



## SOCIETAL RESILIENCE AS INTANGIBLE CRITICAL INFRASTRUCTURE

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*The concept of societal resilience – the central concept of the National Defence Strategy – is, to a certain degree, not only semantically, but especially pragmatically ambiguous, as the concept has not been operationalised in the literature, on the one hand, and the state societal resilience, implementable through formal, non-formal and informal education, has not benefitted from adequate levers for application, on the other hand. The recent educational reform, achieved through the two laws, on pre-university education and on higher education, adopted in 2023, does not directly contribute to societal resilience. Under these circumstances, of an inadequately designed security education and of a pragmatic ambiguity of the strategy, which means that the communication intentions (obligation, recommendation, suggestion) are not clarified, it is necessary to exceed the classical normative framework that regulates the national educational system and to design the education-resilience binomial as critical national infrastructure. Resilience, coming from the field of safety culture studies, can be considered intangible critical infrastructure, which needs a tangible system defined or possibly defined in the Romanian legislation regarding critical infrastructure, so that it can trigger the mechanism for implementing the projection of the National Defence Strategy. The present article contributes to the identification of possible projective directions of the education-resilience binomial as critical infrastructure.*

*Keywords: societal resilience; educability; individual resilience; hybrid warfare; national critical infrastructure;*



## SOCIETAL RESILIENCE. CONCEPTUAL CLARIFICATIONS

The concept of *societal resilience* has been defined as “*the ability of communities to flexibly absorb major disturbances and quickly recover from the inevitable decline in basic functionality*” (Elran, 2017, p. 301), but this term, born at the crossroads to ecology, social sciences and psychology, has increasingly migrated to the territory of security sciences. In the new situation, the concept has become widely used in NATO terminology and constitutes an essential term in the *European Union Global Strategy*, as well as in the national security and/or defence strategies of NATO and EU member states. Despite this expansion, the term is still sufficiently fluid from a semantic point of view, being confused with that of *social resilience*, frequently used, having its origin in the concept of *community resilience*. For example, from the mapping of the concept of social resilience carried out by S.R. Joey Long in 2008, researchers Tomas Jermalavičius and Merle Parmak took the definition given by the Singaporean professor and accepted it as applicable to societal resilience, as follows: “*the ability of a nation-state to preserve its societal cohesion when faced with internal or external stress caused by socio-political changes or violent disturbances*” (Jermalavičius, Parmak, 2020, p. 27).

In essence, the definition is correct and comprehensive. However, two remarks are mandatory, in relation to the confusion between “*social*” and “*societal*”. The two terms, originating in English – the language in which the concept has been preponderantly developed and the most important studies in the field have been written –, are **not** synonyms. The adjective “*social*” is strictly related to the human individual, while the concept “*societal*” refers to society in the aggregate

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and cannot describe people and interpersonal relationships<sup>1</sup>. The two terms are different in French too, “*sociétal*” being similarly defined as the English equivalent. Moreover, the confusion between *social resilience* and *societal resilience* is amplified by another confusion, namely that between social and community. Hence, syllogistically, the terms “*societal*” and “*community*” become interchangeable, although the types of human groups – society and community – were differently defined in the late 19<sup>th</sup> in the studies of Tönnies. To be situated outside the scope of inconsistent interpretations and sources of errors, we will understand *community resilience* as the nation resilience to the threats to the state, more precisely, to its security. Societal resilience is expressed, in the global challenges equation, as “*government philosophy on nature and society*” (Walker, Cooper, 2011, p. 145), while, from the perspective of national security, it is mainly related to the interpersonal relationships architecture.

