to occur, and certainly not so in the period preceding the COVID-19 crisis.

Therefore, the resilience thinking cannot exist in isolation from the capacity of international organizations and national governments to predict and anticipate which one of the plethora of risks and vulnerabilities will pose a security challenge at one time or another and respectively prepare coping mechanisms, consequence management and mitigation strategies. Understanding the whole range of potential security risks in their complexity, irrespective of perceptions as to their likelihood of occurrence is a condition *sine qua non* for the design of adequate and bespoke solutions, some of which may need years to be implemented and embedded into organizational systems in order to provide an effective response when needed.

Corruption as a Security Risk: Broadening the Resilience Agenda

If we define resilience as the ability to anticipate the emergence of vulnerabilities in the first place, irrespective of their low or high probability of occurrence, the analysis of the whole gamut of potential risks and their potential to pose security challenges should become the first step in the process of demystifying and disentangling the concept of resilience in its multifaceted nature. In this regard, corruption and poor governance, though identified as security risks, do not feature strongly on the resilience agenda. This could be explained by the prevailing notion of the low-impact effect produced as a result of it versus the high impact attached to other security risks such as proliferation of weapons of mass destruction or disruption of critical infrastructure.

In the analysis of global risks by the World Economic Forum, corruption falls into the group of geopolitical risks.⁷ It was identified as a high-likelihood risk on its own at the high third place only in the 2011 annual report. The publication of the World Bank Grand Corruption Database in 2012, providing a collection of cases for the period between 1980 and 2011, as well as the accumulation of high-

⁶ World Economic Forum, *The Global Risks Report 2020*, Insight Report, 15th edition, <https://www.weforum.org/reports/the-global-risks-report-2020>.

⁷ World Economic Forum, *The Global Risks Report 2020*.

profile corruption cases of public officials and private companies in the lead-up to 2011, could account for the high rating of corruption as a global risk in 2011. In the 2020 annual report, corruption accounts as one of the factors contributing to the failure of national governance, defining it as “inability to govern a nation of geo-political importance as a result of the weak rule of law, corruption or political deadlock.”⁸ The link between corruption and failure of national governance is substantial and corroborates the challenges to governance and sustainability posed by corruption as a security threat. In 2020, the failure of national governance was ranked higher in terms of likelihood and impact compared to the risk of terrorist attacks.

For NATO, working on corruption as a security threat and on minimizing the risk of its occurrence in the defense and related security sector dates back to 2007 with the establishment of the NATO Building Integrity Program (NATO BI). This comes as a practical solution to operationalizing the NATO’s Partnership Action Plan on Defense Institution Building (PAP-DIB), approved at the NATO Summit in Istanbul in 2004, with its ten principles that are considered fundamental to the development of effective and democratically responsible defense institutions, namely democratic control of defense activities; civilian participation in the development of defense and security policies; effective and transparent legislative and judicial oversight of the defense sector; effective and transparent arrangements and procedures to assess security risks and national defense requirements; effective and transparent measures to optimize the management of defense ministries and agencies with responsibility for defense matters, and associated force structures, including procedures to promote inter-agency co-operation; effective and transparent arrangements and practices to ensure compliance with internationally accepted norms and practices established in the defense sector, including export controls on defense technology and military equipment; effective and transparent personnel structures and practices in the defense forces; effective and transparent financial, planning and resource allocation procedures in the defense area; effective, transparent and economically viable management of defense spending; and effective and transparent arrangements to ensure effective international co-operation and good neighborly relations in defense and security matters.⁹

In their essence, these principles represent the requirements and the building blocks of resilience in an integrated manner – horizontally across all functional areas inherent in the operational functioning of defense institutions as well as vertically in a whole-of-government framework. Effective and efficient defense institutions are also by extension resilient institutions that have at their disposal the right mechanisms to maintain the integrity of the system in the first place and thus prevent the occurrence of negative phenomena. They also have

⁸ World Economic Forum, *The Global Risks Report 2020*, 87.

⁹ NATO, “Partnership Action Plan on Defence Institution Building (PAP-DIB),” January 7, 2004, https://www.nato.int/cps/en/natohq/official_texts_21014.htm.

in place coping mechanisms to bounce back from shocks to the system, should such occur.

NATO has defined the corruption-security nexus through its Building Integrity (BI) Policy endorsed by the Allied Heads of State and Government at the Summit in Warsaw in 2016.¹⁰ The Policy itself and the Warsaw Summit Communiqué have articulated clearly that “corruption and poor governance are security challenges which undermine democracy, the rule of law and economic development” and that “transparent and accountable defense institutions under democratic control are fundamental to stability in the Euro-Atlantic area and essential for international security co-operation.”¹¹

At the NATO Summit in Brussels in 2018, building stronger defense institutions of NATO’s partners, improving their good governance and strengthening their resilience, upon their request, has been identified as a distinct line of work within the context of the Alliance’s efforts at projecting stability as part of its broad and strengthened deterrence and defense posture.¹² This is the closest that the issue of good governance and strong defense institutions has been brought to the core of the resilience agenda of the Alliance. While NATO is *de facto* working on strengthening the resilience of defense and related security institutions, the link still needs to be better substantiated, and the importance of strong institutions as a source and a guarantor of resilience requires to be articulated more recognizably. Moreover, the BI Policy applies to both Allies and partners and NATO as an organization and contributes to fulfilling the Alliance’s three core tasks: collective defense, crisis management, and cooperative security.

Though not articulated visibly, the focus on good governance of the BI Policy is also aligned with NATO’s resilience baseline requirements and in particular, the first one, which is related to the continuity of government and its ability to make decisions and provide services to the populations. This alignment between NATO’s definition of corruption as a security threat with the resilience agenda is conceptually based on the causal link between national governance and the principles of integrity, transparency, and accountability both as a resilience mechanism in itself protecting against the probability of malpractices and malfeasance on one side and as an indicator of resilience at an institutional level, on the other.

¹⁰ NATO, “NATO Building Integrity Policy, Endorsed by the Heads of State and Government participating in the meeting of the North Atlantic Council in Warsaw 8-9 July 2016,” July 9, 2016, https://www.nato.int/cps/en/natohq/official_texts_135626.htm.

¹¹ NATO, “Warsaw Summit Communiqué, Issued by the Heads of State and Government participating in the meeting of the North Atlantic Council in Warsaw 8-9 July 2016,” July 9, 2016, para. 130, www.nato.int/cps/en/natohq/official_texts_133169.htm.

¹² NATO, “Brussels Summit Declaration, Issued by the Heads of State and Government participating in the meeting of the North Atlantic Council in Brussels 11-12 July 2018,” July 11, 2018, para. 50, www.nato.int/cps/en/natohq/official_texts_156624.htm.

Closing the Loop: Institutional Resilience and Building Integrity

The concepts of resilience and integrity share some common characteristics, particularly the positive approaches they introduce with regard to complex phenomena with negative clout in the context of security and development such as fragility, vulnerability, corruption, and poor governance. Similarly, the pathways to strengthening resilience and building integrity pass through a transformative change and normative adaptation, requiring interventions with a view to policy changes and institutional reforms at the level of organizational culture, mindset, and capabilities as well as individual capacities, attitudes, and behavior. Resilience puts the onus on the receiving end of an intervening action by an international organization, similarly as with the concept of integrity, which presupposes internal strength and endogenous capacity.

NATO Allies and partners have agreed on a definition of integrity when discussing the BI Policy, pointing to integrity as the link between behavior and principles. Furthermore, in NATO's definition, in institutional terms, integrity is directly linked to good governance. The BI Policy reaffirms that "reinforcing an institution's integrity is a question of institutionalizing the principles that we want the institution to stand for, as well as a question of socializing these norms and values among its personnel."¹³ Thus, integrity exists at two levels – institutional and individual. The two levels constantly interact and reinforce each other through a dynamic process. Through a systems-based approach, NATO BI is focused on identifying and assessing gaps and vulnerabilities from the perspective of minimizing the risk of corruption through a diagnostic tool known as the NATO BI Self-Assessment and Peer Review Process. Based on analysis of national needs and integrity requirements, NATO BI provides tailored support and bespoke solutions, thus contributing to the resilience of defense institutions against malpractices, malfeasance, and fraud in different functional areas such as human resources management, financial resources management, budgeting and planning, procurement, lifecycle management, supply chains, logistics, assets disposals, etc.¹⁴

In this sense, institutional resilience is based on the totality of systemic factors and on the sum of mechanisms adept at withholding risks to the system across the different institutional functional areas that are interacting and are mutually reinforcing or undermining each other. For instance, a transparent and accountable merit-based system of recruitment and promotion will strengthen the system of procurement, assets management, or any other functional area by virtue of applying the principle of "the right person at the right place." In this regard, risks pertinent to respective areas as well as risks within each area need

¹³ NATO, "NATO Building Integrity Policy."

¹⁴ The NATO BI Process involves a Self-Assessment and Peer Review process conducted in NATO and partner countries on a voluntary basis; the questions explored in the process through the Self-Assessment Questionnaire can be accessed at www.nato.int/cps/en/natohq/topics_118004.htm.

to be itemized, assessed, and analyzed in accordance with their likelihood of occurrence and impact if they occur and consequently inform the development of new policy and procedures. This process also includes the organizational ethos, the sum of values and behaviors, and the pathways of their socialization throughout the organization.

Conclusion

Resilience has become a rallying concept for international organizations to bridge across different policy communities and break down sectoral silos. Being non-contentious and incontestable, the concept of resilience is attractive to policy-makers and implementers as a reference point when designing policies and programmatic interventions in a variety of contexts across multiple disciplines and sectors. However, resilience is one of those terms that may suffer from a definitive understanding of its conceptual parameters and practical implications. An analysis of risks and vulnerabilities with a stronger emphasis on the causal effects is warranted in the context of discussions as to how to operationalize resilience. NATO's work on building effective and efficient defense institutions and on minimizing the risk of corruption in the defense and related security sector through strengthening institutional resilience and organizational ethos of integrity, transparency, and accountability can broaden the discussion on resilience.

