Resilience against intentional shocks: a wargaming study of the relation between space, action and the residing population to resilience

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Abstract

The most widely established consensus on regional resilience is that there is no consensus on definition, application and theoretical boundaries. Despite most authors expressing objections to "stretching" the concept of resilience too far to be meaningful and its applications too varying to establish a practical framework, this study offers a participatory study of the applied concept with both conclusions about the framework and results of its implementation. The design of the study took into account the substantiated claims of previous use of resilience as a patch to all community problems and adding a new name instead of a new way of addressing them. The study introduces wargaming with the policy-makers of NATO as a reflection and mapping tool to recognize the deficiencies of the framework. The results have verified the main criticism of the concept and offered recommendations on continuing the revision of the resilience framework based on practical insights from policy-makers.

Keywords: wargaming, resilience, NATO, planning, policy

Introduction

The resilience theory can be parsed as a construct of ecology, engineering, sociology, psychology and design (Fleming, 2016). The term resilience is now commonly used by doctors, therapists, policy makers, teachers, academics and the popular press to refer to "bouncing back" after significant stress and adversity (Wright and Masten, 2014). This broad frame of reference was gradually translated into a concept abstract enough to contain useful points for all its followers. Froehlich and Hassink (2018) investigated whether resilience has become a stretched concept - one used to stimulate new ways of thinking instead of having a defined meaning.

In the same line of thinking, resilience has been compared to a metaphor rather than to a theory (Gong and Hassink, 2008). Metaphors are dependent on the narrative

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that explains its interpretation and can be responsible for shaping experience (Engel, 1993). In case of resilience, this dependency can result in diverse experiences of resilience in theory and practice. Experience is usually subjective and remains relative to the observer and environment. The recognition of the link between experience and narrative often conditions the success of intervention in the resilience of the community. Lewis and Young (2019) linked the role of the narratives framing experience of the refugees to the successful resettlement in a host nation community, highlighting the need of understanding the local perspective by policy-makers responsible for creating a response to migration.

If multiple factors influence the implementation of resilience, policy-makers can fill the role of adjusting the approach throughout the process to ensure it is viable. This high role requires knowledge of the relations between place, people and events. These relations of space, location and the community experiencing the events can offer a triangulation of the outcomes and provide explanatory additions to extensive and unbounded concept.

The following study investigates how the concept is understood by practitioners and applied in a simulated environment. The participatory methodology collected the insights from policy-makers, including their uncertainty about the definition of resilience, and its successful implementation.

Definitions of resilience include the system or object, the nature of the event disturbing its current state and adaptation which follows – in terms of success in various areas, such as developmental tasks, subjective well-being, and relational competence (Wright and Masten, 2014). The question of success in resilience is complicated due to multiple interpretations of its nature – either as a reaction or as a permanent state.

The debate over the interpretation of resilience, either as a trait or as a dynamic process, traces back to the controversy of whether it can be measured independently of the stress which causes a reaction (Wright and Masten, 2014). The state of lack of threat being not equal to resilience has been illustrated by comparison of absence of disease to not being immune to it (Panter-Brick, 2015). A counterpoint to this view is that the resilience model aims to promote health and well-being instead of only seeking to eradicate disease (Yates, *et al.*, 2015). These two interpretations differ in the understanding of success. In the first case, it is recognized as a goal and measured in case of a triggering event. For example, resilience to disinformation can only be identified if fake news is distributed. In the second case, resilience is seen as a feature which should be nurtured over time. In this way, the goal is resilience against disinformation and ongoing measures that raise the rejection rate of disinformation regardless of triggering events. This positive view on improvement of the system led to a number of applications in social systems.

Fleming (2016) observed that resilience is supplanting the notion of sustainable development in urban planning, policy and design. This observation has been supported by frameworks for translating resilience research into applied efforts

fostering positive development within communities (Yates *et al*., 2015). Some have objected to this way of applying resilience, as if it is a universal patch, not addressing the problem, but only deepening its roots (Wandji, 2019).

This form of resilience-building (with varying levels of success) brings forward lessons about the uniqueness of intervention in a specific region, group and individual (Romero-Lankao *et al*., 2016). The resilience-building success is tested during the event or ongoing crisis. Policies, or lack of them, can be contributing to a specific trajectory of recovery - either as an ability of a region to resist against functional damage and restore itself to pre-shock status or as a manner of achieving a new balance, different from that of pre-shock (Peng *et al*., 2017). Laboy and Fannon (2016) described the reactionary aspect, which relates to the cities adapting to changing ecological systems through their design choices. The region can be seen as adapting to shocks if it improves its resilience by employing responsive design. The design is not the only factor which can influence the adaptation due to varying levels of preparedness – within the geographical, societal and individual dimension.

Increasing resilience is conditioned by improvement in several dimensions: the space (location), action (event) and community (or individual). Those dimensions can contribute to understanding resilience in its broad conceptual framework, but also the precise relationships between policy and conditions of the region, such as security or economic stability. The following study presents how the spatial, action and residing population dimensions are considered in theory (by academics) and in practice (by policy-makers).

