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Risk as an entity in security sciences – is it a state or a process?

SUMMARY

In research practice, the concept of risk is always considered together with the concept of security. While security is examined in scientific studies from the perspective of object-oriented, subject-oriented, and processual approaches, risk as an entity is considered primarily from a practical standpoint and much less often from a theoretical one. In theoretical considerations, an important question arises: should risk be understood as a state or as a process? Research conducted with the application of theoretical methods indicates that risk has a dual nature – it is a process dynamically changing over time, composed of an uncountable set of momentary states, forming a superposition of the influence of threat manifestations on the security subject (the protected entity). On the other hand, it is also a measure of the momentary state of this process, understood as a function of measurable factors: the probability of the occurrence of a hazardous event and the potential loss caused by that event, taking into account the relationship between the characteristics of the threat and the features of the protected entity together with its environment. This measure is negatively correlated with security measures.

Key words: risk, security, risk management.

Introduction

The topic of risk has become very popular in the 21st century and is widely discussed both within scientific debate and in the context of practical applications – at all levels of entities responsible for ensuring safety. This includes those for which this task is formally embedded in their operational objectives – such as government or local administration bodies, inspection and emergency services – as well as those that create sources of risk within the civilizational sphere, such as in the economy or industry. Consequently, in recent years the number of publications devoted to this subject has increased significantly, and in the security-related literature the term "risk" is used in many different meanings, for example: individual, group, military, political, business, social, economic, investment risk, and others [1]. However, the concept of risk cannot be properly understood without understanding the concept of security.

[1] S. Kaplan, B.J. Garrick, *On the quantitative definition of risk*, "Risk Analysis" 1981, 1(1), p. 11.

In dictionary terms, security is often defined as "a state characterised by calmness, stability, the certainty that a threat will not occur, and at the same time that, should it appear, a person will be protected from it"[2]. Korzeniowski defines security as "the capacity for the creative activity of an entity, meaning an objective state consisting in the absence of threat"[3]. Piwowarski describes it as "not only a specific state of affairs, but also a value, as well as – in a third variant – a function or process of (unthreatened) development"[4], whereas Węgrzecki argues that it is "also a specific human need, becoming the highest value one strives for in life"[5]. The latter definition corresponds to the groundbreaking one, in a certain sense, presented by Maslow, who treats security precisely as a need[6], which should be classified among existential needs[7]. Nepelski notes that "security can be understood as a continuous process of striving to achieve/maintain a state of non-threat, calmness and certainty, whereby this state is understood individually by each of us"[8], while Socha argues that it is "a set of circumstances in which someone or something finds itself, in which something happens […]; it is the sensually perceptible form of something that is unthreatened by something inconsistent with social norms, or by something resulting from the occurrence of a natural disaster or technological progress; it is also the absence of the feeling of anxiety caused by a difficult situation or the anticipation of such a situation–which at the same time corresponds with reality […] it is also a component on which human existence depends"[9].

Dictionaries closer to security studies propose more precise and elaborate definitions of the concept of security. For example, it is described as "a state that provides a sense of certainty and guarantees its maintenance, as well as an opportunity for improvement; one of the fundamental human needs; a situation characterised by the absence of the risk of losing something a person particularly values, such as health, employment, respect, emotions, or material goods"[10], or as "the paramount need, value and goal of every real entity, intended to ensure its survival, functioning and development, as well as the realisation of its interests" [11], or as "a state of subjective feelings of an individual (both victims and rescuers) and a continuous, multifaceted process by which the state strives to minimise citizens' fears and anxieties through improving the functioning of individual entities performing tasks in the field

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[2] J. Stańczyk, *Współczesne pojmowanie bezpieczeństwa*, Wydawnictwo ISP PAN, Warszawa 1996, p. 18.

[3] L.F. Korzeniowski, *Zarządzanie bezpieczeństwem*, Pracownia Badań Społecznych, Kraków 2000, p. 437.

[4] J. Piwowarski, *Kultura bezpieczeństwa i jej trzy wymiary*, „Kultura Bezpieczeństwa. Nauka – Praktyka – Refleksje" 2012, 12, pp. 6–14.

[5] A. Węgrzecki, *Ontologiczne i aksjologiczne aspekty bezpieczeństwa* [in:] *Bezpieczeństwo jako wartość*, eds. I. Pabisz-Zarębska, J. Szewczyk, Wydawnictwo WSBPiI, Kraków 2010, p. 20.

[6] A. Maslow, *Motywacja i osobowość*, Wydawnictwa Naukowe PWN, Warszawa 2005; Z. Ścibiorek, B. Wiśniewski, R.B. Kuc, A. Dawidczyk, *Bezpieczeństwo wewnętrzne. Podręcznik akademicki*, 4th edition, Wydawnictwo Adam Marszałek, Toruń 2022, p. 35.

[7] W. Lidwa, W. Krzeszowski, W. Więcek, *Zarządzanie w sytuacjach kryzysowych*, Akademia Obrony Narodowej, Warszawa 2010, p. 25.

[8] M. Nepelski, *Zarządzanie w sytuacjach kryzysowych*, Wyższa Szkoła Policji w Szczytnie, Szczytno 2016, p. 15.

[9] R. Socha, *Historyczna i współczesne postrzeganie Policji w Polsce*, Difin, Warszawa 2022, p. 115.

[10] *Słownik terminów z zakresu bezpieczeństwa narodowego*, eds. J. Kaczmarek, W. Łepkowski, B. Zdrodowski, Akademia Obrony Narodowej, Warszawa 2008, p. 14.

[11] *Słownik terminów z zakresu bezpieczeństwa*, eds. J. Pawłowski, B. Zdrodowski, M. Kuliczkowski, Wydawnictwo Adam Marszałek, Toruń 2020, pp. 20–21.

of security and public order protection, as well as other entities forming the security system, the consequence of which is the development of the individual and the sustainable development of social groups"[12]. Another dictionary definition states that "security is the paramount need, value and goal of every real entity (identified as a security subject) intended to ensure its survival, functioning and development, as well as the realisation of its interests […] In the narrow sense, it means the ability of such an entity to counter threats, and in the broad sense – the ability of the security subject to survive and to develop freely"[13].

