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The resilience theorem as a new way to conceptualise security and defence

Introduction

The concept of resilience (Latin *rê-siliō* – jump back, bounce, pull back, contract) is particularly known in psychology, where it was adopted to denote special adaptive abilities.[1] It means the ability to adapt to time-varying conditions, and to the environment, as well as resistance to threats and the ability to regenerate. In psychology, the concept of resilience appeared in the 1970s. Initially, the lack of symptoms of psychopathology was considered resilience, and a little later, in the 1990s, this phenomenon began to be identified with adaptive behaviour and competence. It is a process involving effective human adaptation to environmental conditions unfavourable for human development. Thus, it is an adaptation profile or, in other words, a trajectory of the adaptation process.

The aim of this article is to present the meaning of the notional resilience category, to indicate the theoretical concepts that underlie attempts to formulate the resilience theory on the basis of social sciences, and to reflect on the need to develop the

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[1]   See: P. Clough, D. Strycharczyk, *Developing Mental Toughness: Coaching Strategies to Improve Performance, Resilience and Wellbeing*, 2nd edition, London: Kogan Page, 2016 and S. Lewandowska-Akhvlediani, *Rezyliencja. Siła psychiczna lidera/liderki*, Warszawa: Wydawnictwo Alegoria, 2020.

concept of resilience in the field of security and defence. Thus, the article is of a contributory nature and refers mainly to current considerations in sociology and urban studies; and to a lesser extent – to the issue of defence and security of entire societies. Although, given the potential of the resilience theorem, there is an apparent need to develop studies in this area.

Resilience – etymology and meaning

The considered notional category of resilience has been present in the English language for a long time, as evidenced by the presence of this term in the old dictionaries of the English language. In the Oxford dictionary, resilience (as resilience as well as resiliency) is related to medicine and is defined as "the property of quick recovery" or as the property of materials and objects "quick recovery after being drawn out, squeezed or crushed."[2] Another dictionary defines resilience as "rebound action, flexibility."[3] On the other hand, in Roget's Thesaurus, which does not contain definitions of terms, resilience is related to such terms as "flexibility," "elasticity," "extensibility," but also renitence, that is the ability to resist.[4] In the Polish dictionary of the English language, resilience is defined, firstly, as a set of physical characteristics such as elasticity, bounce, and secondly, as medical properties, such as the ability to heal and resile.[5] From these brief etymological considerations, it is apparent that initially the term resilience referred to mechanics and medicine. However, it would be futile to look for this concept in the Polish universal encyclopaedia or even in dictionaries of foreign words, not to mention specialist dictionaries of defence, military, or national security terms. The concept of resilience is of the Anglo-Saxon origin, and in the context of Polish social sciences, it is only at an early stage of developing its theoretical foundations.

The conceptual category of resilience was later also applied to the functioning of entire systems, such as cities (urban resilience), societies (society resilience) and entire states (state resilience), as their response to various phenomena.[6] The concept of resilience has also appeared in management and business science in relation to an organisation's flexibility and adaptability. At the core of this new theoretical conceptualisation in science there are attempts to formulate a new approach to both the very

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[2]   Resilience [headword], [in:] A.S. Hornby, *Oxford Advanced Learner's Dictionary of Current English*, with the assistance of A.P. Cowie, J. Windsor Lewis, 3rd edition, Oxford: Oxford University Press, 1974.

[3]   Resilience [headword], [in:] *Home Study Dictionary,* London: Blackie Publisher, 1990.

[4]   P.M. Roget, *Thesaurus of English Words and Phrase*, Bridlington: Peter Haddock Ltd., 1966.

[5]   Resilience [headword], [in:] M. Szkutnik, *Podręczny słownik angielsko-polski*, Warszawa: Wiedza Powszechna, 2001.

[6]   See more: B. Walker, D. Salt, *Resilience Thinking: Sustaining Ecosystems and People in a Changing World,* foreword by W.V. Reid, Washington: Island Press, 2006.

perception of threats and the ways of counteracting them. The new conceptualisation is based on various theoretical ideas, including complexity theory and chaos theory,[7] as well as the Los Angeles School of Urbanism.[8] The latter was established at the University of Southern California (USC). The discourse within this new trend in urban sociology and geography concerns three main topics, namely the spatial structure of cities, new industrialisation-urbanisation relations, and changes in social stratification in cities. Due to the specific urban development of Los Angeles, different from other American cities, in the last two decades of the previous century, systematic research into the process of transforming the spatial and social structure of the Californian metropolis was developed, which led to the conclusion that the processes initiated there were becoming precursors of the entire United States' urban transformation. The different spatial structures from the previous ones also constitute different challenges in the field of security and defence.