1. Relation between resilience and space

The spatial dimension of resilience is crucial to identify the area (physical) or system (topical) in which resilience is occurring (in the threat-based view) or existing (in trait-based view). Viewed through the lens of shared territory, the spatial dimension can be recognized as a "domesticated geographical living space" (Wandji, 2019). Within this shared living area, Martini and Vespasiano (2015) specified the sectors required for regional resilience as: the market, the government and the civil society. This high-level view can be supplemented by additional layers. On the lower level, the space could be defined as a specific location, district or building.

Macrae (2019) studied where and when resilience happens by tracing the "moments" of resilience on three different scales of activity: situated (happening at or close to the operational frontline within seconds to weeks), structural (emerging during monitoring of operational activities, unfolding over weeks to years) and systemic (occurring in the oversight of system structure and interaction, unfolding over months to decades). The scale of the event and the duration of its effects can contribute to the planning of the response needed to achieve the resilience of the system or resilience as a feature. In the case of both spatial policies, the consideration

and mapping of the space determines whether the action is specific, realistic and supported by the community residing in the area.

Question addressed in this study: *Do policy-makers consider the space when designing resilience-building measures?*

Main criticism: *impact of events on resilience can be local, regional or global, yet adaptation strategies for shared inhabited spaces are not designed according to a network model of communities residing in the space.*

2. Relation between resilience and action

The second relation investigated within this study is that of the actions influencing the resilience of a given community. Resilience of the community can be measured in terms of response to a particular events, a meaning that is assigned to this event by people or the actions taken to change how the community is operating (Pizzo, 2015). Action refers back to all active participants of the system that produce effect. Within most of the literature, resilience is portrayed in the context of designing remedial policies. This way of looking at resilience omits the actions which are intentionally undermining the resilience of the community.

Decreasing resilience is a consequence of deficiencies in one or many areas. Fostering resilience within the culture and society includes the peaceful political situation with some degree of national security and availability of emergency response systems, as well as socioeconomic policies resulting in healthy economy with access to material resources and human rights for citizens (Wright and Masten, 2014). The long list of factors influencing the level of resilience creates a number of goals which can be envisioned.

To achieve those goals, the actions leading to them could be mapped, sorting out those that contribute to resilience and those which stimulate new thinking. Noordhoek, de Graff and Brugnach (2018) looked into the theoretical requirements and practical implementation of urban resilience and identified the main disparities as: insufficient insight into indicators of decline, isolation of resilience in a section of organization, low level of cooperation with key stakeholders and lack of citizen engagement. A key factor in assessing action effectiveness is whether it can contribute to resilience or not. Policy-makers often work in isolation from the stakeholders and citizens who later note its shortcomings. The question remains whether policy-makers consider how their policy contributes to resilience and what effect it can achieve upon its implementation.

Question addressed in this study: *Do policy-makers consider if the action can succeed and does it have an actual effect?*

Main criticism: *Resilience has become a new buzzword, often attached to old methods of developmental and charity work. If the policy is prescriptive, but has either no chance of being implemented or lacks the support of the community, then the actions have to be investigated to differentiate between successful and unsuccessful strategies, as well as between those which receive support of community or not.*

The evaluation of resilience policies is often tied to the perception of citizens regarding its effect. The intensity of shocks can be varying based on whether the population notices the change or ignores the incidents which do not have an impact on the system (Daab *et al*., 2015). This can differ due to the cultural aspect of how independent the society is and how it enforces accountability (Ramachandra, 2019). The last relation which is decisive to resilience is the population residing in the area.

3. Relation between resilience and local population

Regional values and attitudes, largely shaped by the history of the community, contribute to the "spirit" which is reflected by organizations as well as by individuals (Edstrom *et al*., 2017). Spirit can be translated into the way in which independent thinking is displayed, as well as into the rate of mobilization and timely perseverance. The participation level and understanding of the historical trends within the community can signify the difference between meaningful intervention and superficial failure.

Wandji (2019) pointed out the paradox of resilience being threat-dependent, but the threat is usually identified by outsiders rather than the affected community, citing the example of the European Union allocating budget for resilience of the border population of Burkina Faso without considering what causes its fragility in the first place – the border itself. Without the right diagnosis of the shock, the process itself becomes counterproductive. With the loss of trust, the chance of improvement decreases. Vrooman (2013) confirmed the notion that a higher level of trust in society is positively corelated with the resilience of the group. The level of trust and the level of independence displayed by the society influence the outcome of the resilience policies proposed by the governing structures.

One of the negative aspects of resilience is that it is attractive to administrators who are able to transfer the responsibility of preparedness and resourcefulness to the population instead of to the governing structures (Daab *et al*., 2015). The ambiguity of the response responsibility creates a difficulty for monitoring and detecting potential triggers of instability.