From the perspective of the philosophy of security, security "in its narrow conceptualisation is identified with the formal cause and the socio-structural element of the social system […] which, in a holistic approach, remains in a strict dependence on the elements of this system"[14], while in its axiological understanding – within the culture of security – it constitutes a value rooted in the culture of society[15].

Kitler described security as "the highest value for the head of state, one that must be constantly pursued. It must be the objective of governmental action, as it stems from natural human and national needs […] in view of these tasks, security must become an intentional, planned process designed to guarantee citizens a sense of stability"[16]. Zięba notes that, in the broadest sense, "security can be defined as the certainty of existence and survival, of possession, and of the functioning and development of an entity. Certainty results not only from the absence of threats (their non-occurrence or elimination), but also arises from the creative activity of the entity, and is variable over time, meaning it has the nature of a social process"[17]. Zdrodowski, meanwhile, states that "perceiving security unidimensionally as a state, process, feeling, perception, situation, capability, or need is insufficient, sectoral and incomplete"[18]. Baryłka emphasised an important feature of security, namely that it is "an interdisciplinary concept, and the study of its aspects is undertaken by many different scientific disciplines," assessing in this light that "it is the ability to satisfy existential needs, as well as the ability to ensure one's existence, survival and development […] it is also a state of certainty and the guarantee of maintaining it, providing a sense of stability and enabling the further development of the individual; the need for order and harmony is one of the basic existential needs of humans and is characterised by the absence of fear of losing values such as life, health, emotions, respect, work, or both material and immaterial goods"[19].

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[12] *Słownik ratownictwa*, eds. R. Borkowski, W. Zubrzycki, M. Feltynowski, Szkoła Główna Służby Pożarniczej, Warszawa 2023, p. 29.

[13] *Encyklopedia bezpieczeństwa narodowego*, eds. J. Itrich-Drabarek, A. Misuik, S. Mitkow, P. Bryczek-Wróbel, Dom Wydawniczy ELIPSA, Warszawa 2023, pp. 48–49.

[14] J. Świniarski, *Bezpieczeństwo w ujęciu aksjologicznym*, [in:] *Zarządzanie bezpieczeństwem – wyzwania XXI wieku*, ed. M. Lisiecki, Wydawnictwo WSZiP, Warszawa 2008, pp. 63–63.

[15] M. Cieślarczyk, A. Filipek, A. Świderski, J. Ważniewska, () *Istota kultury bezpieczeństwa i jej znaczenie dla człowieka i grup społecznych*, „Kultura Bezpieczeństwa" 2015, 1–2, pp. 17–57.

[16] W. Kitler, *Bezpieczeństwo narodowe RP. Podstawowe kategorie. Uwarunkowania systemu*, Akademia Obrony Narodowej, Warszawa 2011, p. 31.

[17] R. Zięba, *O tożsamości nauk o bezpieczeństwie*, „Zeszyty Naukowe Akademii Obrony Narodowej" 2012, 1(86), p. 8.

[18] *Teoria zarządzania kryzysowego*, ed. B. Zdrodowski, Wyższa Szkoła Policji w Szczytnie, Szczytno 2014, p. 12.

[19] A. Baryłka, *Podstawy inżynierii bezpieczeństwa obiektów antropogenicznych*, „Inżynieria Bezpieczeństwa Obiektów Antropogenicznych" 2015, 1, pp. 11–12.

Aven and his co-authors distinguish the definition of security through the English concepts of *safety* and *security*. In the understanding of the former, it is "a way to measure whether an entity is 'safe'; it is the opposite of risk (a high level of safety means a low level of risk and vice versa), sometimes limited to risks associated with hazardous and unintentional events," whereas in the understanding of the latter it is "a way to ensure that an entity is properly 'protected', also the opposite of risk (a high level of protection means a low level of risk and vice versa)"[20]. In a similar manner to Aven, Wolanin directly links the concept of security with risk, recognising that "security is the state of the civilisational and natural environment determined by the level of its total risk"[21].

Security, depending on the approach to the problem, is subject to various divisions and typologies. From the classical functions of the state arise two aspects of security that are simultaneously essential components of the full security of any entity: *internal security*, meaning the stability and harmony of a given state or collective entity, and *external security*, meaning the absence of threats from other actors in international relations[22]. The concepts of "internal" and "external" therefore refer to the location and source of threats, although Ścibiorek and co-authors argue that these aspects are closely interconnected and cannot be considered entirely separately[23]. Internal security means the absence of threats to the entity using an object to satisfy its needs – generated by that object or by its environment – whereas external security means the absence of threats to other entities or objects in the environment – generated by that object[24].

As Ścibiorek and his co-authors propose[25], security, from the perspective of its type, is usually considered in terms of: the areas (domains) it encompasses, its relationship to the territory of the state, and the field (sector) in which it occurs; while from the perspective of the method of organisation, it may be viewed as: individual, unilateral, allied, a cooperative system, or a collective system. According to Gierszewski, security may occur in three dimensions: general, local and individual[26].

In the classical approach to scientific research, security is most often considered in three dimensions: *the object-related* dimension – seeking answers to the question of what threats and from where should be taken into account in the context of protecting values important to a given entity; *the subject-related dimension* – seeking answers to the question of whose or what security is being discussed; and *the processual dimension* – seeking answers to the question of how and by what means threats can be countered in order to ensure the protected entities' ability to exist and survive, safeguard their assets, and create opportunities for future development[27].

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[20] T. Aven, Y. Ben-Haim, H. B. Andersen, T. Cox, E. L. Droguett, M. Greenberg, S. Guikema, W. Kröger, O. Renn, K. M. Thompson, E. Zio, *Society for Risk Analysis Glossary*, 2018, p. 7.

[21] J. Wolanin, *Zarys teorii bezpieczeństwa obywateli*, Danmar, Warszawa 2005, p. 35.

[22] *Słownik terminów z zakresu bezpieczeństwa narodowego…*, op. cit., p. 14.

[23] Z. Ścibiorek et al., op. cit., p. 32.

[24] A. Baryłka, op. cit., p. 11.

[25] Z. Ścibiorek et al., op. cit., pp. 45–46.

