

# **THE CHOICE OF METHODS OF MODELING THE PROCESS REALIZATION OF PROGRAMS AND PROJECTS INTERACTION OF TRANSBOUNDARY SYSTEMS AND OPERATIONAL-RESCUE UNITS**

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The effectiveness cooperation of fire and rescue units of two neighboring countries on transboundary areas defined the clarity and coherence of interaction between their component links. Elimination and liquidation of disasters or emergencies is a process that is limited in time. At the same time the solving of problems is dependent on many factors, including technical support, information and legal support, therefore, it defines the several parameters of multi process that changes over time simultaneously and they are independent of each other. We will notice the vagueness and uncertainty of some parameters that are often without the existence of mathematical relationships between them. In studies of project management processes it takes into account that some settings are not fully, with significant deviations from the working or nominal values. Among a variety of methods and tools for the study of multiparameter systems there is an effective method for simulation modeling. The above method makes it possible to assess the impact of one or more parameters in the process. In this case, the simulation result is obtained as a numerical value that is the parameter that defines the process of project management. Changes in programs and portfolios of projects are grounds to enter other numeric input parameters, which in turn affects the value of the defining parameters. There is no possibility to trace the influence of one or more operating parameters of the nature of change both the input parameters and the time course of the project realization.

We will note that the space in which project management processes are implemented is the multivariable state space. Model object as a result of the study is a many space curves, each point of which is determined once for all variables in a given time interval. Of course, this space that is taken is Euclidean for example, with three variables valid parameters  $x$ ,  $y$ ,  $z$ , and the curve line as a model of project management and software interaction elements will submit their sophisticated features, such as:

$$\begin{array}{ll} y=y(x); & y=y(x); \\ z=z(x); & x=x(z). \end{array} \quad (1)$$

Given that in project management of transboundary operational and rescue units for liquidation the emergencies are involved representatives of the two neighboring states, it is convenient to file the interaction of using complex parameters. We take an

option for the first state of a real variable  $x$ , and the second - an imaginary variable  $iy$ , where  $i^2 = -1$  - imaginary unit. Then come to the function of a complex variable

$$w = u + iv = w(x + iy) = u(x, y) + iv(x, y), \quad (2)$$

where  $w, u, v$  - complex, real and imaginary values of the defining parameters and its components for the first  $u$  and second  $v$  State.

The analysis resulted dependencies (1) and (2) indicates the possibility of using techniques of geometric modeling relationships of elements in the implementation of projects and programs of cross-border interaction and operational rescue teams of two neighboring states. It is important to solve the task of choosing an effective method of using the geometric modeling application, such as in relation to the study process of project-oriented management of operational and rescue units from the interaction of two neighboring states as well as a large number of independent inter-related parameters. We distinguish two groups of geometric modeling techniques based on the use of Euclidean spaces, cast real numbers, and the numbers generated higher dimension spaces, in particular complex. To the first group we comprised the graphical tools for building the models of methods, such as differential geometry, projective geometry, calculation geometry and more. Listed geometry can be used and implemented in the study of technical systems, the number of variables does not exceed two ... three. Investigate of technical systems with a number of options, more than three, allowing the multivariate methods of applied geometry using the parameters filed by real numbers. The effectiveness studies of these processes in models increases significantly when it is used the generated numbers of higher dimension, in particular complex, spaces. Take into account that the project-oriented management of operational and rescue units for liquidation of emergency situations involved two neighboring states, grounded with complex phase space with a finite number of measurements, including two-dimensional.

Conducted analysis of methods for modeling the processes of project-oriented management in respect of cross-border systems within the limits of the two countries and operational and rescue units indicates the presence of the fuzzy parameters of the uncertainty relations between the various links in the process. Increase the effectiveness of studies allow the methods multivariate applied geometry by creating imaginative and visual models based on representation of the real structure and relationships of projects and portfolios in the management of transboundary systems and operational and rescue units of liquidation the emergencies in cross-border areas in two neighboring states.