The rapid changes in the world that are taking place nowadays as a result of the digital revolution, globalisation processes, and others have resulted in criticism of the classical approach in social sciences, including the primacy of quantitative methods over qualitative methods, the domination of statistical analyses, and omnipresent reductionism. In the last decades of the previous century, there was a marked breakthrough with the development of anti-reductionist research approaches. Among other things, the concept of synergy, complexity theory, and chaos theory emerged. Any threats analysis allows to formulate a conclusion that crisis situations do not proceed in the same way every time. The general framework of the processes is similar, but the details and dynamics of their course differ significantly. Hence the use of the concept of complexity to define various phenomena, as Maciej Dombrowski states by asking the question whether it is a problem resulting only from human cognitive limitations, or whether complexity itself is characterized by a specific complexity, which by its very nature limits it or even prevents it from being adequately presented.[9]

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[7]   See: E.N. Lorenz, *The Essence of Chaos*, Seattle: University of Washington Press, 1995; M. Tempczyk, *Teoria chaosu a filozofia*, Warszawa: Wydawnictwo CiS in cooperation with Instytut Filozofii i Socjologii PAN, 1998; S.H. Strogatz, *Nonlinear Dynamics and Chaos: with application to physics, biology, chemistry, and engineering*, Cambridge, Mass.: Westview, [post 2006], 2002; *Chaos Theory in the Social Sciences: Foundations and Aplications*, eds. L.D. Kiel, E.W. Elliott, Ann Arbor: The University of Michigan Press, 2004.

[8]   See: M. Dear, *The Postmodern Urban Condition*, Hoboken, NJ: Blackwell Publisher, 2000; *From Chicago to L.A.: Making Sense of Urban Theory*, ed. *idem*, Thousand Oaks, CA: Sage Publications Inc., 2002; *idem*, "The Los Angeles School of Urbanism: An Intellectual History", *Urban Geography*, vol. 24, issue 6, 2003, pp. 493–509, https://doi.org/10.2747/0272-3638.24.6.493; E. Mertens, *Resilient City: Landscape Architecture for Climate Change*, Berlin – Boston: Birkhäuser, 2021, https://doi.org/10.1515/9783035622652.

[9]   M. Dombrowski, "Złożona natura złożoności", *Diametros*, no. 36, 2013, pp. 47–61; see also *Chaos and Complexity Theory in the Social Sciences*, eds. Ş.Ş. Erçetin, H. Bağcı, Hershey: IGI Global, 2016.

The turn of the 21st century resulted in the development of the complex systems concept, which is reflected, among others, in the creation of the Santa Fe Institute. In turn, the chaos theory was developed on the basis of exact sciences. The foundations for the theory were created by Edward Lorenz, who analysed weather forecasting models and introduced the term "butterfly effect" to describe a small change on the microscale of a given system in the initial phase and which, over time, results in huge and previously unforeseen changes on the macroscale.[10] Chaotic phenomena and processes are ubiquitous and common, while deterministic processes are exceptions or only our conceptualisations resulting from the need to simplify real processes. The above-mentioned emergence of new concepts within various disciplines of science expresses the global trend of searching for a new paradigm of describing a complex and rapidly changing world, which becomes in fact incomprehensible and unpredictable if old concepts are still used for describing, explaining, and forecasting it. Hence emerged the attempt to use the category of resilience instead of, or rather in addition to the category of city security. However, the very concept of resilience cannot yet be called a scientific theory in social sciences, including security sciences. It seems that at the present stage of conceptualisation and attempts to formulate the theory, one should rather adopt the definition of the resilience theorem.[11] The concept of theorem means an organised set of commonly accepted theorems that will appear in various concepts of resilience and in various sciences. Attempts at creating a uniform theoretical approach and finding common theoretical foundations for various concepts based on various scientific disciplines may lead to cognitively and methodologically interesting results.

Security and resilience

With the development of civilisation, and especially with the development of urbanisation and the intensity of globalisation processes, the scale of various threats has changed, because – which appears to be a truism – quantitative changes entail qualitative changes, and some phenomena are emergent in nature. Contemporary social processes seem to be governed by the laws of large numbers, and as Stanisław Lem expressed it in one of his books: "we live in such a [...] randomly dense world. In the molecular human gas, chaotic and astonishingly unbelievable [...] this is a world where yesterday's extraordinary becomes today's banality and today's extreme – tomorrow's norm."[12] In the era of globalisation that poses new challenges

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[10]   E.N. Lorenz, *op. cit.*

[11]   See: R. Borkowski, Definiowanie demokracji, [in:] *Demokracja. Teoria. Idee. Instytucje*, eds. T. Biernat, A. Siwik, Toruń: Wydawnictwo Adam Marszałek, 2000, pp. 11–30.