[26] J. Gierszewski, *Wokół uniwersum nauk o bezpieczeństwie*, Difin, Warszawa 2022, p. 34.

[27] M. Cieślarczyk, *Teoretyczne i metodologiczne podstawy badania problemów bezpieczeństwa i obronności państwa*, Wydawnictwo Uniwersytetu Przyrodniczo-Humanistycznego w Siedlcach, Siedlce 2009, p. 30; S. Sulowski, *Tożsamość nauk o bezpieczeństwie*, Wydawnictwo Adam Marszałek, Toruń 2015; R. Wróblewski, *Wprowadzenie do nauk o bezpieczeństwie*, Uniwersytet Przyrodniczo-Humanistyczny

The *object of security* is "everything to which it pertains, that is: the environment (physical, geographical, political, economic, etc.), challenges, opportunities and threats, authorities and institutions ensuring security (in the cognitive context), as well as security policy and strategy, which constitute cognitive domains of security understood as its fundamental branches"[28]. In particular, "the object of security sciences is security understood as a specific state of individual entities as well as all protective and defensive actions against threats, their organisation and course, and also the preparation of society and individual as well as collective entities for actions ensuring security"[29].

The *subject of security* is most often understood in two senses: "first, the broad approach to the subject of security refers to the entity to which security is attributed. […] in the second, narrow sense, the subject of security is understood as a specific, responsible, and security-providing causal entity–most often an authority, an individual, a social group, an institution, a state, or an international organisation"[30]. Ścibiorek and co-authors indicate that the subject of security is "the human being, understood both as a social individual and as a defined social collective characterised by various types of ties and conditions"[31]. A similar view is presented by Szulc, who states that "the subject of security is the human being (or a group of people)"[32].

In the *processual approach*, perceiving security means understanding this concept not as a one-time state but as a dynamic, continuous process in which: security evolves over time, undergoing transformations induced by social, cultural, technological, and political factors; both subjective and objective aspects are taken into account–from perceptions of individuals and social groups to measurable indicators of threats and protective measures; and emphasis is placed on the relationships and interactions between entities (states, organisations, individuals) and threats, oriented towards the continuous undertaking of stabilising and adaptive actions[33].

The relativity and contextual variability of security manifest themselves in the perception and understanding of risk, which – as research demonstrates – depend significantly on the adopted perspective and the criteria used to assess its acceptability. Considering all aspects and dimensions of security for the purpose of its measurement is difficult due to the large number of unknown variables and the merely countable ones that are known and measurable (and whose results can be simultaneously interpreted). It becomes necessary to aggregate this multidimensional space into one with fewer dimensions – essentially creating a model of reality. Only for such a model does the measurement of security become

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w Siedlcach, Siedlce 2017; A. Glen, *Podstawy poznania bezpieczeństwa podmiotu. Aksjologia, ontologia, epistemologia, metodologia*, Uniwersytet Przyrodniczo-Humanistyczny w Siedlcach, Siedlce 2021, pp. 14–15; J. Ziobro, M. Gikiewicz, *Personalne determinanty bezpieczeństwa*, „Zeszyty Naukowe Pro Publico Bono" 2023, 1(1), p. 121.

[28] *Encyklopedia bezpieczeństwa narodowego…*, op. cit., pp. 48–49.

[29] B.M. Szulc, *Bezpieczeństwo a nauki o bezpieczeństwie*, Wydawnictwo Adam Marszałek, Toruń 2024, p. 206.

[30] *Encyklopedia bezpieczeństwa narodowego…*, op. cit., pp. 48–49.

[31] Z. Ścibiorek et al., op. cit., p. 42.

[32] B.M. Szulc, op. cit., p. 151.

[33] W. Kitler, op. cit.; A. Glen, *Model procesu poznania w naukach o bezpieczeństwie*, „Zeszyty Naukowe Akademii Obrony Narodowej" 2014, 4(97), pp. 144–160; P. Krzykowski, *Współczesny wymiar bezpieczeństwa: wyzwania dla Polski*, Akademia Sztuki Wojennej, Warszawa 2020.

possible through determining risk and assessing its acceptability, taking into account the fact that risk and security remain negatively correlated, as noted, among others, by Wolanin[34] and Aven et al.[35]

The direct and strong relationship between the concepts of "security" and "risk," as well as the fact that security is considered in object-related, subject-related, and processual terms, gives rise to the following research question: should risk as an entity be perceived as a state or as a process? Answering this question requires a deeper analysis of the conceptualisations of risk in the literature.

Research methodology

Taking into account the identity of security sciences – expressed, among other things, through Szulc's findings on the essence of these sciences[36], as well as the foundations for understanding the subject of security in its axiological, ontological, epistemological and methodological dimensions, presented by Glen[37] – a comprehensive approach was applied for the purposes of this paper[38]. The following theoretical research methods were used: analysis and critique of the literature, historical analysis, conceptual analysis, typology and classification, abstraction and idealisation (or formalisation), theoretical modelling, and the comparative method. All of these methods required the simultaneous application of cognitive methods of reasoning, namely: analysis and synthesis, deduction and (incomplete) induction, abstraction, comparison, as well as generalisation and inference.

Results of the study with discussion

Risk is a concept that appears in many scientific disciplines, such as economics, sociology, psychology, law, medicine, technical sciences, and, in particular, security sciences. Observing the development of humankind and its environment, it is easy to notice that the phenomenon of "risk" or "decision-making under conditions of uncertain success" has existed since the beginning, although it was not always referred to by a uniform term. Today, in everyday language, risk is understood as a certain measure or assessment of the threat of a specific, undesirable event occurring as a result of a decision taken or due to the occurrence of probable independent events. Risk often arises from the functioning of a large number of complex and variable entities, the mutual interdependencies between them, changes in their environment, limited possibilities of controlling them, and the consequences of their actions.

The etymology of the concept of "risk" in linguistic and historical terms is relatively well known. In Persian, *rozi(k)* means "fate," "daily wage," and also "bread"; in Arabic, *risq* means "fate" or "divine providence"; in Spanish, *arisco* denotes both "courage"

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[34] J. Wolanin, op. cit., p. 130.

[35] T. Aven et al., op. cit..

