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Eventology and Eventological Method in Emergency Risk Assessment

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Abstract: Brief information about the eventological method of emergency security evaluated by subject, event, eventology, probability and value. The tariff of subject safety is given. Eventology and importance are given. Elements are defined as radom events as an event.

Keywords: probability, distribution function, risk, random variable, extreme emergency, phenomenological method, statistics, risk event, event probability.

Throughout the centuries, people have tried to reveal and solve the secrets of the present and the future, to know the dreams of their friends and the goals of their enemies, to find out the secrets of love. Egyptian monks, ancient soothsayers, medieval astrologers, and gypsy fortune-tellers have carefully collected the secrets of the movement and structure of thought for thousands of years. Centuries of divination practice is based on the knowledge of similar sets of random events that determine thought patterns and patterns. Probability distributions of sets of random events, without systematic scientific analysis, remain the subject of the science of eventology - eventology is one of the modern trends in probability theory.

Eventology is the theory of probability, which studies the behavior and interactions of random events, and can be considered the pinnacle of probability theory. However, it is a mistake to say that the subject of eventology, the probability distribution of random events, did not attract attention in the "pre-eventology" period. The opposite is the case: attention has attracted, attracts and attracts: random events, their movement and interaction will always be the main subject of probability theory. But it turned out that modern probability theory does not directly and systematically study random events. In other words, random events are studied not only, but also with different sizes and dimensions in random space (consisting of random variables, processes, and random elements of linear spaces). Also, not all random events are studied, but also events caused by random elements. For this reason, eventology differs from probability theory by the direct and systematic study of random events and their interactions. One might think that the eventological approach and goals are probabilistic in nature. But it is not. First, the theory of random events should be distinguished as an independent branch of the theory of probability, because it allows thinking about the structure of random events without excessive considerations. Second, it is a very interesting language of random phenomena, a universal language, which allows us to obtain results by connecting the concepts of physics, the science of matter, and its complement, metaphysics, the science of thought.

Eventology is a new branch of the theory of probability, which studies the behavior of sets of random events and explains their existence by simple observation. matter and thought are just convenient ways of organizing events. Along with mathematical and eventological issues, eventology is concerned with universal and universal philosophical issues, about which each of us thinks and thinks during our life.

The following steps are usually used in the calculation of emergency situations based on the eventological method:

1. Identification of potential events: identification of all possible events that could lead to an emergency. This may include natural disasters, man-made accidents, terrorist attacks and other emergency situations.

2. Estimating the probability of occurrence of events: Conducting an analysis to determine the probability of each potential event. This may include studying statistics, historical data, expert opinions, and other methods.

3. Assess the consequences of each event: determine the possible consequences of each event on people, the environment, property and business. This includes assessing potential damage, casualties, property losses and other factors.

4. Risk calculation: based on information about the probability and consequences of events, a risk calculation is performed for each possible event. Risk is usually defined as the product of the probability of an event occurring and its consequences.

5. Development of risk management measures: risk prevention or reduction measures are developed on the basis of risk calculation. This may include action plans, preventive measures, staff training, procurement of necessary equipment, and other actions.

6. Monitoring and control: Monitoring changes in the environment, risk information and periodic review of the effectiveness of risk management measures are important for emergency preparedness.

These steps help to systematize the emergency calculation process based on the method of incident detection and make informed decisions to ensure safety and minimize threats.

Risk eventology is an attempt to return thinking (rational and irrational) to its central place in the decision-making process, and it is possible to answer the following questions: how thinking makes a decision, what is meant by a thinking decision, what is meant by the result of a decision, what tips for thinking can help you make a decision and help you achieve the desired result. Risk eventology is a new type of decision-making theory in which thinking plays a leading role.

From a psychological point of view, mathematics has many similarities with music and the creative arts. In both cases, the sense of beauty plays an important role. As John von Neumann [2] pointed out: "The unconscious birth of mathematical ideas from experience, or the genealogy of the resulting chains of events, brings them close enough to reality. But after these assumptions are presented in mathematical formulas, the mathematician continues on his way, in which case it would be the right decision to manage mathematics with a creative discipline restrained by a sense of beauty. Hardy [2] also wrote about this: "A mathematician, like a poet or an artist, is a creator of phenomena... And the first test is beauty."

In any creative activity, be it art or pure mathematics, it is very difficult to make a choice between countless combinations of phenomena. In creative mathematics, according to Poincaré and Adamard [2], "The unconscious field brings to the surface many combinations of phenomena, of which consciousness learns the least." Then Adamar emphasizes the analogy of painting and quotes Paul Valéry: “To invent, one must be in two forms: the unconscious form creates the order of events, and the mind chooses one of them. As a result of choice comes genius, which is the contribution of the mind that regulates all events and the ability of the mind to evaluate the combinations of events that have just been created. The rules governing the selection of combinations of events (in art or mathematics) are extremely subtle and cannot be described in precise words. One can imagine a mathematical device that can correctly apply such rules under such circumstances.