### RESILIENCE AS A THREAT RESPONSE. INDIVIDUAL RESILIENCE

To understand societal resilience in relation to threats, the most appropriate approach is probably that of individual resilience, which is defined as the optimal response or adaptation to adversity, trauma, tragedy or significant sources of stress (Newman, 2002), i.e. to different categories of vulnerabilities and threats. This definition, including the adaptive response to threats, is the reference definition of the American Psychological Association. However, the concept is difficult to operationalise due to the fact that there is, on the one hand, a static perception of it, being seen as a response given at a certain moment in relation to threats, and, on the other hand, a dynamic one, in which it is understood as an adaptive process (Yang, 2021, p. 4): “*Resilience is difficult to operationally define, because each psychologist measures and tests this phenomenon differently. Some psychologists*

<sup>1</sup> *DifferenceBetween.com* exploits this dichotomy from the ideological perspective too, highlighting the connotations of the word “*social*”, having resonance in relation to socialism, while the word “*societal*” is neuter from this perspective. The same site expands the distinction, providing some examples: “*A man can be social or not social, but he can never be societal*”, which cannot be applied to the term *societal*. In other words, Aristotle’s *zoon politikon* cannot be translated in societal-related terms, [https://www.differencebetween.com/difference-between-social-and-vs-societal/#google\\_vignette](https://www.differencebetween.com/difference-between-social-and-vs-societal/#google_vignette), retrieved on 22 January 2024 (A.N.).

*see resilience more as a process, while others see it as an outcome. The approach tends to determine which aspects of resilience are measured: aspects such as its indicators, purpose, duration (long or short term) and object (individuals or communities)”* (Alsazadeh et al., 2017). “*Also, it is difficult to assess whether the outcome of an individual’s recovery from severe trials is sufficiently <good> for the individual to be considered resilient”* (Masten, 2001).

These uncertainties regarding the application of the concept make its use problematic in the field of security, all the more so as a number of other terms, which have not been operationalised, are still frequently used and cause confusion: *hybrid warfare*, *grey zone* etc. The development of resilience depends on the wider context, i.e. the set of cultural, social, as well as economic and political factors that influence the development of resilience and that contribute to establishing the minimum threshold of resilience accepted in a society. In essence, this concept is applicable to measuring the adaptive capacity at the individual or social level – in the case of the debate on societal resilience, applicable at the level of the entire society –, and it also explicitly deals with the capacity of institutional structures to adequately respond to challenges. Resilience can be developed, meaning that the conditions for learning and practicing it can be created. Becoming a fashionable concept in the years of the COVID-19 pandemic, resilience has permeated almost all fields, including that of project documents that have built security frameworks, against which it can be properly evaluated once implemented. However, through the confusion in the definition of the application fields or sectors, the very term resilience contributes, through the upheaval it produces, to the inadequate response in relation to the risks and threats to national security.

In order to transform this still ambiguous concept into an effective tool for responding to threats to national security, its exact potential to be internalised must be identified, which, from the reverse perspective, i.e. from the object of education, would mean identifying the potential of *educability* in the field of resilience in relation to the aforementioned category of factors with harmful effects on security. In our case, educability, i.e. that human capacity to be receptive to the issue of resilience, to be aware of the need for education in the field



ROMANIAN  
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THINKING

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and to be subject to educational action, could be measured, but I have no knowledge of any quantitative research undertaken in this regard. Moreover, the convergent concepts: security culture (and education) and societal resilience, present in the body of the national defence strategy and in other documents of a projective nature – in certain doctrinal apparatuses, even of an applicative nature<sup>2</sup> –, are not the object of interest from the perspective of education sciences, as if the security issue did not represent one of acute interest and topicality.

### SOCIETAL RESILIENCE ACHIEVED THROUGH EDUCATION

It is this inability to transform the strategic directions established at the level of the national defence strategy into concrete actions – not in the military field or in what represents the basic structure of the restricted system of security, defence, public order and intelligence<sup>3</sup>,