[12]   S. Lem, *Katar*, Kraków: Wydawnictwo Literackie, 1978, pp. 102–103; see also I. Stewart, *Czy Bóg gra w Kości? Nowa matematyka chaosu*, transl. M. Tempczyk, W. Komar, Warszawa: WN PWN, 1994; R. Borkowski, Świat aleatoryczny (rozważania o terroryzmie w perspektywie

for governments; views which so far have been beyond the mainstream of security sciences may gain considerable significance for the implementation of an effective security and defence policy. Michał Snopek emphasises that in order to ensure security, both internal and international, the authorities are forced to depart from the previously used paradigms.[13] The pre-existing ones often turn out to be in fact dysfunctional, leading to making decisions that result in spending huge financial outlays while achieving little significant effects.[14] An increase in outlays, for example on rescue or combating crime, brings an increase in effects only up to a certain point. It is known from both the theory of systems and ecology that after a period of dynamic growth there is stagnation or only a slight increase in the effects, achieved with disproportionate efforts and costs. Only persistent action according to well-established patterns turns out to be fruitless, ineffective, costly, and obtains a negative image in society.

Today's threats of war, terrorism, or riots, as well as the ongoing climate change, concern cities to the greatest extent. Metropolitan safety is a complex issue of managing public, anti-terrorist, sanitary, and environmental safety. Population density makes cities particularly vulnerable to the effects of military attacks, catastrophes, and climate change. Examples of city damage resulting from earthquakes (Japan), hurricanes (United States) or hostilities (Ukraine) illustrate this clearly. Increasing urbanisation causes the Earth to transform into a "globalopolis", i.e., a city-planet from the end of the 20th century.[15] At the beginning of the last century, cities were inhabited by 10% of humanity; currently – by about 60%; and in 2050, the urbanisation rate of the world is expected to be 80%. The network of big cities continues to expand with the simultaneous process of rural decline in many countries and the increasing contrasts between rural areas and monstrously large cities (Shanghai, Jakarta, Lagos, Mexico, Cairo, Sao Paulo). The space of great metropolises is divided into enclaves of wealth and luxury as well as ghettos of poverty and crime. Armed conflicts, organised crime and criminal terrorism, terrorism, and street riots are still present in urban space in many parts of the globe. The necessity to ensure protection and defence against these threats causes the spatial structures of cities to evolve towards ensuring the safety of their inhabitants, which was already defined

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analizy ryzyka), [in:] *Terroryzm. Anatomia zjawiska*, ed. K. Liedel, Warszawa: Wydawnictwo Naukowe Scholar/Collegium Civitas Press, 2006, pp. 129–145.

[13] M. Snopek, "Teoria chaosu jako narzędzie badawcze w naukach o bezpieczeństwie / Chaos Theory as a Research Tool in Security Studies", *Bezpieczeństwo i Technika Pożarnicza*, vol. 47, issue 3, 2017, pp. 78–89, https://doi.org/10.12845/bitp.47.3.2017.6.

[14] M. Mazurek, *Zarządzanie bezpieczeństwem jako dysfunkcja systemu władzy*, Warszawa: Difin, 2014.

[15] R. Borkowski, Globalizacja, cywilizacja, ponowoczesność, [in:] *Globalopolis Kosmiczna wioska: szanse i zagrożenia*, ed. *idem*, Warszawa: Instytut Wydawniczy PAX, 2003, pp. 7–28.

by Oscar Newman as "defensible space" half a century ago.[16] Today, the terms "urbanisation sensitised to security", and even "urbanisation of fear" and "military urbanisation" are also used. In the area of metropolitan security policy, appropriate urban and architectural planning (Crime Prevention Through Environment Design, CPTED) has been used for a long time, especially in Israel, and video surveillance is being developed in conjunction with biometric identification techniques, especially in China. Projects of this type are primarily intended to counteract terrorist threats and street crime.

