

# System integration of human life safety management considering the influence of information processes of society

Anna Shershneva\*, Andrey Andreev and Alexander Dmitriev

High school technosphere safety, Peter the Great St.Petersburg Polytechnic University, Polytechnicheskaya st., 29, St.Petersburg, 195251, Russia

**Abstract.** In the modern world, the information environment has a significant impact on a person. An uncritical attitude to information coming from various sources gives a chance to public opinion manipulation. Considering this, it is necessary to ensure the information security of the society. The authors of this article have developed a model of the criterion of taking into account the effect of information processes on the safety of human activity. As a further perspective of research, it is proposed to form a criterion (rule) according to which a decision will be made on the degree of supplying a person with information required to make adequate decisions in the process of life activity.

## 1 Introduction

The twenty first century is the age of information technology. In a small period of time, people made a technological breakthrough. As a result, the information environment began to expand and become more complex with great speed [1]. It is already now becoming obvious that the social sphere of activity human, like all others, is being subjected to informatization [2].

By developing and creating new technologies, a person creates new dangers. The appearance of the Internet has made it possible for everyone to find information of interest to him: films, books, music, as well as personal data of any other person. Despite the fact that people themselves are ready to tell everything about themselves in social networks, the state strives to protect personal data [3, 4]. However, modern approaches already in the near future will not be able to provide an sufficient level of security [5].

Another most frequent phenomenon of the twenty-first century is the information war [6]. At the moment, it has become possible to realize state coups, to set against each other citizens of different countries, via the impact of negative information on the population. Hence arises the need not only to provide people with access to information, but also to protect against false, specially created information [7, 8].

Each person at any time carries out information processes, that is, using any technical devices, collects, processes, transmits, encodes, stores or searches for new information. Therefore, it is important the fact that any information process influences, changes the world around [9-11].

## 2 Methods

Academician of the USSR Academy of Sciences P.K. Anokhin in his research, in particular in the Theory of Functional Systems, showed that a person's decision is carried out according to the «arousal» - «recognition» - «reaction to the situation» scheme [12]. Guided by this principle of three components and based on the law of preserving the integrity of an object, which allows to obtain the condition for the existence of a process, it is possible to implement a synthesis of a decision-making model [13-15].

The decomposition method makes it possible to divide the solution into three components: «situation», «information and analytical work» and «solution» (object, action, destiny, respectively). Via the method of abstraction, can match the object, action and purpose with the average time of occurrence of the problem ( $\Delta t_{op}$ ), identification of the problem ( $\Delta t_{ip}$ ) and neutralization of the problem ( $\Delta t_{np}$ ), respectively (Fig. 1) [16].

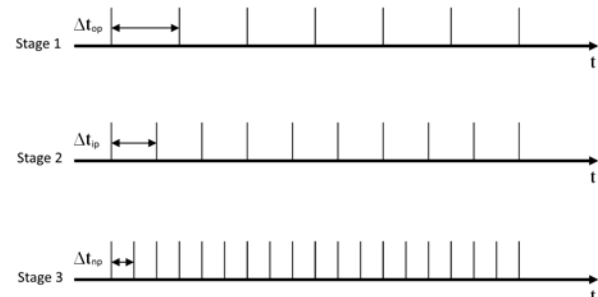
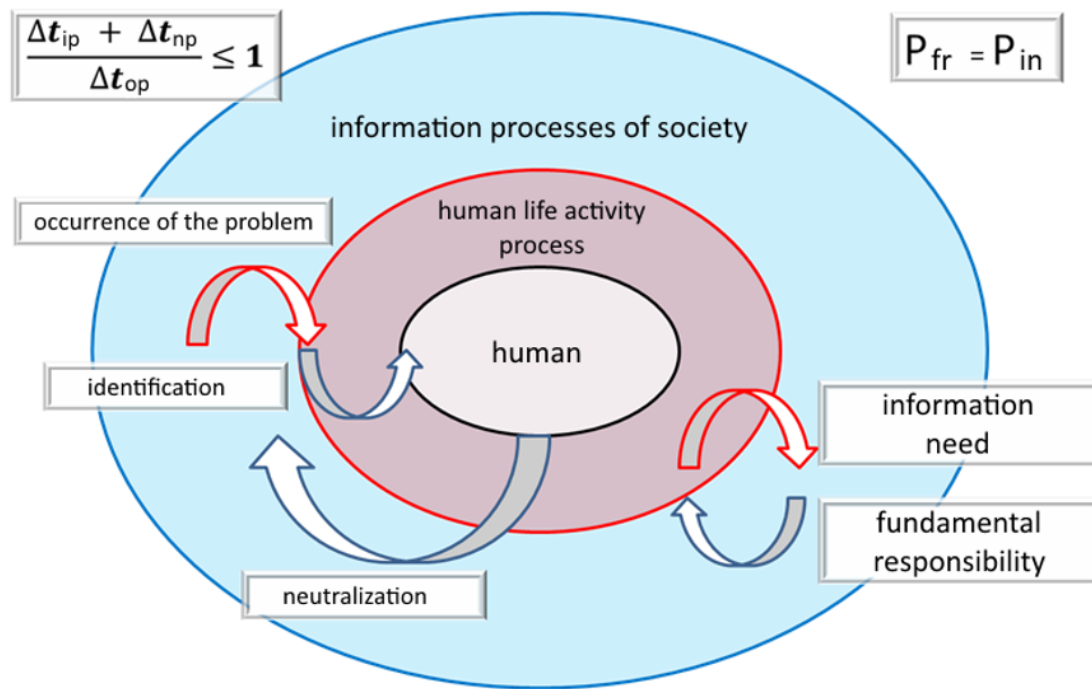


Fig. 1. Stages of decision making and their periodicity.