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Research Article

Behind Blue Lights: Exploring Police Officers' Resilience after the Terrorist Attack at Brussels Airport on March 22, 2016

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Abstract: This case study on the terrorist attack at Brussels Airport on March 22, 2016, explores the experiences of police officers concerning (a) their coping strategies after the terrorist attack and (b) the (in)formal workplace social support that affects their resilience. A qualitative, exploratory research method was used to answer the research questions, consisting of a content analysis of the police organization, participant observation, and 31 in-depth interviews with police officers who were on active duty during the terrorist attack. This research shows that the interviewed police officers primarily adopt engagement coping strategies after the terrorist attack. The most cited one is talking to others, followed by engaging in positive action, behavioral distraction, self-evaluation, positive self-talk, and emotional numbing. Second, this study revealed that (in)formal workplace social support plays a significant role in fostering police officers' resilience after a terrorist attack. Informally, getting acknowledged for the efforts made during the terrorist attack and for psychological loss afterward is crucial in this process. Besides, emotional support from both colleagues and supervisors is identified as essential. However, the ruling 'macho' culture within the police organization is perceived as hampering to talk freely about emotions. Formally, respondents place emphasis on a proper debriefing and a well-organized, easily accessible psychological aftercare. This scientific contribution provides insight into the best practices the police organization can apply to promote its employees' resilience and performance.

Keywords: police, resilience, organization, resources, coping.

Introduction

The terrorist attack at Brussels Airport on March 22, 2016 (22/3), when terrorists committed a suicide bombing, caused 12 deaths and injured nearly 100 people. Police officers (PO) rushed to the scene within minutes, searching for survivors, evacuating victims, guarding the perimeter of the disaster site, and eventually seeking bodies and body parts. A highly traumatic incident such as this can cause severe stress to the involved PO and pose threats to their mental health.^{1,2} Nonetheless, research evidence has shown that PO exhibit diverse reactions after potentially traumatic events (PTE). Only a minority develops post-traumatic stress disorder (PTSD) symptoms, going from 7 to 19 percent,³ while most PO demonstrate resilient trajectories, ranging from 76.7 to 88.1 percent.^{4,5,6} Although most research has focused on the development of pathology, it is of great interest to gain insight into the factors that foster the resilience of PO. In this research area, scholars mainly emphasize the relationship between resilience and personality

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- ¹ Oluyinka Ojedokun and Shyngle K. Balogun, "The Costs of Policing: Psychosocial Capital and Mental Health Outcomes in a Nigeria Police Sample," *The Spanish Journal of Psychology* 18 (2015), <https://doi.org/10.1017/sjp.2015.76>.
 - ² Chengmei Yuan, Zhen Wang, Sabra S. Inslicht, Shannon E. McCaslin, Thomas J. Metzler, Clare Henn-Haase, Brigitte A. Apfel, Huiqi Tong, Thomas C. Neylan, Yiru Fang, and Charles R. Marmar, "Protective Factors for Posttraumatic Stress Disorder Symptoms in a Prospective Study of Police Officers," *Psychiatry Research* 188, no. 1 (2012): 45-50.
 - ³ Ingrid V.E. Carlier, R.D. Lamberts, and B.P.R. Gersons, *Ingrijpende gebeurtenissen in politiewerk* (Arnhem: Gouda Quint, 1994).
 - ⁴ Rosemarie M. Bowler, Matthew Harris, Jiehui Li, Vihra Gocheva, Steven D. Stellman, Katherine Wilson, Howard Alper, Ralf Schwarzer, and James E. Cone, "Longitudinal Mental Health Impact among Police Responders to the 9/11 Terrorist Attack," *American Journal of Industrial Medicine* 55, no. 4 (2012): 297-312.
 - ⁵ Isaac R. Galatzer-Levy, Anita Madan, Thomas C. Neylan, Clare Henn-Haase, and Charles R. Marmar, "Peritraumatic and Trait Dissociation Differentiate Police Officers with Resilient versus Symptomatic Trajectories of Posttraumatic Stress Symptoms," *Journal of Traumatic Stress* 24, no. 5 (2011): 557-565.
 - ⁶ Robert H. Pietrzak, Adriana Feder, R. Singh, et al., "Trajectories of PTSD Risk and Resilience in World Trade Center Responders: An 8-year Prospective Cohort Study," *Psychological Medicine* 44, no. 1 (2014): 205-219.

factors,⁷ access to social support networks,^{8,9} and coping strategies.¹⁰ Moreover, most studies focus on these domains separately, while resilience is a dynamic multi-dimensional construct that is influenced by a wide range of factors such as culture, personality, peer support, and the work environment.¹¹ These findings lead to the identification of several research gaps. First, there is a dearth of literature examining the role of the police organization itself as hampering or fostering the resilience of its employees. Yet, studying this particular research field is of great interest as previous research shows that a socially supportive environment fosters resilience after PTE.^{12,13} Second, mainly quantitative cross-sectional designs are applied to study resilience of PO.¹⁴ However, qualitative research methods may have an added value as they depict perceptions and underlying processes influencing resilience.¹⁵ Finally, research on the resilience of PO is mainly conducted in Anglo-Saxon countries. Insights in the European context are rare, especially when it concerns high-impact incidents such as terrorism.

The present study aims to understand the support processes that potentially promote resilience. A qualitative approach is used to explore and comprehend

⁷ Julio F.P. Peres, Bernd Foerster, Leandro G. Santana, Mauricio Domingues Fereira, Antonia G. Nasello, Mariângela Savoia, Alexander Moreira-Almeida, and Henrique Lederman, "Police Officers Under Attack: Resilience Implications of an fMRI Study," *Journal of Psychiatric Research* 45, no. 6 (2011): 727-734; Ojedokun and Balogun, "The Costs of Policing."

⁸ Terri Adams, Leigh Anderson, Milanika Turner, and Jonathan Armstrong, "Coping through a Disaster: Lessons from Hurricane Katrina," *Journal of Homeland Security and Emergency Management* 8, no. 1 (2011), <https://doi.org/10.2202/1547-7355.1836>;

⁹ Ralf Schwarzer, Rosemarie M. Bowler, and James E. Cone, "Social Integration Buffers Stress in New York Police after the 9/11 Terrorist Attack," *Anxiety, Stress, and Coping* 27, no. 1 (2014): 18-26, <https://doi.org/10.1080/10615806.2013.806652>.

¹⁰ Gemma M. Balmer, Julie Ann Pooley, and Lynne Cohen, "Psychological Resilience of Western Australian Police Officers: Relationship between Resilience, Coping Style, Psychological Functioning and Demographics," *Police Practice and Research* 15, no. 4 (2013): 270-282; Adams, et al., "Coping through a Disaster."

¹¹ Vanessa A.S. Laureys and Marleen Easton, "Resilience of Public and Private Security Providers: A State-of-the-Art Literature Review," *Policing: An International Journal* 42, no. 2 (2018): 126-140.

¹² Charles R. Marmar, Shannon E. McCaslin, Thomas J. Metzler, et al., "Predictors of Post-traumatic Stress in Police and other First Responders," *Annals New York Academy of Sciences* 18, no. 1 (2006), <https://doi.org/10.1196/annals.1364.001>.

¹³ Gabriele Prati and Luca Pietrantonio, "Risk and Resilience Factors among Italian Municipal Police Officers Exposed to Critical Incidents," *Journal of Police and Criminal Psychology* 25, no. 1 (2010): 27-33.

¹⁴ Laureys and Easton, "Resilience of Public and Private Security Providers."

¹⁵ Rachel Evans, Nancy Pistrang, and Jo Billings, "Police Officer's Experiences of Supportive and Unsupportive Social Interactions Following Traumatic Incidents," *European Journal of Psychotraumatology* 4, no. 1 (2013), <https://doi.org/10.3402/ejpt.v4i0.19696>.

the experiences of the PO who were on active duty during the terrorist attack at Brussels Airport on 22/3. More specifically, this research is based on two questions: (1) What are the applied coping strategies of PO regarding the terrorist attack of 22/3 and (2) Which formal and informal workplace social support is perceived as affecting police officers' resilience in the aftermath of 22/3?

Theoretical Considerations

Defining Resilience

Since the concept of resilience has been brought to attention in various academic fields in the past few decades, scholars have attempted to unravel the processes that explain how certain people thrive in the face of adversity while others struggle and develop psychological problems.^{16,17} This shift towards a solution-focused approach centered on positive aims, protective factors, and adaptive capacities also occurred in research on the mental health of PO when they experience stressful situations. Several studies provide growing evidence that PO demonstrate resilient behavior in the face of adversity.¹⁸ However, there is no consensus among scholars on how to conceptualize resilience.¹⁹ Moreover, a clear-cut definition of resilience in the research field of PO is still lacking.²⁰

Based on the work of Paton, Violanti and Smith²¹ and Bogaerts,²² in this article, resilience is defined as *"a person's ability to draw upon individual, inter-relational and organizational resources to cope and bounce back or develop from the confrontation with potentially traumatic events and keep functioning adequately afterwards."*

¹⁶ Ann S. Masten, "Resilience in Children Threatened by Extreme Adversity: Frameworks for Research Practice and Translational Synergy," *Development and Psychopathology* 3, no. 2 (2011): 493-506, <https://doi.org/10.1017/s0954579411000198>.

¹⁷ Steven M. Southwick, George A. Bonanno, Ann S. Masten, Catherine Panter-Brick, and Rachel Yehuda, "Resilience Definitions, Theory and Challenges: Interdisciplinary Perspectives," *European Journal of Psychotraumatology* 5, no. 1 (2014), 25338, <https://doi.org/10.3402/ejpt.v5.25338>.

¹⁸ Bowler, et al., "Longitudinal Mental Health Impact"; Galatzer-Levy, et al., "Peritraumatic and Trait Dissociation Differentiate Police Officers"; Pietrzak, et al., "Trajectories of PTSD Risk and Resilience."

¹⁹ Gemma Aburn, Merryn Gott, and Karen Hoare, "What is Resilience? An Integrative Review of the Empirical Literature," *Journal of Advanced Nursing* 72, no. 5 (2016): 980-1000, <https://doi.org/10.1111/jan.12888>.

²⁰ Laureys and Easton, "Resilience of Public and Private Security Providers."

²¹ Douglas Paton, John M. Violanti, and Leigh M. Smith, *Promoting Capabilities to Manage Posttraumatic Stress: Perspectives on Resilience* (Springfield, IL: Charles C. Thomas, 2003).

