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FEATURES OF EXPECTED COST ESTIMATION FOR R&D'S ON SPACECRAFT DEVELOPMENT

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The aim of this work is to identify the features of expected cost estimation for R&D's on spacecraft development.

The study is based on a methodological approach to expected cost estimation for R&D's on spacecraft development. The cost estimation model is based on a method of componentwise analogy for relatively simple spacecraft components, moving along the edges of a weighted oriented tree graph that models the spacecraft technical structure, and fuzzy mathematics methods. The methodological approach will allow one to obtain required R&D expected cost indices early in the spacecraft development when the standardized cost estimation method and parametric methods are difficult to use because of the insufficiency of bug-free design and manufacture documentation and statistical data on labor intensiveness and materials consumption.

The design novelty, R&D complexity, and work automation coefficients are determined by converting the index value from a fuzzy number in a fuzzy interval into a crisp number, thus allowing one to reduce the effect of subjective factors.

Calculating the engineering-and-economical indices of a spacecraft by all R&D participants using the same methodological approach increases the accuracy and shortens the time of the computational process. Conducting the calculations in a systematic way will fill the statistical base of the space sector with labor intensiveness and materials consumption data needed for estimating the cost of new spacecraft and components thereof using a unified concept package – a glossary.

The paper presents the operation sequence of estimating the cost of R&D on spacecraft development and describes the required input data and the output data format.

Keywords: cost estimation model, R&D, procedure, spacecraft, cost estimation.

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