This leads to a number of questions on the personal, group and state responsibility to resilience. The common requirement to all three levels of responsibility is the build-up of competence. Competence refers to the capacity to adapt and meet contextual, developmental, and cultural expectations for a particular

individual, group, or social structure (Yates *et al*., 2015). Wright and Masten (2014) further distinguished three main models of resilience: person-focused, variable-focused and hybrid–– each related to particular or group analysis. As mentioned before, the severity of the shock is often determined by its impact on the population. For example, the analysis based on individual focus could present a number of cases showing how an earthquake damaged their houses or changed the economic personal outlook. The same situation analyzed from the group focus would conclude the percentage of damaged houses in the community, the change in employment rate or shortfall of resources across the population. A hybrid model could contrast both data, presenting the trends applicable to the whole group, with exceptions or particularly representative individual cases. For example, why only 5% of the houses were not damaged and which lessons for the governance of the area can be drawn from a particularly resilient individual.

The impact of the action or negative event is heavily conditioned by the local population and its ability to recover from the shock. The multiplication of participants seems to be positive due to the cooperative and consensus-based nature of resilience. Increasing a number of involved stakeholders influences not only the trust and success of the intervention, but also the catalogue of available counter-actions. It has been recognized that the number of alternatives which is either available or conceived contributes to resilience to changing conditions. The negative consequences of a single-product culture have been acutely visible in cities which undergo depression after loss of a certain industry (Edstrom *et al*., 2017). The resilience-building measures in such cases include identification of the dependency and potential impact of decline on the population residing in the area.

Question addressed in this study: *Do policy-makers consider the local population when planning the resilience-building measures?*

Main criticism: *Resilience is used as a default policy for local population. It can be counterproductive if applied without recognizing the root causes of instability and the role of the local population in its countering or development.*

4. Materials and Methods

The interdisciplinary conceptual framework of resilience requires an interdisciplinary methodology. To address the uncertainties enumerated within the previous section, a new approach is proposed, which can study the policy-makers themselves and their insight into the implementation of resilience, as well as the interactions between space, actions and population. This participatory approach can check whether the criticism of resilience detailed in the introduction of this paper is replicated in a sample group. The participatory approach represents an alternative

experimental setting, following the purpose of findings which can lead to improvements in practice, as captured by Barritt (1986):

> It is not the discovery of new elements (...), but rather the heightening of awareness for experience which has been forgotten and overlooked. By heightening awareness and creating dialogue, it is hoped research can lead to better understanding of the way things appear to someone else and through that insight lead to improvements in practice.

Besides dialogue and understanding, further inquiry can establish a new line of thinking, or assess and issue with an understudied group or population. Policy-makers represent a group that is highly criticized by researchers, but rarely studied to understand how they interact with the concept. The effects of the policies being effective are scrutinized, but the decision-making process is not yet revealed. Sabin (2012) reversed the analytical method and built a study of the conflicts through simulation games, which allowed for human-in-the-loop reflecting the errors or upsides of decision-makers. Within this study, a group of policy-makers has received resilience as a given approach, but their attitudes, initiative and actions in relation to it are further investigated. This led to the question "*how do you do resilience?"* connecting the perspective of the decision-maker with the conceptual framework.

The research design includes two main features because of these observations: the participation of policy-makers in a wargaming seminar on regional resilience and analysis of their actions according to its consideration, effectiveness and contribution. This analysis leads to conclusions of validity of the claims made in the literature or its lack of substance in the given sample, as well as reflection on the wargaming method applied in this study.

5. Wargaming seminar

Wargaming has been recognized as an analytical tool for understanding different types of threats, wars and new challenges (Wong *et al*., 2017, p. 45). Despite its origins in the military planning, wargaming has been increasingly used to test, evaluate and investigate other systems (Wojtowicz, 2019).

Resilience is the latest conceptual framework to join many disciplines which employ wargaming for research purposes. As a method of inquiry, wargaming has been conceptualized to address resilience of cyber network in national security (Lantto *et al*., 2019).

Studies in Cyber Security, Computer Science, Political Science, Electrical Engineering, History and Optics have reported using wargaming as an analytical tool, either as a stand-alone, or complementary to other protocols:

> Wargames are synthetic experiences; to make the most of them, we need to integrate them with all the other tools (analysis, exercises, history, real-world

experience) that we have available to help us make sense of what we can and should focus on in the present and the future (Perla, 2011).

The most encompassing overview of the wargames evolution has been provided by van Creveld (2013) in *Wargames: From Gladiators to Gigabytes*, where the author presented the games as following the structures and development of human groups, all playing to learn the skills required to thrive in society. Wargaming emerged from the long existing evolution of learning through play towards an experimental method of approaching real-life problems. Due to the prolonged development of wargaming, similarly to resilience, many competing and overlapping definitions are in use.

Military Operations Research Society (MORS) published a list of existing definitions of wargaming[1] including the following excerpt:

- A simulation, by whatever means, of a military operation involving two or more opposing forces using rules, data, and procedures designed to depict an actual or assumed real-life situation.
- A model or simulation of war conducted without manoeuvring actual forces and with a sequence of events that affects and is affected by decisions of the players.
- Adversarial by nature, wargaming is a representation of military activities, using rules, data, and procedures, not involving actual military forces, and in which the flow of events is affected by, and in turn affects, decisions made during the course of those events by players acting for all actors, factions, factors and frictions relevant to those military activities.
- Method wherein the human intellect uses a synthetic construct that replicates a conflict and requires decisions for resolution in order to consider a real problem. (Simpson, 2015).