²² Stefan Bogaerts, *Literatuuronderzoek naar professionele weerbaarheid bij politiepersoneel* (Tilburg, Netherlands: Tilburg University, 2013).

The Concept of Coping in the Aftermath of PTE

The resilience process is facilitated by the use of coping strategies.²³ Coping can be defined as “a stabilizing factor that can help individuals maintain psychological adaptation during stressful periods; it encompasses cognitive and behavioral efforts to reduce or eliminate stressful conditions and associated emotional distress.”²⁴ Coping is a complex, dynamic process that depends on the interaction between the person and the environment. This means that the appraisal of stressful situations and coping strategies can change over time and depending on the situation.²⁵

There are numerous ways to cope with adversity. Skinner and co-authors distinguished 400 ways of coping and over 100 ways to categorize coping strategies in their review.²⁶ The lack of consensus in identifying the core categories of coping among scholars makes it challenging to create a cohesive image of the construct of coping.²⁷ This research uses the classification of engagement coping and disengagement coping to reveal the coping strategies that PO rely on in the aftermath of 22/3. Engagement coping intends to deal with the stressor or related emotions.²⁸ These types of coping strategies tend to moderate the psychological harm that can be caused by PTE.²⁹ Examples of engagement coping strategies that are frequently used by PO are the use of humor,³⁰ spirituality/ religious coping,³¹ acceptance of the situation,³² and ventilating with peers.³³ However, en-

²³ David Fletcher and Mustafa Sarkar, “Psychological Resilience: A Review and Critique of Definitions, Concepts and Theory,” *European Psychologist* 18, no. 1 (2013): 12-23, <https://psycnet.apa.org/doi/10.1027/1016-9040/a000124>; Adams, et al., “Coping through a Disaster.”

²⁴ Charles J. Holahan, Rudolf H. Moos, and Jeanne A. Schaefer, “Coping, Stress Resistance, and Growth: Conceptualizing Adaptive Functioning,” in *Handbook of Coping: Theory, Research, Applications*, ed. Moshe Zeidner and Norman S. Endler (New York: John Wiley, 1996), 24-43, quote on p. 25.

²⁵ Susan Folkman and Judith Tedlie Moskowitz, “Coping: Pitfalls and Promise,” *Annual Review of Psychology* 55 (2004): 745-774, <https://doi.org/10.1146/annurev.psych.55.090902.141456>.

²⁶ Ellen A. Skinner, Kathleen Edge, Jeffrey Altman, and Hayley Sherwood, “Searching for the Structure of Coping: A Review and Critique of Category Systems for Classifying Ways of Coping,” *Psychological Bulletin* 129, no. 2 (2003): 216-269, <https://doi.org/10.1037/0033-2909.129.2.216>.

²⁷ Skinner, et al., “Searching for the Structure of Coping.”

²⁸ Charles S. Carver and Jennifer Connor-Smith, “Personality and coping,” *The Annual Review of Psychology* 61 (2010): 679-704.

²⁹ Holahan, Moos, and Schaefer, “Coping, Stress Resistance, and Growth.”

³⁰ Evans, Pistrang, and Billings, “Police Officer’s Experiences.”

³¹ Peres, et al., “Police Officers Under Attack.”

³² Allison Crowe, J. Scott Glass, Mandee F. Lancaster, Justin M. Raines, Megan R. Waggy, “A Content Analysis of Psychological Resilience among First Responders and the General Population,” *SAGE Open* 1 (2017), <https://doi.org/10.1177/2158244017698530>.

³³ Schwarzer, Bowler, and Cone, “Social Integration Buffers Stress.”

gagement coping strategies are not always beneficial: for example, cognitive coping strategies such as introspectively reflecting on the incident or self-blame appear to be risk factors for developing post-traumatic stress symptoms.³⁴

Disengagement coping strategies aim at escaping threats or related emotions. They are generally associated with increased mental health problems as it changes nothing about the threat's existence and its eventual impact.³⁵ However, there is growing evidence that they prove to be helpful at some point. In this regard, emotional distancing or psychological numbing can be an adaptive mechanism in high-risk professions.^{36,37} It allows the PO to "get the job done" and stay focused.³⁸ This avoidant behavior can be temporarily functional to reduce early hyperarousal levels and regain control of yourself and the situation.

However, this notion of "taking a break" is contrary to the persistent effort at defending against negative affect. In the long term, these kinds of coping strategies do not contribute to PO's mental health.³⁹

Workplace Social Support as a Coping Resource

While coping strategies emphasize what people do when they deal with PTE, coping resources refer to what is available to facilitate and influence coping responses. Hart and Cooper define coping resources as "any characteristic of the person or the environment that can be used during the coping process."⁴⁰ Individuals with increased access to personal and environmental resources are more likely to apply engagement coping and less likely to rely on disengagement cop-

³⁴ Leigh S. Blaney, "Beyond 'Knee Jerk' Reaction: CISM as a Health Promotion Construct," *The Irish Journal of Psychology* 30, no. 1 (2009): 37-57; Eric C. Meyer, Rose Zimering, Erin Daly, Jeffrey Knight, Barbara W. Kamholz, and Suzy Bird Gulliver, "Predictors of Posttraumatic Stress Disorder and Other Psychological Symptoms in Trauma-exposed Firefighters," *Psychological Services* 9, no. 1 (2012), <https://doi.org/10.1037/a0026414>.

³⁵ Carver and Connor-Smith, "Personality and Coping"; Holahan, Moos, and Schaefer, "Coping, Stress Resistance, and Growth."

³⁶ Karin G. Coifman, George A. Bonanno, Rebecca D. Ray, and James J. Gross, "Does Repressive Coping Promote Resilience? Affective-Autonomic Response Discrepancy during Bereavement," *Journal of Personality and Social Psychology* 92, no. 4 (2007): 745-758, <https://doi.org/10.1037/0022-3514.92.4.745>.

³⁷ Cheryl Regehr, Gerald Goldberg, and Judy Hughes, "Exposure to Human Tragedy, Empathy and Trauma in Ambulance Paramedics," *American Journal of Orthopsychiatry* 72, no. 4 (2002): 505-513, <https://doi.org/10.1037/0002-9432.72.4.505>.

³⁸ Crowe, et al., "A Content Analysis of Psychological Resilience."

³⁹ Miranda Olff, Willie Langeland, and Berthold P.R. Gersons, "Effects of Appraisal and Coping on the Neuroendocrine Response to Extreme Stress," *Neuroscience and Biobehavioral Reviews* 29 (2005): 457-467, <https://doi.org/10.1016/j.neubiorev.2004.12.006>.

⁴⁰ Peter M. Hart and Cary L. Cooper, "Occupational Stress: Toward a More Integrated Framework," in *Handbook of Industrial, Work and Organizational Psychology*, vol.2 – Organizational Psychology, ed. Neil Anderson, Deniz S. Ones, Handan Kepir Sinangil, and Chockalingam Viswesvaran (London: Sage, 2001), 93–114, quote on p. 97.

ing strategies.⁴¹ Higher resource levels are related to better psychological outcomes, more active goal-directed behavior, and better problem-solving skills in stressful situations.⁴²

This research focusses on the organizational resources that PO rely on after 22/3, specifically workplace social support. Previous research shows that an organization's characteristics have a distinct impact on how PO experience, interpret and respond to PTE.^{43,44,45} A substantial amount of research has been conducted on the role of organizational stressors⁴⁶ and their relationship with mental health problems of PO. However, relatively little research has been carried out regarding the resources provided by the police organization and their effects on PO' resilience.⁴⁷ Nonetheless, unraveling these resources is of great interest as they guide PO' coping strategies in PTE's aftermath.

This study emphasizes workplace social support as organizational resource after PTE. Workplace social support can be defined as "interacting with others in such a way as to satisfy one's basic social needs for affiliation, affect, belonging, identity, security, and approval."⁴⁸ Workplace social support is situated in interaction with colleagues, supervisors, and the organization as such. It can be di-

⁴¹ Holahan, Moos, and Schaefer, "Coping, Stress Resistance, and Growth."

⁴² Steven E. Hobfoll, "Social and Psychological Resources and Adaptation," *Review of General Psychology* 6, no. 4 (2002): 307-324, <https://doi.org/10.1037/1089-2680.6.4.307>.

⁴³ Lynne M. Huddleston, Douglas Paton, and Christine Stephens, "Conceptualizing Traumatic Stress in Police Officers: Preemployment, Critical Incident and Organizational Influences," *Traumatology* 12, no. 3 (2006): 170-177, <https://doi.org/10.1177/1534765606294911>.

⁴⁴ Douglas Paton, John M. Violanti, Karena Burke, and Anne Gehrke, *Traumatic Stress in Police Officers: A Career-length Assessment from Recruitment to Retirement* (Springfield, IL: Charles C. Thomas, 2009).

⁴⁵ John M. Violanti, Luenda E. Charles, Erin McCanlies, Tara A. Hartley, Penelope Baughman, Michael E. Andrew, Desta Fekedulegn, Claudia C. Ma, Anna Mnatsakanova, and Cecil M. Burchfiel, "Police Stressors and Health: A State-of-the-Art Review," *Policing* 40, no. 4 (2017): 642-656.

⁴⁶ See, for example, Paula Brough, "Comparing the Influence of Traumatic and Organizational Stressors on the Psychological Health of Police, Fire, and Ambulance Officers," *International Journal of Stress Management* 11, no. 3 (2004): 227-244, <https://doi.org/10.1037/1072-5245.11.3.227>; Jon M. Shane, "Organizational Stressors and Police Performance," *Journal of Criminal Justice* 38, no. 4 (2010): 807-818, <https://doi.org/10.1016/j.jcrimjus.2010.05.008>; Peter G. van der Velden, Rolf Kleber, Linda Grievink, and Joris C. Yzermans, "Confrontations with Aggression and Mental Health Problems in Police Officers: The Role of Organizational Stressors, Life-events and Previous Mental Health Problems," *Psychological Trauma: Theory, Research, Practice, and Policy* 2, no. 2 (2010): 135-144, <https://doi.org/10.1037/a0019158>.

⁴⁷ Hart and Cooper, "Occupational Stress: Toward a More Integrated Framework."