[36] B.M. Szulc, op. cit.

[37] A. Glen, *Podstawy poznania bezpieczeństwa podmiotu…*, op. cit.

[38] J. Buczyński, *Teoria bezpieczeństwa: procedury i metody badawcze*, „Przegląd Naukowo-Metodyczny Edukacja dla Bezpieczeństwa" 2011, 2, pp. 53–63.

and "danger"; in English, *risk* refers to "a situation causing danger" or "the possibility that something bad may happen and cause harm." Historically, the meaning of this word derives from Latin, where the verb *risicare* meant "to avoid something"[39], similarly to the Italian *ris(i)co*, meaning "reef" (which a ship should avoid; thus referring to dangers that sailors and merchants should steer clear of). However, in Old Italian *risicare* already meant "to dare." In Latin, the word *risicum* denoted "a chance, the probability of the occurrence of a positive or negative event, success or failure"[40]. In this sense, risk describes a situation in which one faces a choice rather than unavoidable destiny, and has the ability to act in order to mitigate the threat. For this reason, contemporary Latin–Polish dictionaries already translate *risicare* as "to take a risk."

Polish language dictionaries[41] define the concept of risk as follows: 1) "the possibility that something will not succeed; also: an undertaking whose outcome is uncertain,"; 2) "daring to take such a danger,"; 3) "the probability of damage borne by the injured party regardless of their fault, unless a contract or legal provision obliges another person to compensate for the damage." In this interpretation, the definition of risk is understood as the chance of a hazardous event occurring. From the perspective of conducting research on risk, as well as its application in the field of security, such a definition appears insufficient.

Therefore, a definitional dissonance concerning "risk" functions in semantic use. Depending on the field or area of application, the definitions employed are sometimes similar and sometimes differ significantly. As Jajuga points out, two conceptual approaches to perceiving and defining risk exist[42]: *negative* – risk understood as a threat, meaning the possibility of failing to achieve the expected outcome, and *neutral* – risk understood as both a threat and an opportunity, meaning the possibility of achieving an outcome different from the expected one.

Due to the diverse perspectives from which the concept of risk is approached, it is necessary to attempt to identify, characterise, and present a classification of the definitions of risk that appear across many different fields and disciplines. Such attempts have previously been undertaken by researchers (e.g., Kaczmarek 2002[43]; Wolanin 2005[44]; Smolarkiewicz 2010, 2011, 2013[45]), but they usually concerned a selected area or discipline. Contemporary research on risk increasingly aims to capture risk in a multidimensional and multifaceted

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[39] I. Staniec, J. Zawiła-Niedźwiecki, *Ryzyko operacyjne w naukach o zarządzaniu*, Wydawnictwo C.H. Beck, Warszawa 2015, p. 12.

[40] S. Nahotko, *Ryzyko ekonomiczne w działalności gospodarczej*, Oficyna Wydawnicza Ośrodka Postępu Organizacyjnego, Bydgoszcz 2001, p. 37.

[41] *Słownik języka polskiego* (on-line), praca zbiorowa, Wydawnictwo Naukowe PWN 2025, available at: https://sjp.pwn.pl/, acess: 10-11-2025.

[42] K. Jajuga, *Zarządzanie ryzykiem*, Wydawnictwo Naukowe PWN, Warszawa 2018, p. 13.

[43] T.T. Kaczmarek, *Zarządzanie ryzykiem handlowym, finansowym, produkcyjnym – dla praktyków*, Ośrodek Doradztwa i Doskonalenia Kadr, Gdańsk 2002.

[44] J. Wolanin, op. cit.

[45] M.M. Smolarkiewicz, *Entropia Shannona jako parametr charakteryzujący stan bezpieczeństwa*, „Zeszyty Naukowe SGSP" 2010, 40, pp. 47–57; idem, *Zastosowanie zmiennych lingwistycznych oraz logiki rozmytej w analizie ryzyka*, „Polski Przegląd Medycyny i Psychologii Lotniczej" 2011, 17(4), październik–grudzień, pp. 381–393; idem, *Teoria matryc stowarzyszonych i N-wymiarowa matryca bezpieczeństwa – nowe metody wspomagania decyzji na potrzeby zarządzania kryzysowego*, Wydawnictwo WSZiP, Warszawa 2013.

manner[46]. In this way, researchers move away from the traditional narrowing of the research area and, at times, from the tendency to assign certain events to only one type of risk. This observation aligns with the trend toward multidimensional and multifaceted approaches in security studies, where one frequently encounters spheres of life or subsystems that permeate and interact with one another.

This is particularly evident in crisis or crisis-like situations, when an excess or deficiency of information, disinformation, and time pressure begin to play a significant role. Every decision made in such conditions "resonates" in its own way and affects more than one element of the security subject's environment[47].

By narrowing the research area to risk within security sciences, the multidimensional and multifaceted nature of this concept requires, first, a holistic approach to defining risk, and subsequently a deductive approach – from the general to the specific – aimed at developing and presenting a definition of risk tailored to this discipline. Accordingly, general definitions of risk, containing broad characteristics of the concept as addressed across various scientific fields, were analysed on the basis of comprehensive compilations proposed by Kaczmarek[48] and Wolanin[49] as well as the author's own research[50]. Subsequently, definitions of risk used in research within the discipline of security sciences were collected, reviewed and organised, which made it possible to propose a generalised definition of the concept.

Before attempting to define risk, it is necessary to determine what risk represents within security sciences, to which category of concepts it may be assigned, and what it describes. The term "definition" derives from the Latin word *definitio*, meaning "delimitation." In the sense used in logic, a concept is "defined" in order "to delimit a certain object (in the broadest meaning of the term) from other objects"[51]. There are many types of definitions and methods of formulating them[52]. In the most commonly used classical (normal) definition, it is stated that the word being defined has the same meaning as the words used to explain the meaning of that term.

In security sciences, numerous conceptually similar or partially overlapping definitions of risk are used. Table 1, adapted from Smolarkiewicz[53], presents a compilation of definitions of the term "risk" drawn from the security-related literature. It includes definitions proposed by Polish researchers, as well as scholars from other countries, and those used for risk reduction and risk management within the European Union (EU) and the North Atlantic Treaty Organization (NATO). Although Gędek notes that, due to the varied conceptualisations of risk, it is not possible to formulate a single definition encompassing all

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[46] M.M. Smolarkiewicz, *Teoria matryc stowarzyszonych…*, op. cit.