The evolution of the method is reflected in the new ways of defining wargaming, from strictly linked with military manoeuvres to the later proposed version of synthetic construct leveraging human intellect for searching for a solution to a real-life problem. Despite the differences, there is a constant core present in all definitions: the set of rules which govern the play, the relation to reality and the influence of the decisions of players on the outcomes. It gives an opportunity to identify interactions which would not be detected by other methods excluding the participation of people tasked with executing the concepts in reality (Morton and Williams, 2010). The participation of humans in the decision-making process allows to answer questions which would not be suited for an automated simulation. It can also bring forward new questions within the exploratory wargames.

[1] MORS supports the "big tent" approach to wargaming, which is to include complementary definitions in case they bring value to the discipline, rather than choosing one version over the other.

Wargaming as a scientific method which can serve multiple purposes, including falsifying a model by demonstrating that humans frame issues differently than is allowed to in the model, enriching a model by noting additional factors, creatively reframing the character of the problem, identifying "frictions" that need to be represented to improve how realistic the model is (Davis, 2017).

To achieve these purposes, wargaming has the following qualities (among others):

- Confrontation of the problem with either opposing teams or opposing strategy;
- Capturing the failing of courses of action as a result;
- Identifying insights of the participants (not only what occurred, but also why);
- First-person perspectives of decision-makers;
- Feedback loops from evaluation team;
- Specific success conditions.

These qualities are reflected in the design of the following study in the form of a wargaming seminar.

5.1. Wargaming seminar

The wargaming seminar was conducted on the 3rd of October 2018 in the North Atlantic Treaty Organization (NATO) Land Command (LANDCOM) in Izmir. The involvement of the policy-makers who are tasked with resilience-related processes allowed to collect insights in a simulated situation replicating real-life issues.

This study followed the qualities enumerated in the previous section.

Table 1. Wargaming seminar design

Wargaming seminar design		
Wargaming quality	*Seminar design*	*Remarks*
Confrontation of the problem with either opposing teams or opposing strategy	Participants are divided into three teams: Blue team (defending the region), Red team (attacking the resilience of the region) and Green team (local population).	Local population could support or disapprove of the actions presented by the two other teams, showing the "public opinion" on a given idea.
Capturing the failing of courses of action as a result	Action were evaluated in two dimensions: if they have been met by the other team's	This evaluation refers to the prediction of intentional attacks on resilience as well as to the

	counteraction and if there is an expected (contributing) effect.	effectiveness of the resilience-building strategies.
Identifying insights of the participants (not only what occurred, but also why);	Seminar included presenting and supporting the actions proposed. The intention and motivation of the participants was scoped.	Stimulating the participants to think through their process of decision-making is crucial to further addressing the criticism against policy-makers in the resilience frameworks.
First-person perspectives of decision-makers	Participants have been made responsible for resilience without the limits of bureaucracy, meaning they have been positioned to be able to succeed or fail.	This design element responds to the argument of "administrators transferring responsibility" for preparedness.
Feedback loops from evaluation team	The seminar concluded with results and debriefing. Debriefing consisted of the reiteration of insights from participants, discussion about the concept itself and comparison with reality – events and reactions to shocks in NATO countries.	
Specific success conditions	The Blue team would be successful if they could prevent attacks from the Red Team or counter their effects. The Green Team success was at a high level of resilience, but not dependent on external interventions.	Resilience is not a finite state, in a context of regional security, it is more the end-state to which teams might align their actions. This seminar was based on a current scenario of peacetime region in which resilience is built up in case of future crises.
Reporting	Collection of the findings for practitioners dealing with the resilience topic in NATO structures.	Although this point is not specific to the listed qualities of wargaming, it does relate to the application of outcomes to the real-life problem lying at the core of the methodology.

Source: Author's representation.

The one-day seminar proceeded with a turn-based table-top exercise on regional security. The teams would present their actions in relation to real-life spaces and receive the opinion of the local population team in terms of their support or lack of thereof. The instructions were given to approach the topic and task critically and come forward with the uncertainties in the concept, planning and implementation of resilience.

5.2. Participants, dataset and visualization of results

The space which the table-top exercise was based on Baltic States (Latvia, Lithuania, Estonia) and Poland commonly referred to as NATO Eastern Flank. The country books and maps of those four countries were made available to the participants. The state of "normal", a sort of reference line, had to be identified in order to measure the deviation from the norm (Daab *et al*., 2015). The initial state of the region was presented in the scenario of the exercise, which followed the reality of 2018 – at the time, this region was peaceful and resilient to shocks. The participants had previous knowledge of the region due to their daily work on this area and subject matter.