⁴⁸ Miguel Bernabé and Jose Botia, "Resilience as a Mediator in Emotional Social Support's Relationship with Occupational Psychology Health in Firefighters," *Journal of Health Psychology* 21, no. 8 (2016): 1778-1786, quote on p. 1779, <https://doi.org/10.1177/1359105314566258>.

vided into four categories, namely informational, emotional, instrumental, and appraisal support.⁴⁹ First, informational support can be defined as the advice, guidance, or suggestions one gives to another in a stressful period. Second, emotional support involves the provision of caring, empathy, and trust. Third, instrumental support is the provision of tangible aid, goods, and services, such as training, education, and equipment. Fourth, appraisal support involves communicating or providing information that is relevant to self-evaluation.

Research Method

Study Design

A qualitative, exploratory research method was used to answer the research questions, with a triangulation of several research techniques. First, a content analysis was conducted, consisting of the study of policy documents and reports of meetings. Second, preliminary conversations with eleven key figures from within the organization were administered to obtain more insight into the functioning of the organization and the efforts it has made after 22/3. Third, participant observation of 112 hours was carried out (between October 2017 and December 2017), aiming to achieve insight into the organizational culture and structure and empathizing with the PO to gain trust. Finally, 31 semi-structured in-depth interviews were performed with PO who were on active duty during 22/3. This approach allowed the authors to obtain an in-depth understanding of the opinions and experiences of the PO participating in this research.

Participants and Sampling

The aviation police at Brussels Airport (LPA BruNat) is a part of the Belgian Federal Police and provides the security at the largest airport in Belgium. This police force included 440 employees at the time of the research, of which approximately 200 worked during and in the aftermath of 22/3. There are no exact numbers available of PO who worked on 22/3. Theoretical sampling was applied to create as much variation as possible and to obtain rich cases.^{50,51} Four respondents were recruited by sending an e-mail to all police force members, and fifteen by talking about the research during the participant observation.

Furthermore, the researchers relied upon 'gatekeepers' to find more PO willing to talk about their experiences of 22/3. This resulted in 16 extra respondents. The sample collected included 24 males and seven females, varying in rank, ranging from assistant PO, police inspectors, chief-inspectors to commissioners. Ages

⁴⁹ Catherine Penny Hinson Langford, Juanita Bowsher, Joseph P. Maloney, and Patricia P. Lillis, "Social Support: A Conceptual Analysis," *Journal of Advanced Nursing* 25, no. 1 (1997): 95-100, <https://doi.org/10.1046/j.1365-2648.1997.1997025095.x>.

⁵⁰ Jaak Billiet and Hans Waage, eds., *Een samenleving onderzocht. Methoden van sociaal-wetenschappelijk onderzoek* (Antwerpen: De Boeck, 2006).

⁵¹ Tom Decorte and Damian Zaitch, D., *Kwalitatieve methoden en technieken in de criminologie* (Leuven: Acco, 2010).

varied between 27 and 58 years old, and years of service went from 4 up to 41 years.

Procedure

Based on the content analysis, participant observation, and a literature review, the sensitizing concepts of the topic list were developed to guide the in-depth interviews. However, the flexible and open-ended nature of the interviews allowed the respondents to discuss other topics related to the study. The interviews were conducted between December 2017 and April 2018, of which twenty at the airport and eleven at the respondents' home or at the researcher's office. The length of the interviews varied from 49 minutes to 129 minutes.

Data Management and Analysis

All of the interviews were audiotaped and transcribed verbatim. Data were organized, coded, and analyzed using the qualitative software program NVivo. The coding process was twofold: on the one hand, a deductive approach was used based on the sensitizing concepts of the topic list. On the other hand, new codes were developed inductively, starting from the data itself.⁵² Finally, codes were reclustered according to the detected key categories, which yielded the most important research findings.

Ethical Considerations

All respondents signed a consent form that outlined their rights during the research, including the right not to answer questions and the possibility to withdraw from the interview at any time. All identities were kept confidential and any information that could lead to the identification of the respondents was removed from this article. Ethical approval was granted from the Ghent University Ethical Committee and the Belgian Federal Police.

Results

Coping Strategies in the Aftermath of 22/3

All through the day of 22/3, nearly all respondents switched to automatic pilot, with a high focus on doing their jobs. At that point, there was no room for acknowledging their own emotions. This section focuses on how PO dealt with 22/3 afterward. Figure 1 summarizes the coping strategies that were addressed across the interviews. In addition, we discuss the effects of 22/3 on the personal and professional lives of the involved PO.

⁵² Dimitri Mortelmans, *Handboek kwalitatieve onderzoeksmethoden* (Leuven: Acco, 2007).

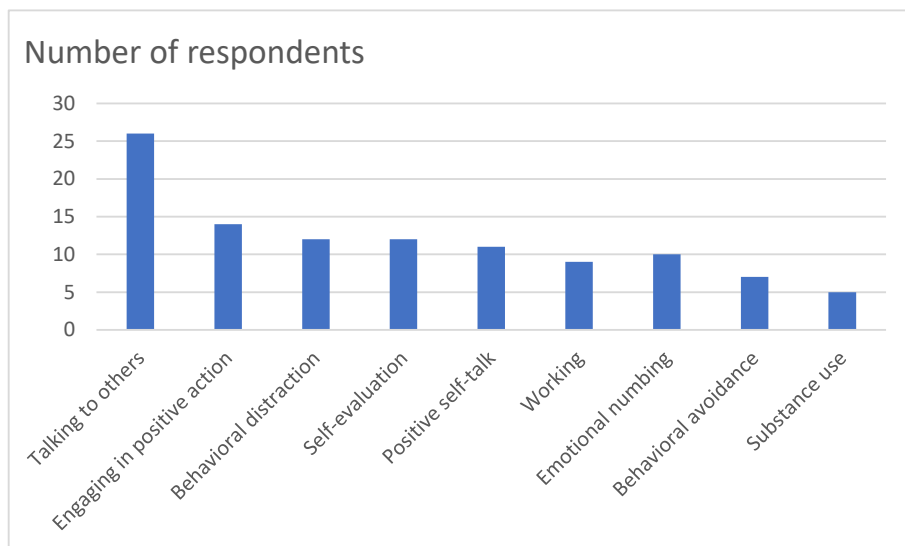


Figure 1: Coping Strategies Applied after March 22, 2016.

Engagement Coping Strategies

As a means of venting about the incident and/or feelings, talking with others was the most cited coping strategy among the respondents (see Figure 2). Support is primarily sought with colleagues. Second, partners are highlighted as being crucial to rely on after 22/3. In the safety of their homes, respondents can show their vulnerability and emotions. On the other hand, some respondents are concerned not to shock or upset their loved ones, making them reluctant to share details of their experiences. Respondents in relationships with another PO perceived this as valuable because it helped them feel freed up to talk frankly. Third, some respondents counted on their close friends, mostly to find a distraction from negative thoughts. Fourth, several respondents turned to a professional counselor outside work: the general practitioner is perceived as a trusted person who introduces specialized assistance when necessary. Consulting a therapist is another well-used source of support: expressing emotions to a therapist in a neutral setting reduces the concern of risking to damage their career by showing vulnerability. On the other hand, some respondents felt restricted to share their stories because their therapist did not understand the ‘language’ of the police world well enough. Other difficulties were finding a therapist they connected with or somebody qualified enough in the subject of traumatology. Fifth, a substantial number of respondents relied on support organized at the workplace to vent their emotions or frustrations: fifteen respondents depended on the Stress team of the Federal Police,⁵³ and thirteen PO found support with the psycholo-

⁵³ A team of psychologists and social workers that assist PO psychologically when they experience PTE during work.

gist or victim assistant within their department. Finally, five respondents indicated that they tended not to talk to peers or a professional counselor. They described themselves as 'hardened' by previous traumatic experiences at work and believed that therapy was not beneficial for them. They preferred to just "get on with the job" or process the incident by themselves.

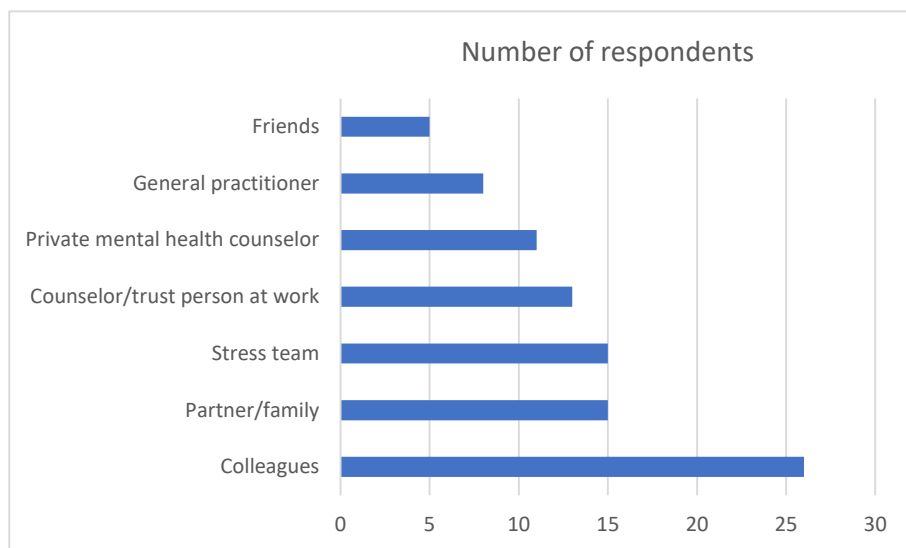


Figure 2: Sources of Social Support by Talking with Others.

The second most cited coping strategy is engaging in positive action, such as addressing shortcomings or problems in the aftermath of 22/3 to the trade union or staff management. This enabled some respondents to place a positive value on a negative event. Furthermore, writing down experiences and feelings helped restructure thoughts and empowered some respondents to distance. Additionally, reminiscing about the attack by going back to the crime scene, re-watching videos, or fact-checking with peers helped to find closure.

Third, both behavioral distraction and self-evaluation are frequently applied coping strategies. Engaging in relaxing activities such as playing sports, taking a vacation, meditating, or going out helps to blow off steam and escape from a spiral of negative thoughts. Focusing on positive activities generates renewed energy. When making a self-evaluation of 22/3, eight respondents struggled with feelings of self-blame and guilt, having the idea that they failed the victims. These negative ideas are diminished by getting acknowledged for their efforts by colleagues, superiors, or the victims themselves. On the other hand, four other respondents explicitly declared feeling good about their response to 22/3. They stipulated to have done everything they could within their own potential and give meaning to their actions by concluding they made a positive contribution to the whole.