[47] T. Zwęgliński, M. Smolarkiewicz, P. Gromek, *Efekt kaskadowy współczesnym wyzwaniem zarządzania kryzysowego*, Szkoła Główna Służby Pożarniczej Warszawa 2020; P. Gromek, R. Wróbel, *Ochrona obiektów kluczowych: zarządzanie kryzysowe, ryzykiem i ciągłością działania*, Szkoła Główna Służby Pożarniczej, Warszawa 2018.

[48] T.T. Kaczmarek, *Zarządzanie ryzykiem handlowym…*, op. cit., pp. 20–55; idem *Ryzyko i zarządzanie ryzykiem. Ujęcie interdyscyplinarne*, Difin, Warszawa 2008, pp. 56–91.

[49] J. Wolanin, op. cit.

[50] M.M. Smolarkiewicz, *O teorii ryzyka w bezpieczeństwie*, Wydawnictwo APoż., Warszawa 2025.

[51] K. Ajdukiewicz, *Język i poznanie*, vol. II, *Wybór pism z lat 1945–1963*, Wydawnictwo Naukowe PWN, Warszawa 1985, p. 226

[52] Ibidem, pp. 226–247.

[53] M.M. Smolarkiewicz, *O teorii ryzyka…*, op. cit.

meanings of the word "risk" in one universal formula [54] – a statement with which it is difficult to disagree in relation to the entire scope of the problem – one may narrow the discussion to a selected field (e.g., a specific scientific discipline). Such scope-limitation should be sufficient to attempt such a formulation. At the same time, an analysis of risk and uncertainty concepts originating from economics and management seems to allow for proposing a generalised definition of risk appropriate for security sciences.

Table. 1. Definitions of the concept of "Risk" in security sciences

Nr	"Risk" Definitions
1	The possibility of failure, and in particular the possibility of the occurrence of events independent of the acting entity, which it cannot foresee nor fully prevent, and which – by reducing useful outcomes or increasing inputs – deprive the action entirely or partially of its effectiveness, favourability, or economic efficiency. Risk is also a set of factors, actions, and activities that cause bodily harm or material loss, or give rise to other types of damage. Risk differs from danger, which refers rather to a certain direct threat.
2	The possibility that something undesirable may materialise in the near future.
3	The cumulative effect of the probability of uncertain events that may influence the accomplishment of a task either favourably or unfavourably.
4	The possibility of a deviation of the actual outcome of a decision from the planned outcomes.
5	This is understood as the probability of a specific outcome occurring within a defined time frame or under a defined circumstance.
6	The probability that an entity will incur losses as a result of a given (economic) decision. It is also an action or undertaking in which not all variables are estimated or can be estimated on the basis of probability calculus. Risk differs from uncertainty in that it concerns recurring phenomena that can, to some extent, be calculated.
7	It occurs when the action or decision we undertake can be treated as a trial in a divisible experiment, i.e., when the outcome may be determined using one of three types of probability: mathematical, statistical, or estimated – each of which is based on objective knowledge.
8	A measurable indicator of uncertainty, that is, a state whose outcome can be forecast; it is a combination of the probability of events occurring and their effects that influence the entity's ability to achieve its objective. It may take the form of a negative threat or a positive opportunity, meaning that it indicates the magnitude of deviation of the outcomes of undertaken actions (decisions) from their intended goal. In the context of security, risk is identified with the possibility of an event/threat occurring that negatively affects the achievement of an entity's objectives, and with the consequences generated by that threat.
9	The chance or probability that a given person will be harmed or experience an adverse health effect when exposed to a hazard. It may also apply to situations involving the loss of property or equipment, or to harmful effects on the environment. The effect of uncertainty on objectives, whereby this effect may be positive or negative; a deviation from what is expected.
10	A potential threat; the possibility of incurring losses as a result of reckless or even imprudent action.

[54] S. Gędek, *Definiowanie ryzyka*, „Prace Naukowe Uniwersytetu Ekonomicznego we Wrocławiu (Research Papers of Wroclaw University of Economics)" 2018, 513, pp. 119–130.

11	A combination of the probability of an event occurring and its negative consequences. Risk is the estimated probability of harm to life, property, or the environment in the event of a specific hazardous occurrence.
12	Uncertainty and the range of consequences (or outcomes) of actions affecting something that people value.
13	A combination of the probability and consequences of adverse circumstances or events.
14	The possibility of loss, damage, or injury, taking into account the value attributed to a component of the security entity by its owner and the impact of its loss or alteration on the components of the security entity, as well as the probability that a given vulnerability will be exploited by a specific threat. A measure of the probability of harm to life, property, or the environment in the event of a threat occurring. Risk should take into account the severity of the harm.
15	A measure of the probability that an attack attempt will be made which successfully exploits vulnerabilities in the target's security: *Risk = Threat · Vulnerability*; in capability development, the extent to which uncertainty and potential events may affect the achievement of objectives.
16	It may be understood as the potential variability of events. This variability makes it impossible to predict the outcomes of actions precisely, resulting in a sense of uncertainty. Exposure to risk – in every aspect – occurs wherever some activity, action, or operation gives rise to potential benefits or losses that cannot be foreseen. Risk is an objective concept and, therefore, can be measured.
17	The effect of uncertainty on objectives. It is the expression of the probability and impact of an event that may influence the achievement of an organisation's objectives.
18	1. An ambiguous concept expressed mathematically as the product of the probability of a loss occurring and the magnitude of that loss: $R = p_s \cdot w_s$. […] Risk is also identified with threat, hence its division into natural risk (natural disasters), technogenic risk (transport and industrial catastrophes), and anthropogenic risk of humanitarian catastrophes, such as wars. A distinction is made between ordinary risk, which is predictable and measurable, and extraordinary risk, which is uncontrolled and difficult to reduce. Human thinking is characterised by underestimating the probability of highly probable events and overestimating the probability of events that are unlikely, which means that people tend to downplay typical threats while fearing atypical ones. The inclination to take risks is conditioned by cultural, social and demographic factors (age and gender). Risk can be avoided by refraining from risky actions, reduced by limiting risky activity (in time and space), or mitigated by applying protective and safety measures (protective and support equipment), or transferred to limit material losses. 2. The probability of acting under conditions in which the assumed outcome of that action is not certain for the entity. It may take the form of pure risk or speculative risk.
19	A measurable probability of an event occurring that differs from the expected event and that directly or indirectly influences the deviation of the target value from the assumed level.
20	It is expressed as a combination of the consequences (impacts) and the probability of the occurrence of a potential hazardous event. *Risk = Threat · Probability* or *Risk = f(Probability, Value at Risk, Vulnerability)*.
21	The probability of expected losses occurring as a result of a given threat; it consists of three different elements: *Risk = Threat · Value at Risk · Vulnerability*. For this reason, the methodology of risk assessment involves determining the threat (the probability of its occurrence at various levels of intensity), calculating the values exposed to risk (*Value at Risk*, VAR), and their vulnerability, understood as the intensity of the threat and the relative losses.

