

The method of estimating the accuracy of multi-criteria decision-making methods

The aim of the project is to create a new method for estimating the accuracy of multi-criteria decision-making (MCDM) methods. The project will design a testing method based on two sets of reference models. These will be real-life and theoretical models. On the basis of modern computer simulations, the obtained results will undergo a thorough statistical analysis in order to draw conclusions. In this way, the possibility of more responsible selection of methods for specific classes of decision problems will arise. The motivation for undertaking actions is first of all the fact that there is no appropriate methodology to select the MCDM methods for a given decision problem. An intriguing problem with MCDM methods which rank a set of chosen alternatives is that frequently different methods may return different results for exactly the same input data. This phenomenon is not uncommon and it is evidence that one method can be better than another to solve a specific decisional problem (only one result can be true). Thus, the problem of evaluating the performance of MCDM methods is raised. This raises the very important question how can one evaluate the performance of MCDM methods? The presented research project is the answer to this question.