Fourth, several respondents addressed positive self-talk as an efficient coping strategy. Looking realistically at the situation, reminding themselves things could be worse, and reflecting on the good things in life builds acceptance and enabled the respondents to move on with their lives.

Afterwards, I watched a documentary on 9/11. Then I think that was 1000 times worse, and those guys also moved on. (R1)

Finally, continuing to work appeared to be important for nine respondents, especially for those who are single. Staying at home has a distressing effect and provokes negative thinking. Working offered them a distraction, created a certain routine, and the opportunity to ventilate with peers.

Disengagement Coping Strategies

A regularly adopted disengagement coping strategy is emotional numbing. Several respondents consciously detached from their feelings and avoided thoughts about the magnitude of 22/3 in order to protect themselves against overwhelming emotions. This kind of distancing enabled them to continue with their daily activities. However, in most cases, these blocked emotions emerged after the confrontation with certain triggers, going from weeks to several years after 22/3. Those who have not experienced this were concerned to 'crash' sooner or later.

The day after the attack, the psychologist came by and I thought, "What are you doing here with me? I don't need this; I'll get over it myself. By continuing to work, this will pass." But that wasn't the case. I was able to push these feelings away for several months, but then the lights went out. And I completely crashed. (R28)

Second, several respondents mentioned using behavioral avoidance strategies, such as avoiding any kind of news about 22/3. Moreover, two PO avoided the airport after 22/3, and two others withdrew from social life.

There is little notification of the (ab)use of substances in the aftermath of 22/3. Only one respondent declared starting to drink heavily shortly afterward as a reaction to strong emotions. Four other respondents mentioned using calming or sleeping medication for a short period of time but indicated being concerned about becoming dependent on it.

Effects on Personal and Professional Life

22/3 affected the lives of all respondents, both personally and professionally. Ten respondents explicitly reported that 22/3 affected them more profoundly than other PTE because it took place in their own work environment.

The big difference is that it took place in our own workplace. That makes it more confronting. When you go to a murder scene somewhere else, that's further away from your personal life. Now it was in our own territory. Our own colleagues. A colleague who lost his leg makes it entirely different. (R19)

Nearly all respondents indicated to show post-traumatic stress symptoms after 22/3, such as sleeping problems, physical exhaustion, concentration prob-

lems, anxiety, and re-experiencing the attack. In most cases, these symptoms disappeared after several weeks.

Most respondents said they were hyper-vigilant at work the first weeks after 22/3, which faded away after a period of time. However, fifteen respondents developed continuous alertness for terrorism-related signs at the airport, which is experienced as very exhausting and distressing. Furthermore, nine respondents felt unsafe while at work and tried to avoid certain places such as the departure hall. The same kind of behavior is reported in private situations: fifteen respondents were more cautious and suspicious in public spaces such as concert halls, cinemas, or malls. Furthermore, nine respondents admitted to being frequently insensitive and unkind towards their loved ones at home and stated that there is a clear distinction between their functioning before and after 22/3. For three respondents, 22/3 has been an important factor for the end of their relationship.

I always say... there is your life, family and job from before the attack, and there is the one after the attack. (R26)

On the other hand, 22/3 established both personal and professional growth: half of the respondents mentioned to appreciate life more. They focus on what truly matters and enjoy the little things in life, such as love, laughter, companionship, and being in nature. Furthermore, they put things more into perspective, show more empathy, and reflect more on their job performance, which gives them an improved sense of control in other critical situations.

Organizational Resources in the Aftermath of the Terrorist Attack

Formal Workplace Social Support

Emotional support. Most respondents were satisfied with the psychological support provided by the organization. Fifteen respondents relied on the Stressteam of the Federal Police, six went to see the psychologist at LPA BruNat, and seven respondents turned to the victim assistant of LPA BruNat. The individual contacts with the members of the Stressteam were mainly positive: because of their knowledge of police work, respondents generally had a good connection with them and felt free to talk. Furthermore, it was appreciated that they were available practically immediately after 22/3, easily approachable, and that they took the initiative to contact the PO frequently. However, a couple of months later, the members of the Stressteam withdrew from LPA BruNat. Several respondents with delayed post-traumatic symptoms experienced a high threshold and felt ashamed to contact the Stressteam themselves. Moreover, speaking up and showing vulnerability was perceived as risky by some respondents because it could be passed to staff management and negatively influence their careers. Furthermore, in addition to individual counseling, the Stressteam organized a debriefing for different teams several days after the attack. For some respondents, this intervention came too soon since they still were in denial and detached from

their feelings in order to 'survive.' Others experienced this group discussion as threatening because they felt vulnerable to share their emotions in public.

Instrumental support. Three themes of instrumental support provided by the organization were discussed across the interviews, namely the debriefing, administrative support, and training/education.

Two months after 22/3, the Federal Directorate of the Aviation Police organized a debriefing for all members of LPA BruNat, which posed several problems according to the respondents. First, not everybody was aware of this event or able to attend it. Second, the respondents who were present recall that the debriefing was merely a monologue for a large group of PO. They had a strong desire for an operational debriefing exclusively with the PO who worked on 22/3. This would create the opportunity for an open dialogue and solve the main misunderstandings between PO about each one's contribution on 22/3. Two years later, the new staff management organized a debriefing-moment for the PO who worked on 22/3, explaining administrative procedures and showing the video images of the attack while giving them an opportunity to talk about their experiences. Although it came late, several respondents were grateful for this initiative.

Afterwards you realize that you miss certain parts of that day, and you want to know what exactly happened in the end. (R15)

In addition to the emotional impact, 22/3 brought some administrative and judicial consequences for the involved PO. Twenty respondents declared that they got injured physically or psychologically. Several of them registered for the statute of "victim of terrorism" and/or filed for a civil complaint. These registrations are perceived as important to get the acknowledgment and to find closure. The respondents reported that the administrative support of the organization was inadequate. Guidance was lacking and information was given in an unstructured and fragmented way. For this reason, eight respondents did not start or did not go on with the administrative/judicial procedure. The respondents suggest creating a central contact point within the organization to coordinate and follow up on the files.

You had to figure it out yourself. They did not guide you in the process. No, you had to take the initiative yourself. That's why I've waited so long to go on with it. You don't know how to get started. (R26)

The procedure is very complicated. That's why I've put it all in the shredder. You can go on forever. (R4)

When making a self-evaluation of 22/3, nearly all respondents consider themselves insufficiently trained to deal with a similar situation. However, they are not convinced whether specific training would guarantee proper actions in extreme situations. The respondents feel a strong need for regular training and exercise in 'daily' police work. It enables them to develop their professional skills and perform confidently under difficult circumstances.

During the interviews, most respondents emphasized physical training to be able to cope with adversity. None of the respondents had heard of the existence of mental training and resilience programs. Nevertheless, there was a strong interest to attend this kind of training. Despite their positive reaction, four respondents were also skeptical: they believed that the ruling macho culture would hamper the implementation of resilience programs within the police force.

I think it would be very useful, but I've never heard of it. And I think many colleagues would be too proud or too tough to be willing to follow such courses. "Come on, don't be silly, you have to man up; this is our job." I don't agree with that. (R8)

Appraisal support. Although appraisal support from the staff management and the police force in general is perceived as indispensable (e.g., by writing a good report or giving a medal of honor), the respondents recall getting insufficient formal recognition for their efforts. Moreover, they had the impression that staff management was unaware of the impact of 22/3 on their employees. Statements such as "Isn't the drama over yet? It's been two years" (R11) or "You're still not over it after two years? You were not injured, right?" (R18) are perceived as offensive. Not being recognized for their work or psychological loss led to anger, frustration, and demotivation with several respondents. In this respect, one respondent mentioned "secondary victimization."

Informal Workplace Social Support

Colleagues

Informational support. Given the perception that administrative support organized by the police force was lacking, most respondents found out themselves how to manage the administrative and judicial procedure and shared this information with their co-workers. Furthermore, PO informed each other with referencing to certain doctors, therapists, or lawyers.

Emotional support. As already mentioned above, most respondents sought support from their colleagues after 22/3. Remarkably, they mainly talk about their frustrations regarding 22/3 and less about personal emotions. In this respect, eighteen respondents referred to the ruling 'macho' culture at the workplace, where showing signs of vulnerability is perceived as being weak. Consequently, they are cautious about sharing their thoughts and feelings with their colleagues, making it harder to process 22/3. Some respondents revealed that when they did express their emotions, they got laughed at by other colleagues and judged for being weak.

Okay, the macho culture within the police has always been there and always will be. Especially in the aftermath of the attack, I have the impression that you cannot show weakness. This form of 'social control' is that strong, that it influences you. That you're afraid to say "I'm having a hard time" or "I'm not sleeping well." ... No, within the police, there's no attention for that, on the contrary. (R29)

On the other hand, thirteen respondents found emotional support with colleagues they connected with on a deeper level and/or who experienced the same adversity. Sharing their emotions in a safe, accepting environment is highly valued and perceived as a crucial factor to deal with 22/3.

Finally, thirteen respondents reported that support was expressed by seeing each other, sending text messages, or making phone calls to check if colleagues were all right. This thoughtfulness was highly appreciated.

Appraisal support. Being acknowledged by colleagues for the efforts made during 22/3 seems to be another essential aspect to cope positively with the incident. Getting a “pat on the back” or a simple “well done” gave the respondents a feeling of gratification and increased their self-confidence. On the other hand, several respondents mentioned the insensitivity of some colleagues towards psychosomatic problems after 22/3, especially when complaints took a longer period of time. Reactions such as “aren’t you over it yet?” or the accusation of abusing the health system led to loneliness, frustration, and ultimately difficulties to cope with 22/3.

Supervisors

Informational support. Most respondents thought that informational support from supervisors was limited. In this respect, the interviewed chief inspectors and commissioners declared that they tried to support their team members based on their personal expertise. They picked up distress symptoms from colleagues and advised them to see a doctor or therapist. The lack of information on how to assist the team members with administrative or judicial questions frustrated them.