22	An unnormalised probability that negative effects (i.e., a specified type and degree of damage) may occur within a given period following a particular undesirable event […] in the case of natural hazards, risk may be defined as a function of the probability of a given event occurring and the extent of the damage inflicted on people, the environment, and property. Quantitatively, this relationship can be expressed as: *Risk = (Probability) · (Degree of damage resulting from the type of hazard)* or *Risk = (Hazard indicator) · (Vulnerability) · (Exposed value)*.
23	The effect of uncertainty on objectives.
24	A function incorporating the components of risk – hazard, exposure, and vulnerability to harm/damage–considered in the context of fundamental risk factors and available capabilities (resources): *Risk = Hazard · Exposure · Vulnerability*.
25	It encompasses the effect of every form of uncertainty that may lead to positive or negative outcomes.

Source: M.M. Smolarkiewicz, *O teorii ryzyka…*, op. cit., pp. 611–616.

In this way, the following list of eight criteria may be proposed, allowing for the classification of the definitions of risk presented in Table 1, according to which the following typology is obtained[55]:

- risk is (a function of) the probability or chance of a loss occurring,
- risk is a state in which there exists the possibility (probability or chance) of a loss occurring,
- risk is (a function of) the probability or chance of outcomes (decisions) occurring that differ from those expected,
- risk is (a function of) the magnitude of the expected loss caused by the occurrence of a hazardous event,
- risk is a function of parameters other than the probability of a hazardous event occurring and the expected loss – parameters associated with the specificity of the security entity and its environment,
- risk is exposure to a chance (e.g. of a loss occurring), in which at least one variable is uncertain,
- risk is a combination of vulnerabilities, taking into account the possibility of a threat occurring with an established probability,
- risk is a combination of the strength of knowledge required to determine the potential consequences of an event together with its uncertainty.

Summary and conclusions

Reflections on the definition of risk make it possible to observe that risk may be approached in a general or in a specific manner. A definition should take into account the fact that risk can be discussed whenever it is possible to measure the probability and the potential consequences of hazardous events (whether by direct, statistical, or estimated methods). It also appears justified to note that when risk refers to a person or a group of people, it is necessary to consider parameters other than the probability of an event occurring and the expected

[55] M.M. Smolarkiewicz, *O teorii ryzyka…*, op. cit., p. 65.

losses – namely, those related to the specificity of the security entity and its environment. It is also necessary to answer the question of whether risk is a state or a process.

On the one hand, risk changes dynamically over time and fluctuates in relation to both the nature of the phenomenon causing the threat (e.g. the risk of death in a road accident in an urban area is higher at night – when traffic is lighter and vehicle speeds are higher, while visibility is poorer – and lower during the day, when visibility is better and the number of vehicles forces lower travel speeds) and the characteristics of the security entity (e.g. in a community that is aware of road traffic hazards, the necessity of proper vehicle preparation before travel, and the absolute prohibition of psychoactive substances for drivers, fatal accidents will occur less frequently than in a community that does not follow such rules).

Additionaly, at the moment when an attempt is made to measure (subjective) risk – at a specific point in time, when all necessary data and information have been collected to enable the most reliable possible calculation of the probability of a future event and its potential consequences (which nevertheless almost always deviate from the actual, inherent level of risk) – and when the relationship between the security entity and its environment is taken into account, risk is, in practice, aggregated into a single measure. This measure expressed on an ordinal scale describes a momentary state (valid only for the moment at which the risks are assessed and for a very short period thereafter). Therefore, to answer the question "state or process?", one may, by analogy, refer to reflections on the concept of security. Buczytowski and Nowak note that the notion of security should be considered in two dimensions[56]. The first is a general, objective vision concerning the non-existence of danger, while the second dimension concerns the subjective perspective of the individual. Perceiving security unidimensionally – as a state, process, feeling, perception, situation, capability, or need – is insufficient, sectoral, and incomplete. On the other hand, security may be understood as a continuous process of striving to achieve a state of non-threat, calmness, and certainty, while this state is understood individually by each person. Wolanin also emphasises that "the relationship between security and risk is inversely proportional in the strict sense. The greater the risk, the lower the security associated with that risk, and conversely, the lower the risk, the higher the security"[57], and that "security is the state of the civilisational and natural environment determined by the level of its total risk"[58]. Therefore, taking into account the observation that risk is negatively correlated with security, one may conclude that risk is a state, but one that undergoes continuous changes over time; thus, it is also a process, whose momentary state can be measured.

These reflections allow for an attempt to formulate a preliminary definition of risk appropriate for security sciences[59]:

- in the general sense – *risk is a process that changes dynamically over time, composed of an uncountable set of momentary states, constituting a superposition (resultant) of the influence on the security entity of randomly occurring events that generate threats, and of the continuous process aimed at ensuring that entity's security*.

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[56] E. Buczytowski, *Wymiary bezpieczeństwa społecznego* [in:] *Współczesne zagrożenia bezpieczeństwa państwa*, ed. Z. Ciekanowski, Państwowa Szkoła Wyższa w Białej Podlaskiej, Biała Podlaska 2020; E. Nowak, *Bezpieczeństwo narodowe Rzeczypospolitej Polskiej*, Difin, Warszawa 2023.

