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USING THE TECHNIQUES OF APPLIED MATHEMATICS IN THE STUDY OF THE PHENOMENON OF CORPORATE CRIME

Corporate crime threatens the economic security with such negative factors as increased corruption of public officials and members of the judiciary and law enforcement agencies, increased unemployment, tax evasion, monopolization of a number of market segments, loss of competitiveness, deterioration of the investment climate, significant decrease in entrepreneurial activity, deformation of justice. The necessity for criminological research on the problem of corporate crime determines the need to combat corporate crime and the nature of the cognitive science of criminology.

Article aims to study the possibility and necessity of using methods of applied mathematics, namely mathematical modeling for the purposes of criminological studies of the phenomenon of corporate crime.

At a general level, the methodological aspects of research today are becoming more relevant because any criminological research must start from delineation of methodological principles of directions for obtaining the necessary information, its processing and fixation of the relevant facts. Methodology is the system of theoretical and world outlook paradigms that define the principles of scientific research and analysis, as well as ways of cognition, which are used for research. The methodology includes the methods of the empirical and theoretical levels of cognition, which are separate but interconnected stages of the cognitive process.

Based on the interpretation of the terms "model" and "abstraction", it is possible to specify the concept of modeling as a process of constructing models of real objects (objects, processes or phenomena); to replace the real (original) object with equivalent; to study objects of knowledge on these models. The most effective is mathematical modeling, which applies a replacement of the real object with its mathematical model for the purpose of further analysis.

Example of formalization is mathematical models, which are based on the use of various tools of developed mathematical science. The general principles and requirements with respect to the mathematical models are:

1) adequacy – conformity, identity with its original model;

2) objectivity – correspondence of the scientific findings and real conditions;

3) simplicity – "freedom" of model from secondary factors;

4) sensitivity – ability of the model to respond to changes of the initial parameters;

5) persistence – the smallest change in the initial parameters must meet the change in the solution of the problem as a whole;

6) versatility – latitude of application.

Traditional methods of mathematical formalization of social phenomena, suitable for the needs of criminological research of corporate crime are, in particular, the method based on the theory of differential equations and the method of multidimensional scaling (Torgenson's metric method).

Manipulation of mathematical apparatus helps to solve a number of sociological problems. These tasks are, in particular, processing and analysis of survey data and other sociological studies; construction of mathematical models of social processes and phenomena; explanation and prediction of social phenomena. Based on the foregoing, we can say about the possibility of creating an abstract (theoretical) model of the phenomenon of corporate crime as a speculative design, which is structurally composed of objective and subjective data in a symbiotic relationship, and that can be fully or partially described by adequate mathematical model in the procedure of development of hypotheses about the system the nature of corporate crime.