Emotional support. Opinions differ on the extent of emotional support provided by supervisors. Seven respondents declared that their supervisors showed emotional engagement by regularly asking how they were and by emphasizing that they were available for a talk. A supportive supervisor with good leadership qualities is identified as a crucial supportive factor in the aftermath of 22/3. A good leader is described as decisive, understanding, compassionate, and correct by the respondents. Supervisors with these qualities enable respondents to feel more confident about their professional skills, especially in crises. Moreover, this kind of leaders endorses a trust climate where team members can be themselves.

On the other hand, thirteen respondents claimed that their supervisor was not considerate about their thoughts and feelings at all. This lack of support generates feelings of frustration and abandonment by the police force.

On March 22, we helped people, and the day you need help yourself, you’re being left in the cold. Until today, two years later, I have been waiting for a phone call from our supervisor from back then to ask me how I am. I haven’t received it yet. (R28)

Six respondents with a supervisory role expressed their strong feelings of responsibility for their team members’ well-being after 22/3. They were concerned

when they noticed a co-worker was having a hard time and tried to be available for them. However, three of the supervisors experienced this as burdensome, as they had to cope with their own traumas of 22/3.

At that moment, you're too much occupied with yourself to cope with it yourself... I had to come to terms with my own emotions at first, before I could pay attention to signals of distress from my own team members. (R26)

Instrumental support. Several respondents pointed out that their direct supervisor granted practical needs after 22/3, such as changing job content or adjusting work schedules to go and see the doctor. Nevertheless, five respondents complained that staff management ignored their desire to change the workplace at the time of 22/3. This led to demotivation and higher rates of absenteeism. However, the current staff management allowed such requests, which was experienced as healing for their trauma.

Appraisal support. Nearly all respondents emphasized the importance of getting acknowledged by their supervisor after 22/3. It enhances their self-confidence and keeps them motivated during hardship. Nevertheless, only a minority of superiors expressed their appreciation for the efforts that were made on 22/3. The respondents declared that this is inherent to the police culture, where performing well is often taken for granted.

Discussion

The aims of this article were (a) to examine the coping strategies of PO after the terrorist attack of 22/3 and (b) to study the (in)formal workplace social support that is perceived as affecting PO's resilience.

Following the first aim, data analysis revealed that the interviewed PO primarily adopt engagement coping strategies in the aftermath of 22/3, of which the most cited one is talking to others. This is in agreement with previous research findings that discovered that being able to ventilate and express feelings to normalize experiences after PTE is a crucial resource for first responders.^{54,55,56,57} In addition, to support from colleagues, partners play a crucial role in the coping process of PO. The police organization should make efforts to rein-

⁵⁴ Adams, et al., "Coping through a Disaster."

⁵⁵ Leigh Blaney and Vivienne Brunsden, "Resilience and Health Promotion in High-risk Professions: A Pilot Study of Firefighters in Canada and the United Kingdom," *The International Journal of Interdisciplinary Organizational Studies* 10, no. 2 (2015): 23-32.

⁵⁶ David N. Sattler, Bill Boyd, and Julie Kirsch, "Trauma-exposed Firefighters: Relationships Among Posttraumatic Growth, Posttraumatic Stress, Resource Availability, Coping and Critical Incident Stress Debriefing Experience," *Stress and Health* 30, no. 5 (2014): 356-365, <https://doi.org/10.1002/smi.2608>.

⁵⁷ Paul M. Young, Sarah Partington, Mark A. Wetherell, Alan StClair Gibson, and Elizabeth Partington, "Stressors and Coping Strategies of UK firefighters during on-duty incidents," *Stress and Health* 30, no. 5 (2014): 366-376.

force and strengthen this resource by creating a partnership with families and organizing, e.g., family days or support groups.

Other frequently adopted coping strategies identified in this research are behavioral distraction, engaging in positive action, self-evaluation, positive self-talk, and emotional numbing. Concerning the latter strategy, the police organization should be aware of the fact that some PO develop delayed post-traumatic symptoms.

Interestingly, religious faith/spirituality as a coping strategy is hardly mentioned in the Belgian context, which contrasts with previous research.^{58,59,60} This also goes for the use of (black) humor.⁶¹ Although humor is acknowledged as a fundamental part of the police culture, in this case, it is perceived as inappropriate because of the seriousness of 22/3.

Furthermore, this study discovered that a considerable amount of PO demonstrates post-traumatic growth after 22/3. This finding is consistent with previous research that has found that post-traumatic growth is a relatively common outcome in PO after PTE.^{62,63}

Following the second aim of the study, our findings revealed that workplace social support plays a significant role in fostering the resilience of PO after PTE. Crucial in the coping process of the involved PO, support at the workplace is being recognized by the police organization for the efforts made on 22/3 and for the psychological loss afterward. This is important both on the formal level – by the staff management, and on the informal level – by colleagues and supervisors. It establishes feelings of gratification, enhances self-confidence, and keeps PO motivated during hardship. However, giving compliments or expressing gratefulness proves to be uncommon in the police culture, where performing well is of-

⁵⁸ Adams, et al., “Coping through a Disaster.”

⁵⁹ Roger A. Boothroyd, Shawna Green, and Anne Dougherty, “Evaluation of Operation Restore: A Brief Intervention for First Responders Exposed to Traumatic Events,” *Traumatology* 25, no. 3 (2018): 162-171, <https://doi.org/10.1037/trm0000168>.

⁶⁰ Nina Ogińska-Bulik, “Negative and Positive Effects of Traumatic Experiences in a Group of Emergency Service Workers – The Role of Personal and Social Resources,” *Medycyna Pracy* 64, no. 4 (2013): 463–472, <https://doi.org/10.13075/mp.5893.2013.0048>.

⁶¹ Crowe, et al., “A Content Analysis of Psychological Resilience”; Evans, Pistrang, and Billings, “Police Officer’s Experiences.”

⁶² Erin C. McCanlies, Anna Mnatsakanova, Michael E. Andrew, Cecil M. Burchfiel, and John M. Violanti, “Positive Psychological Factors are Associated with Lower PTSD Symptoms among Police Officers: Post Hurricane Katrina,” *Stress and Health* 30, no. 5 (2014): 405–415, <https://doi.org/10.1002/smi.2615>.

⁶³ Jane Shakespeare-Finch, Ian Shochet, Colette Roos, Cameron Craig, Deanne Maree Armstrong, Ross Young, and Astrid Wurfl, “Promoting Posttraumatic Growth in Police Recruits: Preliminary Results of a Randomised Controlled Resilience Intervention Trial,” Australian and New Zealand Disaster and Emergency Management Conference: Book of Proceedings, 2014, Association for Sustainability in Business Inc., Australia, https://anzdmc.com.au/archive/BOP_PR14.pdf.

ten taken for granted. Disregarding the impact of 22/3 on the involved PO provokes anger, frustration, feelings of abandonment, and demotivation.

In addition, this study demonstrates the importance of informal emotional support in the workplace. Although PO primarily turned to colleagues to vent themselves after the 22/3 attack, they express their frustrations rather than their emotions. In this respect, the ruling 'macho' culture is addressed, where discussing fears outspokenly and showing signs of vulnerability could be perceived as being weak and ultimately have a detrimental effect on the reputation of the PO. There is a strong need for an open, non-judgmental atmosphere at the workplace that normalizes sharing emotions and encourages co-workers to be considerate for signs of psychological distress. In this regard, supportive supervisors have an important role in endorsing a trust climate where concerns and emotions can be openly discussed.

Concerning formal workplace social support, this study emphasizes the value of a well-organized, easily accessible psychological aftercare for the involved PO. In the case of LPA BruNat, the experiences with the members of the Stressteam were mainly positive. However, although most of the respondents connected well with them and felt free to talk in individual counseling sessions, some were suspicious about using this formal resource as it could be a manner to detect 'weakness' in PO, which is perceived as harmful for career prospects.

Besides, a proper debriefing is declared as an essential resource to cope with 22/3. This tool helps to restructure the course of 22/3 to recollect some PO memories and solve misunderstandings between colleagues. However, mixed opinions were given about the timing of such a debriefing, whether it should be mandatory or not, and who is granted to attend it. Overall, debriefings should be organized in a psychologically safe environment, with room for open dialogue.

Furthermore, several of the involved PO were physically and/or psychologically injured as a consequence of 22/3, which conveyed some administrative and judicial implications. Being recognized as a "victim of terror" by the government or being able to actively take part in the trial is pointed out as an essential resource to find closure with regard to 22/3. PO require instrumental support from the police organization for this matter and recommend a central service for coordination and follow-up of the files. This suggestion is in accordance with the findings of the Parliamentary Research Commission "Terrorist attacks," which was founded on April 22, 2016, in response to 22/3.

Finally, this study revealed that the PO disclaim the importance of physical training to prepare for extreme incidents, as they believe this would not guarantee a proper reaction when it comes to a real incident. However, there is a strong need for training and education in 'daily' police work. Since resilience is a learnable, dynamic process that changes in the context of person-environment interactions,⁶⁴ police organizations can commit to initiating education and training

⁶⁴ Laureys and Easton, "Resilience of Public and Private Security Providers."

programs that provide PO with physical and psychological skills that foster resilience.⁶⁵

In conclusion, this study provides insights into the best practices for the police organization to help its employees cope with PTE. This leads to a better understanding of how to foster the PO's resilience and job performance. In this respect, organizations should invest in providing the best resources for their personnel by focusing on three levels: (a) the individual PO (e.g., training programs), (b) the organization itself (e.g., restructuring), and (c) the individual-organizational interface (e.g., communication, participation).⁶⁶ This triple focus creates a platform for better policies, procedures and a culture that enhances the capacity for resilience.⁶⁷

Limitations and Future Research

This research has several limitations. First, the findings of this qualitative study of a specific case cannot be generalized for the whole police population. Nevertheless, this study provided profound insights into a unique traumatic event that has not been examined yet. Second, although the respondents seemed frank about their experiences, socially desirable answers have to be considered in the results. Third, the interviews took place approximately two years after 22/3, which increases the risk of retrospective recall bias. However, this can also be interpreted as a strength given some PO's delayed mental health problems.

Since resilience is a dynamic process, future research would benefit from longitudinal studies that provide more insights into the evolution of coping strategies during and after PTE. Besides, a mixed-methods approach to examine the resilience of PO during their daily operational hassles or the influence of police culture on applying coping strategies would also be of interest. Moreover, since organizational stressors such as bureaucracy, autonomy, management, and communication may be a greater source of stress for PO, investigating "job context" factors related to PO's resilience, in general, is an interesting avenue for future research.