[57] J. Wolanin, op. cit., p. 15.

[58] Ibidem, p. 35.

[59] M.M. Smolarkiewicz, *O teorii ryzyka…*, op. cit., p. 67.

- in the specific sense – *risk is also a measure of the momentary state of this process, understood as a function of mathematically, statistically, or estimation-based measurable variables: the probability of a hazardous event occurring and the potential loss caused by that event, taking into account the relationship between the characteristics of the threat and the characteristics of the security entity and its environment. This measure is negatively correlated with measures of security*.

Summarising the conducted research, it should be noted that risk as an entity constitutes both a process and a state (in particular, a set of momentary states) that one attempts to measure (using quantitative, semi-quantitative, or qualitative methods) in order to assess the state of security, which constitutes the answer to the research question posed.

In light of this observation, an interesting question requiring further research emerges: what type of entity is risk–ideal or real? A preliminary working hypothesis may be proposed that risk constitutes an ideal entity, but at the moment of its measurement it becomes "materialised" as a real entity.

References

Ajdukiewicz K., *Język i poznanie*, vol. II, *Wybór pism z lat 1945–1963*, Wydawnictwo Naukowe PWN, Warszawa 1985.

Aven T., Ben-Haim Y., Andersen H.B., Cox T., Droguett E.L., Greenberg M., Guikema S., Kröger W., Renn O., Thompson K.M., Zio E, *Society for Risk Analysis Glossary*, 2018.

Baryłka A., *Podstawy inżynierii bezpieczeństwa obiektów antropogenicznych*, „Inżynieria Bezpieczeństwa Obiektów Antropogenicznych" 2015, 1, pp. 10–16.

Buczyński J., *Teoria bezpieczeństwa: procedury i metody badawcze*, „Przegląd Naukowo-Metodyczny Edukacja dla Bezpieczeństwa" 2011, 2, pp. 53–63.

Buczytowski E., *Wymiary bezpieczeństwa społecznego* [in:] *Współczesne zagrożenia bezpieczeństwa państwa*, ed. Z. Ciekanowski, Państwowa Szkoła Wyższa w Białej Podlaskiej, Biała Podlaska 2020.

Cieślarczyk M. *Teoretyczne i metodologiczne podstawy badania problemów bezpieczeństwa i obronności państwa*, Wydawnictwo Uniwersytetu Przyrodniczo-Humanistycznego w Siedlcach, Siedlce 2009.

Cieślarczyk M., Filipek A., Świderski A., Ważniewska J., *Istota kultury bezpieczeństwa i jej znaczenie dla człowieka i grup społecznych*, „Kultura Bezpieczeństwa" 2015, 1–2, pp. 17–57.

Gędek S., *Definiowanie ryzyka*, „Prace Naukowe Uniwersytetu Ekonomicznego we Wrocławiu (Research Papers of Wroclaw University of Economics)" 2018, 513, pp. 119–130.

Gierszewski J., *Wokół uniwersum nauk o bezpieczeństwie*, Difin, Warszawa 2022.

Glen A., *Model procesu poznania w naukach o bezpieczeństwie*, „Zeszyty Naukowe Akademii Obrony Narodowej" 2014, 4(97), pp. 144–160.

Glen A., *Podstawy poznania bezpieczeństwa podmiotu. Aksjologia, ontologia, epistemologia, metodologia*, Uniwersytet Przyrodniczo-Humanistyczny w Siedlcach, Siedlce 2021.

Gromek P., Wróbel R., *Ochrona obiektów kluczowych: zarządzanie kryzysowe, ryzykiem i ciągłością działania*, Szkoła Główna Służby Pożarniczej, Warszawa 2018.

Encyklopedia bezpieczeństwa narodowego, eds. J. Itrich-Drabarek, A. Misuik, S. Mitkow, P. Bryczek-Wróbel, Dom Wydawniczy ELIPSA, Warszawa 2023.

Jajuga K., *Zarządzanie ryzykiem*, Wydawnictwo Naukowe PWN, Warszawa 2018.

Kaczmarek T.T., *Zarządzanie ryzykiem handlowym, finansowym, produkcyjnym – dla praktyków*, Ośrodek Doradztwa i Doskonalenia Kadr, Gdańsk 2002.

Kaczmarek T.T., *Ryzyko i zarządzanie ryzykiem. Ujęcie interdyscyplinarne*, Difin, Warszawa 2008.

Kaplan S., Garrick B.J., *On the quantitative definition of risk*, „Risk Analysis" 1981, 1(1), pp. 11–27.

Kitler W., *Bezpieczeństwo narodowe RP. Podstawowe kategorie. Uwarunkowania systemu*, Akademia Obrony Narodowej, Warszawa 2011.

Kitler W., *Pojęcie i struktura systemu bezpieczeństwa narodowego RP w ujęciu procesualnym i teoretycznym* [in:] *Minister Obrony Narodowej i Naczelny Dowódca Sił Zbrojnych w systemie kierowania bezpieczeństwem narodowym RP. Wybrane problemy*, Akademia Obrony Narodowej, Warszawa 2013.

Korzeniowski L.F., *Zarządzanie bezpieczeństwem*, Pracownia Badań Społecznych, Kraków 2000.

Krzykowski P., *Współczesny wymiar bezpieczeństwa: wyzwania dla Polski*, Akademia Sztuki Wojennej, Warszawa 2020.

Lidwa W., Krzeszowski W., Więcek W., *Zarządzanie w sytuacjach kryzysowych*, Akademia Obrony Narodowej, Warszawa 2010.

Maslow A., *Motywacja i osobowość*, Wydawnictwa Naukowe PWN, Warszawa 2005.

Nahotko S., *Ryzyko ekonomiczne w działalności gospodarczej*, Oficyna Wydawnicza Ośrodka Postępu Organizacyjnego, Bydgoszcz 2001.

Nepelski M., *Zarządzanie w sytuacjach kryzysowych*, Wyższa Szkoła Policji w Szczytnie, Szczytno 2016.