<sup>2</sup> For example, the Australian Armed Forces have developed a guide, the *Commander's Guide to Resilience*, which defines resilience at the individual and organisational level, "Based on contemporary research, FORCOMD has developed the following definition of resilience for the military context: Resilience is the ability of individuals, teams and organisations to adapt, recover and thrive in situations of risk, challenge, danger, complexity and adversity". (Bond, 2021, p. 10), and which suggests a model for education/training in relation to resilience, in five directions, domains or key resources: psychological (cognitive, affective and self-regulatory or self-control), behavioural, physical, social and in terms of character, which contribute to training a continuum: build (through the BattleSMART programme) – strengthen (through the All Corps Officer and Soldier Training Continuum) – improve (through the culture of performance, by transforming military structures into "learning organisations" and through the development of psychological capital, PsyCap) – rebuild: "The purpose of this phase is to rehabilitate members not only through appropriate professional intervention, but also through an organisational culture that encourages social resilience, minimizes stigma, removes barriers to care and promotes unity as a positive part of a member's recovery process" (Bond, p. 20) – reintegrate. In the US Armed Forces there is also a resilience guide, actually a commander's guide to building resilience in soldiers, *The Leader's Guide to Building Resilient Soldiers*, which suggests a model for a resilient leader and a series of training methods for developing resilience in subordinates: Global Assessment Tool (GAT), Realistic Training, Resilience-Based After Action Review, and Leader-Led After Action Debrief, resulting in the military training that includes mental preparation, family support, mobility, medical training, checklists and preparation for transport/deployment (Orhan, 2020). Both analysed tools are not imposed at the doctrinal level, by means of combat manuals adopted by the Australian Defence Forces (ADF) or the US Armed Forces, but represent documents implemented in a distinct training context, with the aim of obtaining a high degree of the military resilience (A.N.).

<sup>3</sup> The current National Defence Strategy uses the same concept of "extended national security", which entails considering, besides national and allied defence, "foreign policy, public order, intelligence, counterintelligence and security activity, crisis management, education, culture, healthcare, economy, demography, finance, environment, energy security, critical infrastructure and historical and cultural patrimony" (SNAp, 2020, p. 7), meaning a constructivist approach to security (A.N.).

but in the other domains having a role in national security – that I have focused on. I have been directly interested in the way the mentioned directions have been translated into educational policies, thus becoming projections in educating a generation that is security literate and resilient from this perspective (Lesenciuc, Lesenciuc, 2017, pp. 23-30; Lesenciuc et al., 2018, pp. 93-101; Cozmanciuc, Lesenciuc, 2020, pp. 235-240). Moreover, I have been interested in societal resilience per se (Lesenciuc et al., 2022, pp. 25-31; Lesenciuc, 2023), as a central concept of the current National Defence Strategy (SNAp., 2020). However, I have not identified the way in which societal resilience is translated into the educational or the other policies included in the concept of "extended national security". The National Defence Strategy (2020) projects resilience as a principle of the adaptation/adequacy of the response to risks, threats and vulnerabilities, but also sets as its level of ambition "the transformation of our country into a resilient state, able to adequately relate to the unpredictability and extent of developments in the security environment" (SNAp, 2020, pp. 6; 8), defining this quality in relation to the set of vulnerabilities that contribute to "the unpredictability of developments in the global security environment (conventional, economic-financial, as well as cyber, hybrid or associated with pandemics and environmental changes)" (ib., p. 8). An entire subchapter in the strategy is dedicated to this issue, the concept being defined in strategic terms: "The concept of Romania's resilience is approached in a double key: the inherent capacity of entities – individuals, communities, regions, the state – to resist and adapt, in an articulated manner, to violent events, causing stress, shock, disasters, pandemics or conflicts, on the one hand, and the ability of these entities to quickly return to a functional, normal state, on the other hand" (ib., p. 11), identifying the implementation stages and the efforts to strengthen resilience, as well as the major directions for strengthening societal resilience and critical infrastructures (considered together): improving the level of awareness in relation to the intended influence through classical and new media, designing the tools to indicate or expose the sources of disinformation, increasing the awareness of the population and institutions in relation



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Societal resilience is ensured, according to the National Defence Strategy, through the national educational system, but this system, recently reformed at the normative level, with the establishment of the new legislative framework, the Pre-University Education Law no. 198 and the Higher Education Law no. 199 of 2023, does not explicitly provide the instruments to meet the strategy's goal.

to the need to protect critical infrastructures, and, in particular, a series of tools of an educational nature:

- “enhancing the capacity of educational and research institutions, think-tanks and the media to identify and combat disinformation movements supported by hostile state or non-state actors;
- increasing the level of functional literacy for the development of critical thinking and for reducing the population vulnerability to the phenomenon of spreading false information, which can have negative consequences for national security;
- supporting healthcare and emergency situations education;
- adopting measures that contribute to reducing the brain drain phenomenon while implementing programmes to attract international talents;
- starting extensive secondary and high school education programmes in the field of digital skills and online security as well as in developing the necessary skills to combat false information so that the young generation vulnerability to such hybrid challenges can be reduced and societal resilience can be enhanced” (Ib.).

The five educational tools that explicitly address aspects of the nature of formal education are complemented by the previously mentioned ones, which refer to non-formal and informal education. Societal resilience is ensured, according to the National Defence Strategy, through the national educational system, but this system, recently reformed at the normative level, with the establishment of the new legislative framework, the Pre-University Education Law no. 198 and the Higher Education Law no. 199 of 2023, does not explicitly provide the instruments to meet the strategy's goal. The only aspect that tangentially refers to the problem of resilience is the one related to cyber security (Art. 24 par. 2, art. 88 par. 10, art. 91 of Law no. 198), while Law no. 199 provides for no explicit measure to meet the objectives of the National Defence Strategy. Combining the establishment of the major directions for strengthening the resilient state at the societal level – intended to be achieved exclusively through formal, non-formal and informal education – with the directions for action regarding the “educational, healthcare, social and demographic

dimension”, also called the “societal dimension” in the body of the strategy<sup>4</sup>, we can find that the projective documents of a security nature and those of an educational nature are opaque to each other, resulting in even greater upheaval at individual, social (and societal) level.

### EDUCATION-(SOCIAL) RESILIENCE BINOMIAL AS POSSIBLE CRITICAL INFRASTRUCTURE

To overcome the simple observation of the dysfunctional relationship between security and educational directions – in a constructivist projection of national security, as it results from the pattern on which the latest two national defence strategies (SNAP, 2015 and SNAP, 2020) were built, the educational dimension is subsumed under the societal one –, I suggest an understanding of the functional education-(societal) resilience binomial as critical infrastructure. This subsector, which could be dubbed *Security Culture and Societal Resilience*, could be included in Annex 1 to the List of National Critical Infrastructure (NCI) sectors (a) under sector 6, dedicated to national security, (b) under sector 10, educational, established by Emergency Ordinance/EO no. 98/2010, (c) within sector 12, cultural – by Law no. 225/2018 regarding the amendment and completion of EO no. 98/2010 on the identification, designation and protection of critical infrastructures, sector 10, educational, called “*Space and Research*”, to which two more subsectors are added, 11 Financial-banking and 12 Culture and national cultural heritage (the latter with subsectors 12.1. Public cultural institutions and 12.2. Protection of national cultural heritage – or (d) as an independent, societal sector, defined by a legislative framework required by the future national strategy.

<sup>4</sup> This direction includes, among others, the promotion of cultural values and freedom, of democratic values, the promotion of scientific research, the optimisation of funding in the educational system, the reduction of inequity in the system, the correlation of educational policies with those in related areas, “the strengthening of the security culture”, “the implementation of projects to reform the educational and professional training systems” (SNAP, 2020, p. 38), the latter, probably, implemented precisely through the package of education laws, without, however, configuring the coordinates of implementing and strengthening societal resilience as a key element of national security (N.A.).



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Practically, the understanding of education-(societal) resilience as critical infrastructure requires its acknowledgement as intangible infrastructure, but it is likely this perspective that results in a high degree of reticence, leading to the exclusion of the educational sector from the sectors defined as national critical infrastructures. For a more correct projection, I suggest a review of the issue of intangible critical infrastructures, with the same aim of identifying the way in which, similar to the concept of *safety culture* (to which it is related), the concept of societal resilience can become a functional, applicable one, imposed through the national legislative framework, not suspended in a document, the National Defence Strategy, which does not produce effects on the Executive and, through the Executive, on the citizens.