⁶⁵ Nneoma Gift Onyedire, Afamefuna Theophilus Ekoh, JohnBosco Chika Chukwuorji, and Chuka Mike Ifeagwazi, "Posttraumatic Stress Disorder (PTSD) Symptoms among Firefighters: Roles of Resilience and Locus of Control," *Journal of Workplace Behavioral Health* 32, no. 4 (2017): 227-248.

⁶⁶ Richard S. DeFrank and Cary L. Cooper, "Worksite Stress Management Interventions: Their Effectiveness and Conceptualisation," in *From Stress to Wellbeing*, ed. Cary L. Cooper, vol. 2 (London: Palgrave Macmillan, 2013): 3-13, https://doi.org/10.1057/9781137309341_1.

⁶⁷ Karena Jane Burke and Douglas Paton, "Well-being in Protective Services Personnel: Organisational Influences," *Australasian Journal of Disaster and Trauma Studies* 2, no. 2 (2006): 1-13.

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Evolving Concept of Resilience: Soft Measures of Flood Risk Management in Japan

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Abstract: The concept of resilience is evolving to reflect various changes in climate, socio-economy, technology, etc. This article analyzes areas affecting resilience by reviewing the policy change of flood risk management, particularly soft measures, in Japan. Japan has coped with natural disasters throughout its history and succeeded in reducing flood damage. In particular, the government had invested in the infrastructure of flood protection at the level of 1% of the National Income for the last half-century and thus became able to protect major cities from flooding by major rivers. While major rivers are well protected, risk areas adjacent to small rivers and hill areas remain exposed to repeated flooding. Since the 2000s, the country is expanding soft measures, such as hazard mapping, early warning, and promoting evacuation to protect people's lives. The article examines the evolving processes of soft measures by reviewing the revision of flood-fighting law. It was found that the concept of resilience in soft measures is evolving according to various changes, such as financial constrain, decreasing investment in infrastructure, aging population, urbanization, technology development, and climate. Based on lessons from the evolving concept of resilience, the author recommends that developing countries should implement soft measures considering various changes in socioeconomic and natural conditions and invest in infrastructure.

Keywords: flood protection, Japan, investment, infrastructure, flood fighting, risk mapping.

Introduction

The concept of resilience is evolving in reflection of various changes in climate, socio-economy, technology, and other factors. Each country attempts to strengthen its resilience to disasters according to its local condition.

Japan has a rich historical experience in flood risk management. The country has increased its investment in flood protection infrastructure and succeeded in decreasing damage. The country has also revised the flood-fighting law to respond to emerging needs of soft measures, such as evacuation planning, information sharing, and hazard mapping.

This article aims to analyze areas that affect evolving resilience by reviewing the policy changes of flood risk management in Japan, particularly soft measures. Further, it provides other countries with policy recommendations in flood risk management based on its own findings and lessons learned.

The Resilience Concept in Japan

The United Nations Office for Disaster Risk Reduction¹ defines resilience as “the ability of a system, community or society exposed to hazards to resist, absorb, accommodate, adapt to, transform and recover from the effects of a hazard in a timely and efficient manner, including through the preservation and restoration of its essential basic structures and functions through risk management.” To strengthen resilience, coordinating institutions, risk identification and reduction, preparedness, financial and social protection, and resilient reconstruction are needed.² Shiozaki and Kato³ argue that engineering resilience is crucial for quick recovery and that risks in urban systems can be managed by recognizing recoverable impacts.

The Japanese government is promoting initiatives for building national resilience to create safe and secure national lands, regions, and economic society that have strength and flexibility, even in the event of any disasters.⁴ The basic goals are (a) to prevent human loss, (b) to avoid fatal damage to important functions for maintaining administration as well as social and economic systems, (c) to mitigate damage to property of the citizenry and public facilities, and (d) to achieve swift recovery and reconstruction. The government planned to invest 7 trillion JPY, some 64 billion USD, in infrastructure development of disaster risk reduction from 2018 until 2020. The government uses ‘resilience’ as the concept of minimizing damage from crisis, realizing rapid recovery, and building sustainable and

¹ United Nations Office for Disaster Risk Reduction (UNDRR), “Terminology,” <https://www.undrr.org/terminology>.

² World Bank, *Building Resilience: Integrating Climate and Disaster Risk into Development* (Washington, DC: World Bank, 2013), <https://openknowledge.worldbank.org/handle/10986/16639>.

³ Yuto Shiozaki and Takaaki Kato, “Definitions of Resilience and Vulnerability in Natural Disaster Research and Related Fields,” *Seisan Kenkyu* 64, no. 4 (2012): 643-646, <https://doi.org/10.11188/seisankenkyu.64.643>. – in Japanese.

⁴ Cabinet Secretariat, “Building National Resilience – Creating a Strong and Flexible Country” (Tokyo: Cabinet Secretariat), https://www.cas.go.jp/jp/seisaku/kokudo_kyoudjinka/index_en.html.

equitable cities. However, experts and researchers use ‘resilience’ with different meanings, and there is no common theory of disaster resilience.⁵

Studies have examined how various sectors contribute to strengthening community resilience in Japan. Ishayama and Shaw⁶ argue that community networks created through daily healthcare activities by social welfare, medical, and local government organizations contribute to strengthening local communities’ resilience. School Centered Community Building, promoted by the education ministry, restores community resilience following the Great East Japan Earthquake and Tsunami in 2011. Schools become multi-functional facilities, supporting disaster management by involving local communities in school management and educational activities.⁷ Societal activities in local communities, such as festivals, religious activities, and sports events, enhance relationships in communities, leading to strengthening communities’ resilience.⁸ However, these literature sources do not cover the evolution of the concepts of resilience in flood risk management in Japan.

Historical Overview of Disaster Risk Reduction in Japan

Japan has fought against disasters through its long history and fostered a culture of disaster risk reduction.⁹ The Emperor ordered the construction of embankments along Yodogawa River to protect the Osaka plain in the 4th century. The national administrations of Bakufu and Emperor, as well as Daimyo, federal lords, constructed structures to protect the strategic areas of castles and major cities from flooding by using local knowledge and materials in the middle ages and early modern period. Also, local communities were engaged in flood fighting to protect themselves and their own assets. The modernized Meiji Government introduced Western technology of flood protection from The Netherlands and other western countries in the 19th century and started constructing large-scale structures to protect agricultural lands and cities from flooding.

⁵ Ryoga Ishihara, “Formation and Development of ‘Disaster Resilience Theory’ in Japan,” in *Depopulation, Deindustrialisation and Disasters*, ed. Katsutaka Shiraishi and Nobutaka Matoba (Palgrave Macmillan, Cham, June 2019), 253-273, https://doi.org/10.1007/978-3-030-14475-3_13.

⁶ Kenji Isayama and Rajib Shaw, “Building Disaster Resilient Community Through Healthcare Networking,” in *Community Practices for Disaster Risk Reduction in Japan*, Disaster Risk Reduction: Methods, Approaches and Practices Series, ed. Rajib Shaw (Tokyo: Springer Japan, 2014), 91-120.

⁷ Shohei Matsuura and Rajib Shaw, “Concepts and Approaches of School Centered Disaster Resilient Communities,” in *Community Practices for Disaster Risk Reduction*, 63-89.

⁸ Miwa Abe and Rajib Shaw, “Community Resilience After Chuetsu Earthquake in 2004: Extinction or Relocation?” in *Community Practices for Disaster Risk Reduction*, 191-208.

⁹ Satoru Nishikawa, “From Yokohama Strategy to Hyogo Framework: Sharing the Japanese Experience of Disaster Risk Management,” *Asian Journal of Environment and Disaster Management* 2, no. 3 (2010): 249-262, <https://doi.org/10.3850/S1793924011000459>.

Japan succeeded in decreasing flood damage by investing in infrastructure for flood protection. A series of floods occurred in the 1940s and 1950s and caused considerable human losses and economic damage. The damage to the economy reached 10% of the National Income in 1947, and over 5,000 people died in 1959. This is because the government could not allocate enough funding for flood protection because of military expansion and the wars in the 1930s and 40s.¹⁰ The government invested in infrastructure for flood protection at the level of approximately 1% of the National Income from the 1940s until the 1990s. Tsukahara and Kachi¹¹ estimate the annual benefit from these investments at over 6 trillion JPY, or 55 billion USD, in the mid-1990s, which is almost double the investment. The death toll decreased to less than 300 in the 1990s, and the economic damage decreased to less than 0.3% of the National Income (Figure 1).

Japan could prevent almost all flooding by major rivers because of investment in infrastructure for the half-century. However, the country cannot perfectly prevent flooding in urban areas by small and medium rivers, and the tributaries of major rivers, as well as landslides and debris flows in hill areas.

Since the 2000s, the government has decreased the budgets for flood protection due to national budget constraints, and various issues have emerged in every flood. The evacuation of people isolated in inundation areas has been delayed even though government organizations have issued warnings and evacuation orders. Local governments have been unable to issue timely evacuation orders to evacuate people in risk areas because of their limited capacity. The capacity for mutual efforts in local communities is reduced due to urbanization and the aging population. The vulnerable groups of the elderly and handicapped are facing difficulties in escaping from flooding. In 2018, over 200 people died in the western Japan region because of flooding caused by torrential rain at unprecedented scale. That was the highest number of casualties since 2004.

Evolving Concept of Resilience and Soft Measures

The history of revising the flood-fighting law illustrates the evolution of the concept of resilience against flooding in Japan. In addition to structural measures, the country has developed soft measures, starting with flood-fighting activities in the field, followed by issuing warnings covering small and medium rivers, hazards' mapping and sharing risk information, promoting evacuation, involving the private sector, and protecting vulnerable groups as shown in Table 1.

¹⁰ Mikio Ishiwatari and Kenichi Tsukahara, "Technical Note on the Estimation of Infrastructure Demand for Flood Control," in *Bridging the Infrastructure Gap in Asia*, ADB-JICA Joint Side Event at the 50th Annual Meeting of the ADB Board of Governors" (Yokohama, 2017), https://www.jica.go.jp/jica-ri/publication/other/l75nbg00000wej43-att/5_JICA_Technical_Notes_DRR.pdf.