The participants included civilian and military officers working in LANDCOM in the following functions: intelligence, civil-military cooperation, engineering, public affairs, planning, operations and analysis. The total number of participants was 30, ranging from a rank of Major to Colonel for the military staff and equivalent for the civilian personnel. Specific names and affiliations have been anonymized due to security reasons. The wargaming seminar remains to be not a personal, but a professional exercise in its format, and therefore does not represent a view of the organization or of an individual, but an academic exercise.

The results have been collected and presented in a comparative manner. To visualize the results and their positioning, a figure was constructed according to the object-centred TSOE (Technological, Social, Organizational, Economical) model.

5.3. Visual angle – TSOE Model

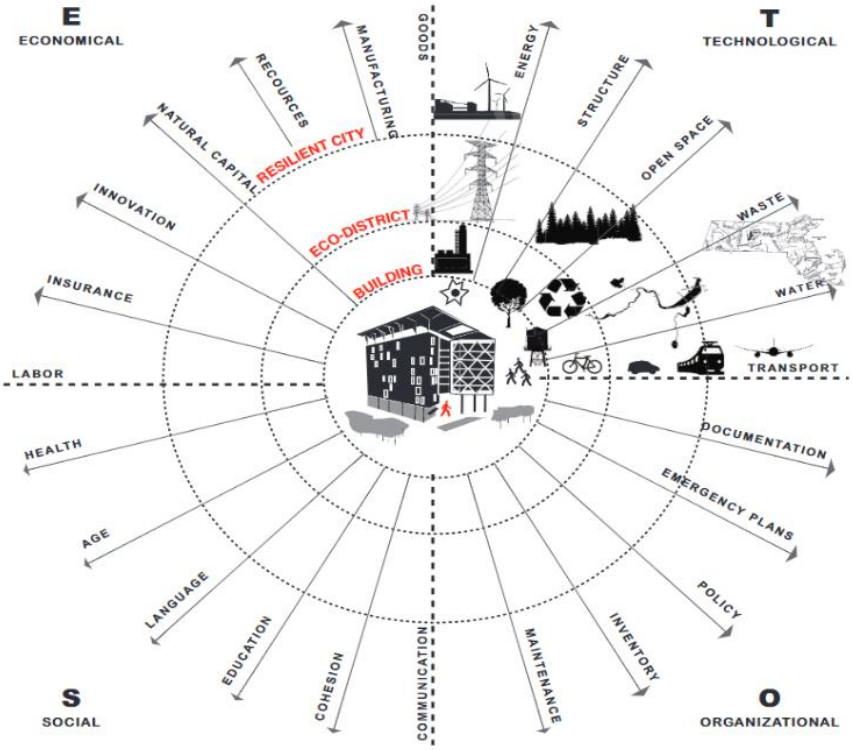
The visual angle of presenting the results can link the three relations: space, action and population in resilience interactions (Peng *et al*., 2017). For the purpose of this study, the TSOE model is used to illustrate: the area targeted, the actions of defenders and attackers, and the position of the local population. To this end, the regional security is placed in the centre of the graph, with functional areas contributing to resilience shown around it and the actions mapped across these areas.

Laboy and Fannon described four domains of resilience, each dealing with a separate area:

- Technical – referring to the physical attributes of the designed world, including the infrastructure and landscape;
- Organizational – encompassing the governing institutions that plan, develop policies and standards of mitigation, preparation and emergency response;
- Social – considering the vulnerabilities and strengths of individuals and groups;
- Economic – related to the capacity of local or regional economies (Laboy, Fannon, 2016).

These four domains are described as a basis for a TSOE model of interaction between an object and aspects of resilient city (see figure 1 for visualization).

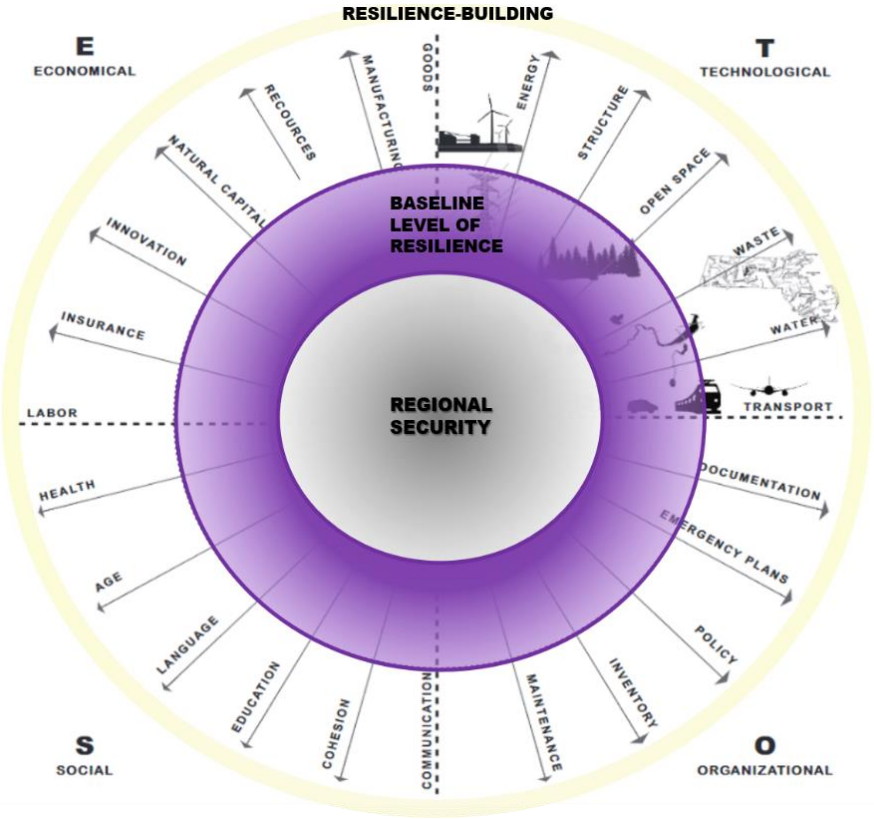
Figure 1. TSOE model applied to a building as an artefact



