

## CREATION OF THE PROGRAM OF TARGET OPERATIONS ASSESSMENT CALCULATION

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**Abstract** The purpose of the paper is to develop a software product for the evaluation of simple target operations. The methods of mathematical modeling and object-oriented programming were applied during the program development. As a result, the program complex has been developed. The comparison of the studied processes is possible by means of the program of target operations calculation assessment. The software product performs assessment calculation, based on the expression of cybernetic estimative indicator that was developed in early researches. It is possible to calculate assessment value of testing operations in the training and educational systems, and also operations of software or any technical object by means of the developed software product. Also the developed method of estimation allows to get objective and correct operation assessment. The software work was demonstrated by the equipment evaluation to select the best option. As cybernetic approach of the operation description is universal and the assessment of any target operation can be calculated using three basic indicators. They are an expert evaluation of input parameters, an expert evaluation of output parameters and the time of operation. The software product of assessment calculation based on the single estimative criterion is suitable for any kind of estimation. As has been noted, the correctness of tasks decision and tasks complexity are necessary for the assessment calculation of any testing operation that is made by any person. The reduction of expert estimates values of input parameters by alignment of action directed product values is necessary for the comparative assessment implementation of the test tasks of different complexity performed by several subjects, as well as any operations.

**Keywords:** program of operations assessment, equipment assessment, task assessment.

**Introduction.** Today the main problem of successful goal achievement for system objects of the cybernetic class is connected with a possibility of identification of their procedural activities. The development of the cybernetic estimated indicator [1-3] provides scientific approach to the problem solution. However, there is a question of practical use about the developed scientific and methodical decisions. Logical development of this issue is development of software product based on technology of the universal and adequate assessment of engineering procedures of the controlled systems [4-7].

The use of the known methods of the analysis, planning and implementation of any kind of executive systems activity [8-10], does not result to achievement of maximum possibilities of supersystem [11-12] that uses the results of their procedural activities. It means that the available resources of enterprises are used with low efficiency. This reduces their competitiveness and pace of development.

The problem of creation of the single cybernetic estimative indicator is also actual in the training and educational systems [13-15]. It is

connected with the fact that such indicator provides an assessment of dynamics of development of personality practical skills or entity personnel in case of accomplishment of any technological operations.

The advantages of computer estimation are speed, objectivity, consistency and visualization in forming of estimative result. And the advantages of the used technology are absence of subjectivity, universality and accounting possibility of all important parameters ( speed, complexity and quality of the solved task).

**Materials and Methods.** It is proposed to consider the example of the two equipments evaluation presented in [3], for demonstration of the created software work. In work the operation parameters of two electric heaters for room warming were considered. Also the assessment of the target operations that are made by the equipment №. 1 and No. 2 has been counted. The assessment calculation is based on the brought input and output parameters for comparative assessment to make the choice of an optimal variant of the equipment.

The input products expert evaluations of the transactions are:  $\alpha_1=1546$ ,  $\alpha_2=1904,24$ . The time values of warming the room space are  $TO_1 =$

1,  $TO2=0,83$ . The expert evaluation of output parameters will be as followings:  $k\alpha1 = 2790$ ;  $k\alpha2 = 3085,7$ .

The created software product of assessment calculation has the program settlement modules control window at which it is possible to choose the class of the investigated operation (fig. 1).

In our case we will consider the first module

calculate an assessment of simple target operations.

After data entry in the needed cells and the last pressing of the "Enter" key the operations data are visualized in the table of operation (1). There are values of all main indicators of economic transaction including its efficiency in the left table (2). And in the right table (3) both basic operation data and the indicators are displayed by one line (fig. 3).

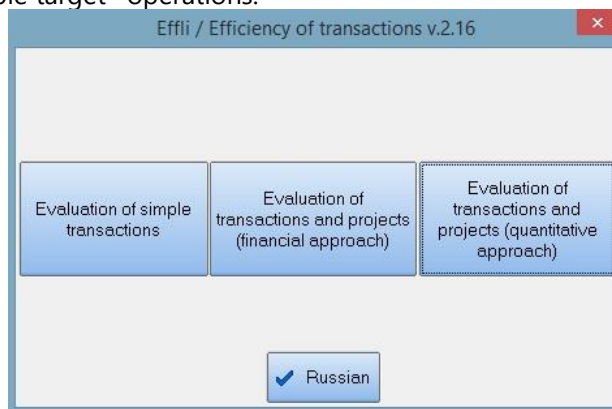


Figure 1. Control window of estimated modules of the target operations assessment program ram

The data entry window for an assessment of mouse left key on the "Evaluation of simple simple operations (fig. 2) opens when you click the transactions".