\* Corresponding author: [shershneva.ai@edu.spbstu.ru](mailto:shershneva.ai@edu.spbstu.ru)



**Fig. 2.** Model of the criterion of taking into account the effect of information processes on the safety of human activity.

To form an adequate solution, the three basic elements must satisfy the following inequality:

$$\frac{\Delta t_{ip} + \Delta t_{np}}{\Delta t_{op}} \leq 1 \quad (1)$$

In other words, the total average time spent on identifying the problem and neutralizing it should be less than or equal to the average time the problem appeared. Only in this case, the person will be able to form and make an adequate decision.

It is also important to take into account the fact that constantly there is a need for a person to obtain the information required to solve specific problems facing him, that is, man possesses an information need. And the more this need is satisfied, the better and more efficiently human activity will be carried out. In other words, the probability that each task, arises front a person, is recognized and resolved within the limits imposed on information, activity and environment resources ( $P_{fr}$ ) must be equal to the measure of information need ( $P_{in}$ ) [16].

### 3 Results

Thus, it is possible to form a model of the criterion of taking into account the effect of information processes on the safety of human activity (Fig. 2).

An individual and society as a whole carries out its activities, which must be controlled and managed [17]. The decision of the person is the basis of management, and it, in turn, comes down to the formation of the process of vital activity. It is in this process that

humanity creates and develops the information environment.

Any decision is based on a specific model. Depending on the subject area in which it is necessary to solve the tasks, a person must have different models. At the same time, it is important to remember that in order to form an adequate solution, a person must rely on an adequate model.

### 4 Discussion

In this regard, it is necessary to form a criterion (rule) to which a decision will be made on the degree of a provision person of the required information to make adequate decisions in the process of life activity.

The possibilities of mass media are increasing, and the means themselves are becoming an increasingly important factor in the existence and development of man. The information on which a person relies builds his reality and determines his world perception. In the conditions of wide availability of information, it is important to remember that one should be conscious person in the perception of incoming data from the information environment.

### References

1. T. I. Ezhevskaya *Psychological impact of the information environment on the modern man* **2** (2009)
2. V. Ye. Chernikova *Manipulation of mass consciousness as a phenomenon of the information society* **3** (2015)

3. V. G. Burlov ECSM 2018 5th Eur. Conf. on Soc. Media *The Methodological Basis for the Management of Social Media* **22** (2018)
4. D. Skripnuk, K. Kikkas, E. Romashkina E3S Web of Conf. *Sustainable development and environmental security in the countries of the circumpolar north* **110**, 02037 (EDP Sciences, 2019)
5. V. G. Burlov, M. I. Grachev, A. I. *A multilevel approach in training and retraining of personnel in the security of information technologies* 185-189 (2017)
6. V. B. Georgievich ECCWS *Information Warfare: Modeling a Decision Makers Processes* 66 (2018)
7. S. I. Samygin, A. M. Rudenko, V. V. Kotlyarova *Historical and philosophical understanding of the problem of information security* (2016)
8. E. Voskresenskaya E3S Web of Conf. *Regional features of legislative framework for environmental security of the Russian Federation* **110**, 02067 (EDP Sciences, 2019)
9. A.V. Mogilev *Information and information processes. Social informatics* (2006)
10. V. P. Petrov, S. V. Petrov ENAS *Informational Security of a Person and Society: A Tutorial* **334** (2007)
11. S. V. Kulik IOP Publishing *National security of the Russian Federation in the Arctic region: geopolitical challenges and strategic decisions* **302**, 012011 (2019)
12. P. K. Anokhin *Systemic mechanisms of higher nervous activity: selected works* (1979)
13. V. G. Burlov *The law of preserving the integrity of an object — the methodological basis for solving the problems of information warfare and ensuring security. Neurocomputers and their applications* 261-263 (2017)
14. V. G. Burlov, A. V. Andreev, F. A. Gomazov *Safety management of technosphere object on the basis of the law of preserving the object integrity* (2018)
15. V. G. Burlov MLSD *Regional management concepts on the basis of solution of the reverse problem* 77-86 (2016)
16. V. G. Burlov, M. I. Grachev, N. S. Shlygina *Making management decisions in the face of uncertainty of threats. International Conference on Soft Computing and Measurements* 310-312 (2017)
17. S. S. Sokolov IEEE EIConRus *The automating process of information security management* 124-127 (2018)