Source: Laboy, M. and Fannon D. (2016, p. 45).

Within this study, the object in question, to which resilience and actions are applied, is regional security. Resilience-building is recognized as the attempt to improve the existing baseline level of resilience, which exists in the space of regional security, as depicted by the figure below.

Figure 2. TSOE model applied to the regional security and resilience-building measures



Source: Author's representation, based on TSOE model proposed by Laboy and Fannon (2016).

6. Results

The first stage of the study collected the actions from Blue and Red teams. The teams presented their actions and reasoning behind choosing them. Those actions are sorted within three categories: defensive (D), offensive (O) and neutral (N). Next to these categories, the TSOE model positioning was applied based on the dominant target of the action: Technological (T), Social (S), Organizational (O) and Economic (E). The actions are marked by number and category for the visualization process. The actions have been collected in the sequence of defensive actions, neutral actions, and finally, offensive actions.

Defensive actions:

- D1: Strategic Communications aimed at reinforcing history of the independence movements (S);
- D2: Plan of alternative location which ensures continuity of government in case of crisis (G);
- D3: Move military assets closer to the border area (O);
- D4: Coordinate with airport and harbours for storage of food and water (O);
- D5: Increase protective measures for energy infrastructure (T);
- D6: Protect transportation lines (T);
- D7: Increase cyber-defence (T);
- D8: Protect communication systems (S).

Neutral actions:

- N1: Close the borders (S);
- N2: Support United Nations resolution on equal rights for minorities (S).

Offensive actions:

- O1: Jamming navigation systems (T);
- O2: Cyber-attack against airports, railway network and military headquarters (T);
- O3: Psychological operations campaign to undermine the morale of the enemy (S);
- O4: Attack underwater submarine cables (T);
- O5: Generate "troll farms" spreading misinformation (S);
- O6: Sabotage against the banking system (E);
- O7: Cultivate the idea of divisive referendum among the population (S);
- O8: Create public unrest (S);
- O9: Activate "sleeper cells" (O);
- O10: Sabotage gas infrastructure (T);
- O11: Assassination of head of government (O).

Neutral actions do not have an initial target but they might unintentionally support the other actions in their effects, such as closing the border and creating public unrest at the border area.

Within this initial mapping, it can be noted that the majority of proposed defensive actions were aimed at protection of infrastructure, whereas the offensive actions mostly targeted the population and communication. Some of the actions were proposed by both teams, which could negatively influence their effectiveness due to counteraction:

Table 2. Pairs of countering actions

	Pairs of countering actions	
Action pair	*Red Team Action*	*Blue Team Action*
O2, D7	Cyber-attack	Increase cyber-defence
O7, D1	Misinformation	Strategic Communication
O10, D5	Sabotage gas infrastructure	Protect energy infrastructure
O11	Assassination of head of government	Continuity of government plan

Source: Author's calculations.