Nowak E., *Bezpieczeństwo narodowe Rzeczypospolitej Polskiej*, Difin, Warszawa 2023.

Piwowarski J., *Kultura bezpieczeństwa i jej trzy wymiary*, „Kultura Bezpieczeństwa. Nauka – Praktyka – Refleksje" 2012, 12, pp. 6–14.

Słownik języka polskiego (on-line), praca zbiorowa, Wydawnictwo Naukowe PWN, 2025, available at: https://sjp.pwn.pl/, acess: 10-11-2025.

Słownik ratownictwa, eds. R. Borkowski, W. Zubrzycki, M. Feltynowski, Szkoła Główna Służby Pożarniczej, Warszawa 2023.

Słownik terminów z zakresu bezpieczeństwa narodowego, eds. J. Kaczmarek, W. Łepkowski, B. Zdrodowski, Akademia Obrony Narodowej, Warszawa 2008.

Słownik terminów z zakresu bezpieczeństwa, eds. J. Pawłowski, B. Zdrodowski, M. Kuliczkowski, Wydawnictwo Adam Marszałek, Toruń 2020.

Smolarkiewicz M.M., *Entropia Shannona jako parametr charakteryzujący stan bezpieczeństwa*, „Zeszyty Naukowe SGSP" 2010, 40, pp. 47–57.

Smolarkiewicz M.M., *Zastosowanie zmiennych lingwistycznych oraz logiki rozmytej w analizie ryzyka*, „Polski Przegląd Medycyny i Psychologii Lotniczej" 2011, 17(4), październik–grudzień, pp. 381–393.

Smolarkiewicz M.M., *Teoria matryc stowarzyszonych i N-wymiarowa matryca bezpieczeństwa – nowe metody wspomagania decyzji na potrzeby zarządzania kryzysowego*, Wydawnictwo WSZiP, Warszawa 2013.

Smolarkiewicz M.M., *O teorii ryzyka w bezpieczeństwie*, Wydawnictwo APoż., Warszawa 2025.

Socha R., *Historyczna i współczesne postrzeganie Policji w Polsce*, Difin, Warszawa 2022.

Staniec I., J. Zawiła-Niedźwiecki, *Ryzyko operacyjne w naukach o zarządzaniu*, Wydawnictwo C.H. Beck, Warszawa 2015.

Stańczyk J., *Współczesne pojmowanie bezpieczeństwa*, Wydawnictwo ISP PAN, Warszawa 1996.

Sulowski S., *Tożsamość nauk o bezpieczeństwie*, Wydawnictwo Adam Marszałek, Toruń 2015.

Szulc B.M., *Bezpieczeństwo a nauki o bezpieczeństwie*, Wydawnictwo Adam Marszałek, Toruń 2024.

Ścibiorek Z., Wiśniewski B., Kuc R.B., Dawidczyk A., *Bezpieczeństwo wewnętrzne. Podręcznik akademicki*, 4th edition, Wydawnictwo Adam Marszałek, Toruń 2022.

Świniarski J., *Bezpieczeństwo w ujęciu aksjologicznym* [in:] *Zarządzanie bezpieczeństwem – wyzwania XXI wieku*, ed. M. Lisiecki, Wydawnictwo WSZiP, Warszawa 2008.

Teoria zarządzania kryzysowego, ed. Zdrodowski B., Wyższa Szkoła Policji w Szczytnie, Szczytno 2014.

Węgrzecki A., *Ontologiczne i aksjologiczne aspekty bezpieczeństwa* [in:] *Bezpieczeństwo jako wartość*, eds. I. Pabisz-Zarębska, J. Szewczyk, Wydawnictwo WSBPiI, Kraków 2010.

Wolanin J., *Zarys teorii bezpieczeństwa obywateli*, Danmar, Warszawa 2005.

Wróblewski R., *Wprowadzenie do nauk o bezpieczeństwie*, Uniwersytet Przyrodniczo-Humanistyczny w Siedlcach, Siedlce 2017.

Zięba R., *O tożsamości nauk o bezpieczeństwie*, „Zeszyty Naukowe Akademii Obrony Narodowej" 2012, 1(86), pp. 7–22.

Ziobro J., M. Gikiewicz, *Personalne determinanty bezpieczeństwa*, „Zeszyty Naukowe Pro Publico Bono" 2023, 1(1), pp. 119–139.

Zwęgliński T., Smolarkiewicz M., Gromek P., *Efekt kaskadowy współczesnym wyzwaniem zarządzania kryzysowego*, Szkoła Główna Służby Pożarniczej, Warszawa 2020.

STRESZCZENIE

Marcin Smolarkiewicz

Ryzyko jako byt w naukach o bezpieczeństwie – stan czy proces?

Pojęcie ryzyka jest w praktyce badawczej zawsze rozpatrywane w powiązaniu z pojęciem bezpieczeństwa. O ile bezpieczeństwo jest rozpatrywane w badaniach naukowych z perspektywy podejścia obiektowego, podmiotowego i procesualnego, o tyle ryzyko jako byt rozpatrywane jest przede wszystkim z perspektywy praktycznej, a znacznie rzadziej teoretycznej. W rozważaniach teoretycznych pojawia się istotne pytanie: czy ryzyko należy rozumieć jako stan, czy jako proces? Badania prowadzone metodami teoretycznymi wskazują, że ryzyko ma dwoistą naturę – jest jednocześnie procesem dynamicznie zmieniającym się w czasie, złożonym z nieprzeliczalnego zbioru stanów chwilowych, stanowiących superpozycję wpływu przejawów zagrożenia na podmiot bezpieczeństwa (podmiot chroniony). Z drugiej strony jest ono również miarą stanu chwilowego tego procesu, rozumianego jako funkcja mierzalnych czynników: prawdopodobieństwa wystąpienia zdarzenia niebezpiecznego i potencjalnej straty spowodowanej tym zdarzeniem, z uwzględnieniem relacji między cechami zagrożenia a cechami podmiotu chronionego i jego otoczenia. Wskaźnik ten jest negatywnie skorelowany ze środkami bezpieczeństwa.

Słowa kluczowe: ryzyko, bezpieczeństwo, zarządzanie ryzykiem.

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