The change in the nature of threats in the 21st century means that instead of the term "city security" ("urban safety" and "urban security"), the term "urban resilience" is increasingly used in the sociology of the city and in security sciences, which can be defined as regenerative ability or responsiveness.[17] In one of the latest Polish monographs in the field of urban studies, the authors define a resilient city as characterized by stability, the ability to quickly and effectively adapt as well as to rebuild in an emergency and after experiencing the effects of a threat. Thus, the new conceptual model of the city is therefore to be characterized by sustainability, intelligence and resilience.[18]

Moreover, in relation to the development of defence concepts, the military theorists of NATO have used this conceptual category for some time.[19] The introduction of the conceptual resilience category is in fact a recognition that it is not possible to provide full security in the way understood so far. The resilience category has been included in the city safety index in the global metropolis ranking since 2019.[20] The consequence of coming to terms with the threatening situation is the awareness that it is only possible to respond more or less effectively to disasters, catastrophes, and crises, and therefore to direct anti-crisis measures to minimising the number of victims. Resilience, understood essentially as city resilience, can be defined as the measurable ability of any city system to maintain business continuity against all shocks, crises, and stresses, while positively adjusting and transforming towards sustainable development. The city is treated as a self-adapting network

[16]   O. Newman, *Defensible Space. Crime Prevention through Urban Design*, New York: Macmillan, 1972.
[17]   See more: *Urban Resilience in a Global Context. Actors, Narratives, and Temporalities*, eds. D. Brantz, A. Sharma, Bielefeld: Transcript Verlag, 2020; J. Coaffee, P. Lee, *Urban Resilience. Planning for Risk, Crisis and Uncertainty*, London: Red Globe PR, 2016.
[18]   A. Wojewnik-Filipkowska, A. Gierusz, P. Krauze-Maślanka, *Fundamentalna siła miasta. Synteza koncepcji zrównoważonego, inteligentnego i odpornego miasta*, Warszawa: Wydawnictwo CeDeWu 2021, s. 64–76.
[19]   T. Prior, "NATO: Pushing Boundaries for Resilience", *CSS Analysis in Security Policy*, no. 213, 2017.
[20]   P. Kielstra, *Safe cities index 2021. New Expectations Demand a New Coherence. A Report*, The Economist Intelligence Unit, London 2021.

system. The academic discourse on urban resilience focuses on three main types of threats: climate change, natural disasters, and terrorist threats. Resilience can be considered as the ability of a system or organisation to adapt to the consequences of a catastrophic event of various origins. The conceptualisation of resilience can be illustrated by the following triad:

RESILIENCE	RESISTANCE	RECONSTRUCTION

or as:

RESILIENCE	DEFENCE	RESTORATION
RESILIENCE	RESCUE	RECOVERY

Conclusions

1. New challenges related to the rapidly occurring civilisation changes require new theoretical concepts which should be the basis for developing the concept of defence and security. The purpose of the new doctrines is to prepare the state, the armed forces, and society in an adequate and effective manner to the changing challenges and threats.
2. The concept of resilience is, in fact, a departure from the modernist security paradigm based on centralisation, hierarchisation, and cost-maximisation. It expresses new trends in breaking old paradigms of thinking about security, stability, and crisis management.
3. The current state of development of the resilience conceptualisation in social sciences in relation to defence allows us to conclude that for the time being it is a theorem, and therefore a beginning of the creation of a theoretical concept. The concept of society and state resilience should be developed on the basis of American sociology achievements and city geography, since it was developed on the basis of these sciences as an expression of new way of thinking about metropolitan security.
4. Finally, resilience can be considered as the ability of a system or organisation (society, city, state) to adapt to the consequences of a catastrophic event of various origins. This is, however, nothing more than the concept of a self-adaptive system. Adaptation, known in sociology and management science, is the process of adapting (individuals, groups, societies) to functioning in a changed environment (natural, social, military, etc.), including a transformation of the internal structure and methods of operation. Societies that show adaptability can survive and thrive. On the other hand, societies that have not developed such abilities are doomed to failure, regression, and even destruction. History has provided numerous examples of both types of society.

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The resilience theorem as a new way to conceptualise security and defence
Abstract

Resilience is a relatively new conceptual category used when considering security and defence. It means adaptability, resistance to threats, flexibility of response, and the ability to regenerate. The term resilience has been present in English for a long time, as evidenced by the presence of this term in old dictionaries of the English language. Originally, its meaning related to medicine and mechanics, a bit later – to human psychology, and today it has extended to the issues of resilience of cities, societies, and entire countries. An attempt at applying this new conceptualisation is associated with the recognition that the current security paradigm is losing its relevance in a rapidly changing and complex world. The changing scale of threats makes it necessary to search for new theoretical foundations for creating an effective defence policy. However, the theory of resilience has not yet been fully formulated, at best, only its theorem has. The aim of this article is to present the significance of this conceptual category, to indicate the theoretical concepts underlying this conceptualisation in social sciences, and to reflect on the value of the concept of resilience for security and defence.

Key words: resilience, resistance, security, theorem, complexity, catastrophes