### PHYSICAL DIMENSIONS OF CRITICAL INFRASTRUCTURES

Critical infrastructures, although they more often than not refer to the supposed physical resistance structure of some systems, constituting those skeleton elements on which the stability, functionality and security of the systems as such and of their related processes depend, can actually go beyond the physical framework. One of the criteria on the basis of which a type of infrastructure is defined as critical is the very physical or presence criterion, which requires the precise identification of its place among other infrastructures and of some quantities that are directly connected to the physical criterion: surface, dispersion etc. (Alexandrescu, Văduva, 2006, p. 8). In the context in which the information infrastructure, for example, in the current global security environment, is not limited to the physical dimension of the information environment, but implicitly entails the actual information dimension as well as the cognitive (or decision-making) dimension, we can admit that critical infrastructures have broadened their semantic coverage and designate intangible components alike.

The concept of “critical infrastructure” has been used in this formula since 1996, when the President of the United States of America summarised, with this phrase, those vital elements of the national infrastructure, which, once destroyed, can lead to considerable negative effects on defence or economy, thus being

designed, from the very beginning, the association with the actual physical domain. Obviously, after the crucial moment of 11 September 2001, these infrastructures have become increasingly significant, and the set of elements that entered the wide and incompletely defined area regarding the conceptual operationalisation of the term have exceeded the list of the initially identified elements. Since the early attempts to define these infrastructures, the range of goods have also included the intangible, virtual ones, which can extend their meaning to the tangible ones that they imbue with critical value, such as material heritage elements, which have a decisive role in preserving the collective memory. Therefore, not only cyberspace, databases and communication systems qualify to be understood as critical infrastructures, but also elements of a symbolic order, which are part of a nation’s cultural heritage.

### PHYSICAL AND VIRTUAL IN CRITICAL INFRASTRUCTURES

The literature in the field increasingly expands the concept of critical infrastructures in the virtual domain, focusing on social and cultural values, the latter being explicitly defined in a series of documents such as *The National Strategy for the Physical Protection of Critical Infrastructures and Key Assets* of the United States of America, 2003/NSPPCIKA: “A key asset category includes a diverse range of monuments, symbols, national landmarks that represent our nation’s heritage, traditions and values, as well as its political strength. They include a wide variety of sites and structures, such as relevant historical sites, monuments, living human treasures, government and commercial centers...”. (NSPPCIKA, 2003, p. 71), as well as in the subsequent planning documents in this essential domain of security. On the one hand, with the development of the constructivist concept of “securitisation”, applicable to critical infrastructures, it has been associated with the process of materialisation, in the field of intangible critical infrastructures included, shifting the focus on heritage elements carrying symbolic/cultural values (Aradau, 2010). To counterbalance this trend in the first decade of the new millennium, the focus has been increasingly shifted on intangible values, especially social values, not only as a theoretical direction of study (Burgess, 2007), but also



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at the level of public policies. On the other hand, cultural heritage – remaining connected to the concept of material heritage – projects links with the past for communities and thereby contributes to local economic development (Kamran, 2022), also constituting the foundation of a harmonious development of societal resilience around common values. It should also be brought into discussion that, even in the case of critical physical infrastructures, being visible and loaded with the significance of the role they have in national security, they also acquire an adjacent cultural significance, positive or negative, i.e. a kind of immaterial envelope with potential of social coagulation around the values they project. At the same time, an intangible dimension of these infrastructures is also created inside the organisations that serve the tangible critical infrastructures, consisting of the organisational culture with direct effects on the security culture within the limits of the critical objective (e.g. in the case of an airport or a nuclear power plant). This intangible envelope of critical infrastructures, included in or predetermined by the tangible elements of this infrastructure, is one of the possible starting points in shaping the debate on the cultural dimension of these infrastructures. For example, a number of niche concepts have developed in specialised terminology, such as that of nuclear security culture, defined as a "... a set of characteristics, attitudes and behaviours of individuals, organisations and institutions that serve the means supporting and strengthening nuclear security; nuclear security culture aims to ensure that the implementation of nuclear security measures receives the attention justified by their significance" (IAEA INSAG-24, 2010; apud Kosmowski, Śliwiński, 2016, p. 140).