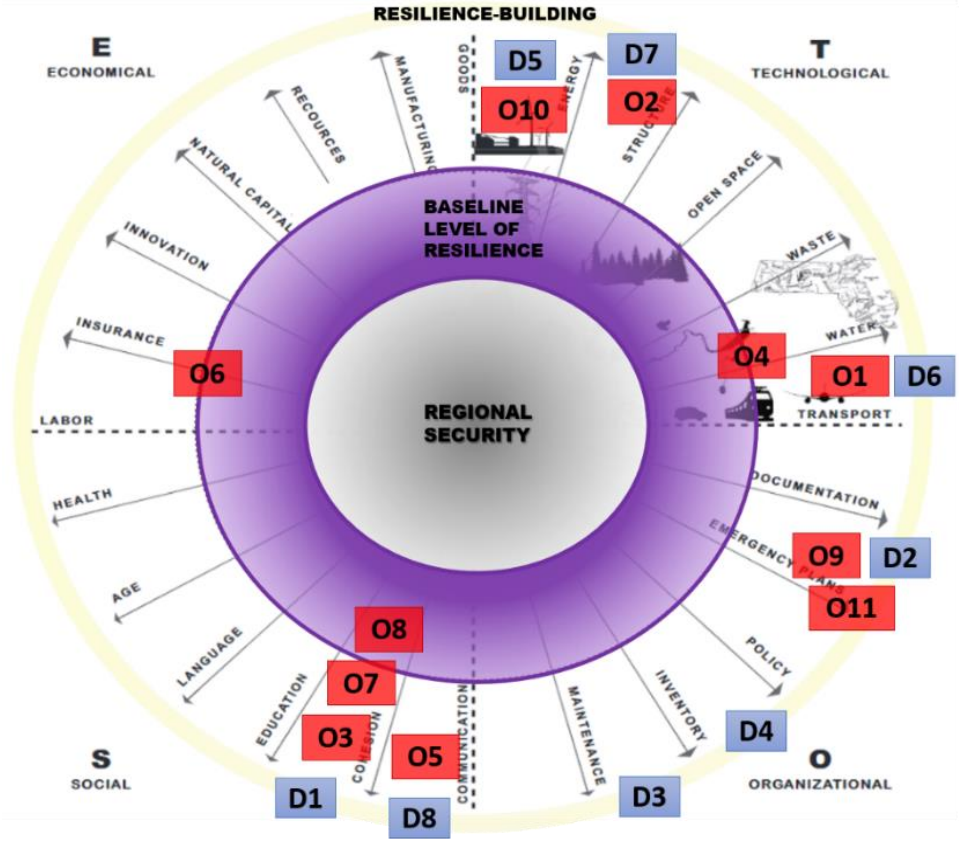
The predictability of intentional attacks against resilience of the regional security in this sample reached 36%. The neutral actions supported offensive strategy. The main discrepancy between the two teams was the main target of the actions, with the primacy of infrastructure in defence and population in offense. The actions' visual representation across resilience building and intentional attacks is depicted at the figure below.

The visual angle shows clustering in the areas of social cohesion and communication, organizational emergency plans, technological transportation, structure and energy. The isolated actions could be more difficult to predict and, therefore, have a more direct effect on resilience in the area. An additional difficulty comes from the multiple stakeholders involved in the banking and cyber systems, which might not be controlled or influenced by state authorities. There could also be a question of utility of certain actions, such as attempting to change the morale of the opponent. In case of a peace-time competition, the demoralization would not yield effects unless combined with another mobilizing action.

The population in this wargaming seminar could support an action by both teams. It has not chosen to exercise that right. Mostly due to lack of ownership of any of the initiatives proposed, all of them could be described as a short-term program, uncoordinated with communities and their preferences. It did not appear that sentiment played a significant role to one of the teams – at the time of the presentations, population players were assessing the "common sense" of the actions and disagreed with most of them. The reactions ranged from dismissal to rejection and opened declaration of resistance. None of the teams considered consulting the local population group in the process.

The next section presents the feedback loop between the participants and the facilitator of the wargaming seminar (author of this article) during the wargame as well as the insights noted in the debriefing phase. Those notes are cross-referenced with the questions and criticism identified in the first part of this article.

Figure 3. Visual representation of wargaming actions across the TSOE model applied to regional security



Source: Author's representation.

6.1. Relation between resilience and space

Do policy-makers consider the space when designing resilience-building measures?

The Blue team has brain-stormed the most vulnerable areas in their opinion and focused on building barriers which would at least delay the crisis if not prevent it. They have not considered distribution of measures across sectors or creating sectorial fail-safes. Within the distinction made by Martini and Vespasiano (2015), they have not addressed two out of three elements: the civil society and the market.

It might be due to a self-imposed limitation observed in the international organizations not wanting to get involved in national crises.

The Red team applied more cross-sectional actions designed to influence as many systems as possible and create domino effect. Their focus was less territorial and more destabilizing, counting that the incompetency of the state would attract people to their side.

Main criticism: the *impact of events on resilience can be local, regional or global, yet adaptation strategies for shared inhabited spaces are not designed according to a network model of communities residing in the space.*

The results of the wargaming seminar show that policy-makers think in their assigned confined space, not considering the impact of events that have influenced the given area or region. Building barriers could be contested by regional response teams unravelling the clusters of opponents' actions for the affected areas. The competition would be then elevated towards the performance of the space and not an isolated unit.

6.2. Relation between resilience and action

Question addressed in this study: *Do the policy-makers consider if the action can succeed and has an actual effect?*

Policy-makers in this study presented a "wishing-well" approach, trying to contribute to the desired end-state without checking its origin or its particular requirement. For example, improving the energy infrastructure in a country that receives its supplies from the opposing side would not yield any effect. On the contrary, it could build the notion of safety where there is vulnerability. This leads to "being busy" without making an actual improvement. That, in turn, could see the failure of applied resilience due to its lack of practical innovation in action.

Main criticism: *Resilience has become a new buzzword, often attached to old methods of developmental and charity work. If the policy is prescriptive, but has either no chance of being implemented or lacks support of the community, then, the actions have to investigate~~d~~ to differentiate between successful and unsuccessful strategies, as well as those which receive support of community or not.*

The red team had less to lose due to their purely influential goals. Yet, their actions were more specific and had the chance of a domino effect. It points to the weaker position of the defender in resilience as the chance of predicting a new way of attacking the regional security is low.