A subject (or set of subjects) gives meaning to the concept of risk. This identifies and characterizes the risk. The concept of risk without a subject has no meaning. The same security is subject security. Thus, safety and risk are subjective categories.

It has long been argued that a subject cannot exist without events. An event is the existence of a subject, a subjective existence, a general existence, and only in events does the subject achieve its goal.

In eventology, all events have their probability, and the concept of probability has no meaning until the probability of the event in question is determined. In this regard, events cannot exist without probability, and probability cannot exist without events. In eventology, the second subjective characteristic of an event is its value. Like probability, value has no meaning until the event in question is determined. An event cannot exist without value, and value cannot exist without an event.

Eventological theory characterizes the subject, reflecting its various existence, with various sets of events directly or indirectly related to this subject. Each set of events occurs in different contexts, creating different occurrences of events, different combinations of these events occurring or not, and the occurrence of different large-scale events. And every large-scale event happens according to its probability. The sum of the probabilities of all large-scale events resulting from a given set of events is called the probability distribution of this set of events, and the sum of the values of all large-scale events is called the value distribution.

This here we are interested in the set of events and their E-distributions that create the safety or danger of the existence of the subject. In turn, subjective safety and subjective risk are relative categories, depending on the set of events chosen by the subject.

Before the subject's conclusions about the presence of danger or safety in these circumstances and the sequence of events, the probability or value of harm to the subject or not in the sequence of events is valued in the conscious and unconscious state. The value and probability of a given large-scale event is evaluated by the subject. Thus, both risk and safety are not only subjective and relative, but also a valuable and probabilistic category.

A lot has been written about security so far, and no one denies it. For example, many types of security are now being identified, then studied, and it is emphasized to understand what is the specific law of security, how it is appropriate to divide security into types, and what is the balance between these types.

That's it at the same time, it is also important to determine whether the existence of the security law [1] is incidental in ensuring the security of the subject, because on the basis of the eventological theory, methods are found to ensure the safety of not only a single subject, but also many subjects.

Eventology theory offers a mathematical apparatus and methodological framework for finding, defining, measuring and evaluating many phenomena. They characterize subjective danger and subjective security, subjective danger and changes in subjective threats give rise to areas of the subject's existence in which the subject may or may not be harmed, may or may not lead to the death of a person.

In eventology, every event, as well as large-scale events, has probability and value. Many large-scale events that occur due to many events are characterized by a series of corresponding probabilities and values. A value distribution determines the value of various large-scale events that occur with a proportional probability determined by the probability distribution for the subject. [2]

Thus, the probability distribution of many given events determines the eventological random variable, which is an eventological characteristic of a given subject and takes the value of a wide range of events with the probabilities of these events. This concept of eventological random distribution is a numerical mathematical model of losses (negative value of value) and gains (positive value of value) that a subject has when large-scale events occur, such as distribution functions in large-scale events.

The eventological random value determined by a given set of events and treated as a mathematical model of subjective losses and subjective gains is called the eventological risk of these events. As an expression of eventological risk values, depending on the type of security, it is possible to show dimensions and amounts of losses and gains of health, food, energy, property, rights, physical condition, position.

New approaches to emergency risk assessment, as well as probabilistic and heuristic approaches to emergency risk assessment of buildings and structures, are given based on specific aspects of the application of probabilistic emergency risk analysis.

The eventological method considers methods of identifying, assessing and managing emergency risks for residential areas, public buildings and structures, as well as production and other objects.

The concept of an event in eventology does not differ from the concept of an event adopted in the Kolmogorov probability theory, in which an event is understood as the space of many Ω general elementary results (consequences), which, together with the algebra of events F and the probability norm P, form the fundamental construction for the theory of classical probability — the general forms the probability space (Ω,F,P). This is a phenomenon according to the classical model $x \subseteq \Omega$ only such a general elementary result $\omega \in \Omega$ occurs when it occurs, this is a relation of relevance $\omega \in x$ applies to x when executed. Of interest is the space that divides Ω into 2N elementary events.

In the calculation of emergency situations based on the eventological method, various formulas are used to assess the probability of events, calculate risk and make decisions. Below are the main formulas that can be used in this process:

1. Event probability (P):

- the probability of an event can be estimated as the ratio of the number of favorable outcomes to the total number of possible outcomes. Formula: P = (number of favorable outcomes) / (total number of possible outcomes).

2. Risk (R):

- risk (risk) is usually defined as the product of the probability of occurrence of an event and its consequences. Formula: X = P * C, where P is the probability of the event, C is the consequences of the event.

3. Risk level:

- risk level can be determined based on risk calculation. A scale of 1 to 5 or A to E is usually used to classify the level of risk.

4. Effectiveness of risk management measures (EM):

- the effectiveness of risk management measures can be evaluated as the ratio of the difference (increase) in risk reduction to the initial risk after the measures are applied. Formula: EM = ((R before measurements) - (R after measurements)) / R before measurements.

These formulas can be adapted and supplemented depending on the specific situation and the purpose of emergency calculation based on the method of incident detection.

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