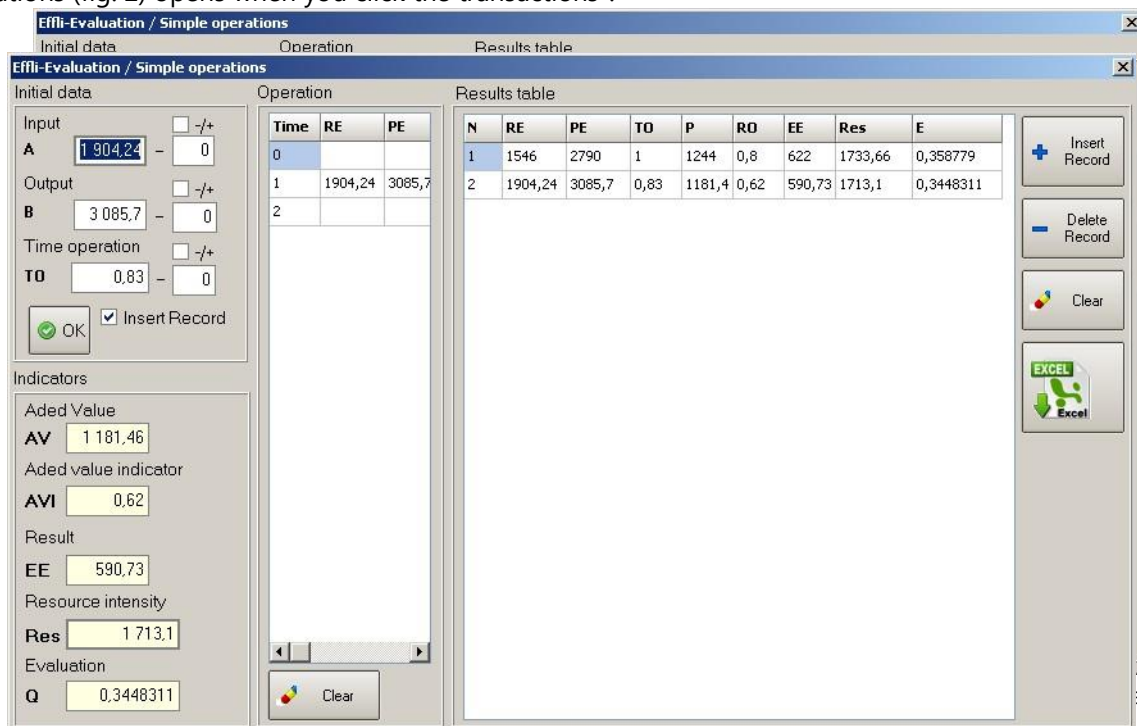


Figure 3. The program window of the operations assessment calculation results that displaying functioning of the equipments № 1 and № 2

of the program where there is an opportunity to

Therefore, if  $Q1 > Q2$ , then the choice of the equipment No. 1 is reasonable.

**Results.** The software work was demonstrated by the equipment evaluation to select the best option.

As cybernetic approach of the operation description is universal and the assessment of any target operation can be calculated using three basic indicators. They are an expert evaluation of input parameters, an expert evaluation of output parameters and the time of operation. The software product of assessment calculation based on the single estimative criterion is suitable for any kind of estimation.

For example, as has been noted in [3], the taking into account the correctness of tasks decision and tasks complexity are necessary for the assessment calculation of any testing operation that is made by any person. The reduction of expert estimates values of input parameters by alignment of action directed product values is necessary for the comparative assessment implementation of the test tasks of different complexity performed by several subjects, as well as any operations.

**Conclusions.** Developed a program of cyber operations assessment, the calculations of which are carried out using a universal single assessment indicator  $Q$ . A special feature of the program is a unique opportunity to evaluate the operations performed by a system or mechanism both technical and biological origin, and functioning in any sphere of activity.

This assessment calculation is possible in the case of using the cybernetic approach to technology identification. Since the global input and output functions of the operations are unique to each control, based on a technique that allows to bring significant factors to a single expert values for assessment calculation.

Presentation of studies on assessment calculation of the operations performed by persons, using the developed software product is the subject of the following publications.

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