The concept of *safety culture* (that led to the development of an independent area of study, dubbed *safety science*, out of which was, subsequently, developed the concept of societal resilience as an emanation of *societal safety*<sup>5</sup>), a term particularly developed in aviation,

<sup>5</sup> "Safety science serves as an international environment for research in the field of human, technological, organisational and societal security" (Boustras, Waring, 2020, p. 651, apud Haavik, 2020), in which *societal safety* is considered the area of interference of *human security, national security, incident management and sustainable management* areas. The concept of resilience developed on this dimension of societal safety, explicitly formulated by Haavik (2020): "The notion of societal resilience suggests an expansion of the more popular discourse on societal safety and security, which will allow the safety science to reach a more broadly audience and to communicate with a wider research community, addressing development trends with significance not only for resilient criticalities and infrastructures, but also for socio-ecological-political resilience".

is one of the concepts that define the intangible aura of physical critical infrastructures, contributing to the understanding of the fact that these infrastructures have a virtual component too, regardless of the physical characteristics of the critical structure. Therefore, talking about the two dimensions, tangible and intangible, of critical infrastructures, it can be concluded that all physical infrastructures have also an intangible envelope, while not all intangible critical infrastructures entail an associated physical dimension.

### CONCLUSIONS. EDUCATION-SOCIETAL RESILIENCE BINOMIAL AS NATIONAL INTANGIBLE CRITICAL INFRASTRUCTURE

Virtual critical infrastructures, more often than not understood as the communication/information systems on which the security of the metasystems they are part of depend, are not limited to the virtual environment. For example, in the *Strategy for the Development of Romania in the Next 20 Years*, proposed by the Romanian Academy in 2016, project 9, "Romanian culture between the national, localisation in the nearby, and universal areas – multilingual Europe, European culture", the integrated cultural projection is explicitly related to the information culture (in the second volume of the paper it is called digital culture), which exceeds simple digital literacy at the societal level, necessarily involving critical analysis and reflection, suggesting the cognitive dimension as an element of critical infrastructure or even an infrastructure in itself (Surdu, 2016, pp. 375-410). The strategy proposed by the Romanian Academy can be improved by adding to the field the subfield of security culture, which contributes to societal resilience. At the same time, this component included in the aforementioned strategy represents, in fact, only one of the already mentioned directions of security definition of the Romanian state as a resilient state. The other elements that contribute to meeting this desired end cannot be found in the pages of the document.

On the other hand, the National Defence Strategy (SNAP, 2020) is coherent, explicit and applicable. One of the ways in which the concept of resilience could be translated into concrete measures is its inclusion among critical infrastructures. However, resilience could be understood



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as a purely intangible infrastructure (developing in the conceptual and research family of *safety culture*), which means that it would strike a discordant note with the aggregate of national critical infrastructure sectors defined by national legislation. This is the reason why the proposal formulated in chapter 4, whereby resilience can constitute the intangible envelope of a physical, tangible infrastructure, the national educational system could lead to the creation of an instrument through which the national defence strategy becomes applicable. The national educational system is not included in the set of sectors that contain critical infrastructures, and the relevant ministry is eliminated by Law no. 225/2018. The most appropriate formula would be to create a new NCI sector, of national education, within which to define the resilience subsector. However, as education means the transmission of culture from one generation to another, in the interest of a coherent implementation of all disparate and divergent projective documents, there is also the option of exploiting sector 12. Within the limits of this projective and theoretical framework, coming up with the arguments of a theme already debated in the specialised literature (Trump et al., 2017) regarding the convergence of the issue of societal resilience with that of critical infrastructures, the subsector “*Security culture. Societal resilience*” may be most appropriately included in the NCI sector 12 – “*Culture and national cultural heritage*”.

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