¹¹ Kenichi Tsukahara and Noriyasu Kachi, "Using Data and Statistics to Explain Investment Effectiveness on Flood Protection," *Journal of Disaster Research* 11, no. 6 (2016): 1238-1243, <https://doi.org/10.20965/jdr.2016.p1238>.

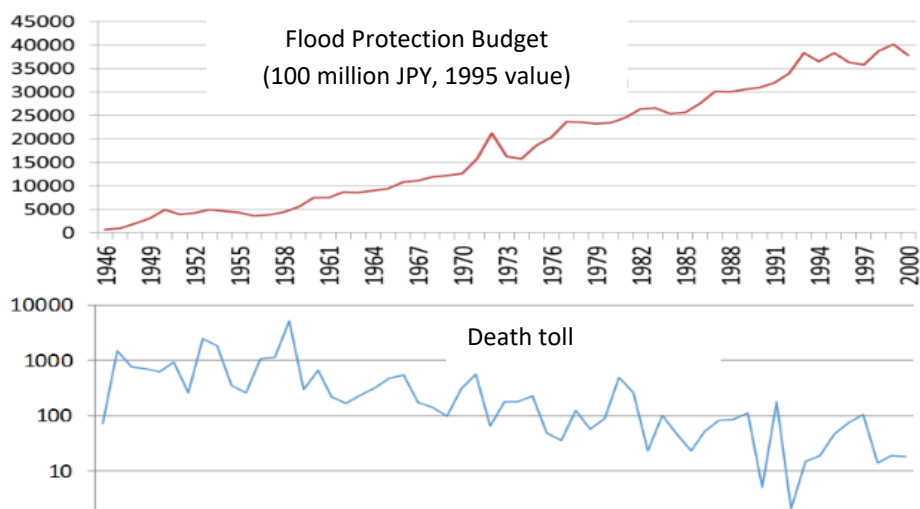


Figure 1: Budgets of Flood Protection and Death Toll in Japan.

Source: Mikio Ishiwatari, *Japanese Disaster Management and Disasters in the World* (Tokyo: Kashima Syuppankai, 2016). – in Japanese.

Table 1: History of Revising Flood-Fighting Law.

Year	Contents of revision of the law	Disasters
1949	The law was enacted. Flood-fighting in the field	a series of flooding
1955	Flood forecasting and warning	
2001	Risk mapping Covering small-and medium-rivers	Urban flood in Nagoya
2005	Promoting evacuation Protecting vulnerable groups	torrential rains and ty-phoons
2011	Including tsunami-related disasters Protecting flood-fighting members National government's support at the large-scale disasters	Great East Japan Earth-quake & Tsunami
2013	Involving the private sector	torrential rains and ty-phoons
2015	Responding to mega flooding	
2017	A mechanism for coordination among con-cerned organizations Evacuation planning and conducting drills for the vulnerable group	Heavy rainfall in Kanto and Tohoku

The flood-fighting law was enacted in 1949. Since a series of floods killing roughly 1,000 people happened almost every year in the late 1940s and 1950s, Japan needed to strengthen the systems of managing flood disasters. The law aims to protect local communities from floods and mitigate flood damage, leading to sustaining public safety. The law covers flood-fighting activities in the field by stipulating the primary responsibility of local governments and establishing flood-fighting organizations.

Japan has a centuries-old tradition of community-based activities of flood-fighting to protect their own local communities. The members of flood-fighting organizations are engaged in patrolling riverbanks, issuing an early warning, supporting evacuation, and reinforcing riverbanks during flooding, as well as piling stocks of materials and conducting drills at normal times. Since flood-fighting is embedded in societal activities in the water management of local communities, its origin is unclear. Local communities started being engaged in flood protection, while new paddy fields were developed in the middle age.¹²

In 1955, the law was revised to cover sharing flood information. The government organizations started issuing flood warnings to the public in major rivers managed by the national government and warning of flood-fighting to local governments. The warning of flood-fighting consists of three stages of (a) preparation, (b) mobilization, and (c) action. The river offices of the national government estimate the particular stage by floodwater levels.

The law had not been revised for nearly half a century but has been revised every several years starting in 2001. The reason is that the government is expected to respond to evolving issues, such as flooding in urban areas and small and medium-sized rivers and waning flood-fighting organizations. While the government has constructed structural measures, the country could not reduce the death toll further.

In 2000, the Nagoya Metropolitan area suffered from flooding. The evacuation was delayed and underground facilities and subways were submerged. It was found that government organizations did not provide the public with enough flood information and that the ordinary people did not recognize flood risks.

In 2001, the next year of the Nagoya flood, the flood-fighting law was revised for prefectural governments to issue flood warnings in small and medium-sized rivers. National and prefectural governments started sharing risk information of potential inundation areas and depth with municipality governments. The law requires municipal governments to prepare evacuation by issuing evacuation orders and designating evacuation shelters as well as sharing hazard and information maps with the public. The municipal governments need to provide flood information for evacuation in underground facilities as well.

¹² Mikio Ishiwatari, "Government Roles in Community-Based Disaster Risk Reduction," in *Community-Based Disaster Risk Reduction*, ed. Rajib Shaw (Bingley: Emerald Group Publishing, 2012), 19-33, [https://doi.org/10.1108/S2040-7262\(2012\)0000010008](https://doi.org/10.1108/S2040-7262(2012)0000010008).

In 2005, the country suffered several times from flooding caused by typhoons and torrential rains. Several issues were found. Some 60% of casualties are the elderly. Flood forecasts cover only major rivers and did not include information on inundation areas and depths.

In 2006, the law was revised to provide flood risks and flood warning in small and medium rivers and to include inundation prediction of areas and depths in the flood warning. Local governments became obligated to provide hazard and evacuation maps and formulate communication routes to facilities for the vulnerable groups of the elderly and children. Furthermore, the municipal governments design evacuation plans for underground facilities. Support organizations to flood fighting were established to strengthen the flood-fighting capacity.

In 2011, the Great East Japan Earthquake and Tsunami caused over 20,000 dead or missing people and USD 150 billion of economic losses. Over 200 members of flood-fighting organizations died during disaster management activities. The law was revised to cover tsunami disasters and to protect the lives of members of flood-fighting organizations. National governmental organizations can be engaged in flood fighting at mega-disasters.

The flood-fighting capacities of local communities weakened because of urbanization and changes in the industrial structure. The farming population declined, and young generations in rural areas migrated to metropolitan areas to find job opportunities. The number of flood fighters decreased, and they are aging. In 2013, the law was revised to involve the private sector in flood fighting to support local communities. Also, national governmental organizations support flood-fighting activities in the field. Private companies are required to formulate contingency plans to mitigate the damage of private facilities and supply-chain among private companies.

At scales larger than the designed safety levels of structural measures, flooding repeatedly occurred throughout the country in the 2010s. In 2015, the law was revised to respond to large-scale floods that structural measures cannot prevent. The governments formulate hazard maps that show the risks of maximum possible floods, high tides, and urban floods, the scale of which is set at once-in-one-thousand-years intensity.

In 2015 and 2016, affected people did not escape from flooding and isolated in inundated areas. In the Iwate Prefecture, all nine elderly could not escape and died by flooding at an elderly facility.

In 2016, the law was revised to provide for the protection of vulnerable groups. The property owners of hospitals, schools, and facilities for the elderly are obliged to formulate evacuation plans and conduct evacuation drills. Some 4,000 facilities need to take these actions throughout the country. To strengthen collaborative mechanisms, the national and prefectural governments establish coordinating committees representing the organizations concerned, such as meteorology offices, river management offices, local governments, police, fire departments, the self-defense force, and private companies.

Factors Causing Evolution

This section examines the factors affecting the resilience of flood risk management. Japan could reduce economic damage and casualties by flooding from the 1940s to the 1990s (Table 2). This is mainly because the government invested in structural measures to protect flooding by major rivers. Soft measures mainly covered flood-fighting on site and information sharing related to major rivers.

Table 2: Developing Soft Measures, Investment, and Flood Damage.

	1940s	50s	60s	70s	80s	90s	2000s	10s
flood-fighting								
Forecasting and warning								
Hazard mapping								
Evacuation								
Budget of flood protection, % National Income	0.5-2.0	0.8-1.5						
Death toll	<6,000		<1,000			<300		
Economic damage, % of National Income	0.9-10.2		<2.0	<0.8	<0.6	<0.3		

The death toll decreased to less than 300 in the 1990s but did not decrease further. Perfectly preventing flooding caused by small and medium-sized rivers and flash floods in hill areas is difficult. For example, there are still 300,000 areas at risk of landslides.

Flood-fighting capacities of local communities had declined because of urbanization and changes in the industrial structure. The government needs to strengthen soft measures. The national and local governments started formulating hazard maps and distributing the maps to the public. The development of technology to simulate flooding contributed to devising hazard maps. The governments have strengthened the evacuation measures, particularly for protecting vulnerable groups of the elderly and handicapped and the vulnerable areas of underground facilities.

Conclusion

The Japanese experience demonstrates that investment in infrastructure is effective in decreasing flood damage, but such structural measures can mainly cover major rivers. Protecting all risk areas related to small rivers and landslides is unrealistic, considering the country's enormous number of risk areas. Japan started strengthening soft measures to decrease causality further in the 2000s.

It was found that the concept of resilience through soft measures is evolving in line with various changes, such as financial constraints, investment in infrastructure, aging population, urbanization, technology development, and climate change. The coverage of soft measures expands from flood-fighting on-site to information sharing, hazard mapping, promoting evacuation, and protecting the vulnerable groups. While local communities have played a leading role in soft measures for the last centuries, government organizations and the private sector became more recently engaged in flood fighting and risk mitigation measures. This is because the relationships between members of local communities have weakened, and the private sector's role has increased in local communities.

Consideration

Lessons can be learned from the Japanese experience. These lessons are useful for developing countries increasingly exposed to flood disasters. Developing countries should invest in the infrastructure of flood protection as a cost-effective measure. Besides, developing countries should develop soft measures considering various changes in socioeconomic and natural conditions. As their economies grow, developing countries experience urbanization, changes in industrial structure, and migration from rural to urban areas just as Japan has experienced.

Disclaimer

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