6.3. Relation between resilience and local population

Question addressed in this study: *Do policy-makers consider the local population when planning the resilience-building measures*?

The results of the wargaming seminar show a lack of consideration for the local population or of any efforts of involving it in a process of consultation on the developments. The degree of targeting the social area is varying, but consistently negating to those affected by the resilience-building measures or events which test its effectiveness.

Main criticism: *Resilience is used as a default policy for local population. It can be counterproductive if applied without recognizing the root causes of instability and the role of the local population in countering or development.*

Resilience shares the criticism that has been voiced in misguided developmental projects which benefit no one. It seems that it also shares its weakness of ignoring the needs of the population and its independent stance towards developments in its own region. It does not consider the networks of communities which could stand against and for policies, as the decisive factor in success or failure. This was historically proven in the region by the importance of the Baltic Way, connecting three Baltic States by public protest against the Soviet Union and for independence. The lack of consideration for the local population characterized both teams.

6.4. Discussion

The policy-practice dimension presents the challenge of identifying risk factors and developing protective strategies to address them *for and with* the communities (Hendrick and Young, 2012). The criticism found in resilience literature across disciplines echoes in the results of this study, confirming the impressions of researchers. If resilience is treated not in strict terms, but as a metaphor and impulse for new ways of thinking, it has to realize the baggage that it unintentionally picked up from previous policies. In fact, if it is new in its application, it has to differentiate itself from the unsuccessful predecessors and recognize how exactly it is better. If policy-makers cannot explain it, they will not be able to apply it.

6.5. Recommendations

The results of the wargaming study showcased the shortcomings in understanding resilience and the subsequent translation of the concept to actionable

policies. Successful strategies to address this error of appointment without comprehension include:

- Stakeholders discussion in the functional area – by creating the forum to provide facts supporting the resilience concept and ways of implementing it, the comprehension can be instilled. This approach was championed in the engagement of the scientific community, policy-makers and industry in designing measures improving urban resilience to earthquakes (Jones, 2015);
- The network of resilience – it is difficult to pinpoint the accountability for resilience, as there are no rewards for being prepared. There are negative consequences for particular situations, but no positive recognition in terms of governing structures (Halonen, 2019); If resilience becomes a discipline, it could offer a network of best practices as well as recognition of best performers.
- Clarification – if policy-makers were tasked with a population-based goal, the resilience would become more tailor-made and accountable. If the question shifts from resilience of the region to resilience of the urban population, a different set of actions could be chosen and tested for effectiveness. Jerolleman (2019) phrased this by asking: "resilience for whom?"
- Participation – the lack of consideration for the residing population and policies designed to make it more resilient can be aided with formats that provide chances of participation. The involvement of population could be organized at the level of local researchers, authorities, key leaders or simply by surveying the response to proposed actions (Briggs and Matejova, 2019). One of the formats which promotes interaction between different stakeholders is wargaming or seminars.

Using the wargaming format can facilitate the constructive confrontation of the concept with the reality of policy-makers and their tasks related to resilience. After the seminar was conducted within NATO Land Command, a set of "classic arguments" was collected and further studied within the Headquarters to strengthen the conversation. The crucial element for the successful resilience concept and its implementation is recognizing that the relation between space, action, local population and resilience needs to be bridged by policy-makers with consideration for all elements.

The criticism of resilience presented in the literature of multiple disciplines is linked with the organizations responsible for its implementation. The recommendations described above can be utilized by organizations which embraced resilience in their operations: North Atlantic Treaty Organization, the European Union, Organization for Security and Co-operation in Europe, World Health Organization and many others. The conclusions of this paper support the criticism voiced in the literature and visualize the issues with the example of resilience being broad in its conceptual layer and narrow in its successful application.

Conclusions

Based on the wargaming study of resilience in NATO, conclusions can be drawn for the particular case of regional resilience of the Eastern Flank and the general tendencies that can be observed in the conceptual framework. Resilience was specifically embraced within NATO as the possible countermeasure for hybrid, unconventional attacks and influencing campaigns aimed at destabilization of its member states. The wargame has shown that the enemy focused more on people and the market, whereas the defender focused on infrastructure. The population residing in the region remains to be viewed as a recipient of the policies and not a participating actor.

Participation is both crucial to the rate of success and the correct diagnosis of the roots of destabilization that created the requirement for resilience in the first place. The wargame has proven that the population residing in the region held opposite views to both competing teams and rejected their actions. The participation of the local perspective in the analysis could enhance the rate of acceptance and identification of possible threats.

The prediction rate of intentional undermining of resilience by enemy did not exceed 36% in the defending team. The low prediction rate has two consequences: inevitable ongoing actions of the adversary who recognizes the effectiveness of undermining resilience and the need for increased preparedness. That, in turn, creates more requirements for resilience, which needs to be based on the connection between the policies and the population they are designed to serve.

When the policy is confronted with the view of population, it can pinpoint the disconnection, or how the concept was stretched beyond its utility. Participatory studies can be used to aid the understanding of the resilience concept as well as identifying its most effective implementation.

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