

## **Integrative-Cyclical Approach to the Study of Quality Control of Resource Saving by the Use of Innovation Factors**

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**Abstract :** It is well known, that while we do a quantitative evaluation of the quality control of some economic processes (in particular, resource saving) with help innovation factors, there are three groups of problems: high uncertainty of indicators of the quality management, their considerable ambiguity, and high costs to provide a large-scale research. These problems are defined by the use of contradictory objectives of enhancing of the quality control in accordance with innovation factors and preservation of economic stability of the enterprise. The most acutely, such factors are felt in the countries lagging behind developed economies of the world according to criteria of innovativeness and effectiveness of management of the resource saving. In our opinion, the following two methods for reconciling of the above-mentioned objectives and reducing of conflictness of the problems are to solve this task most effectively: 1) the use of paradigms and concepts of evolutionary improvement of quality of resource-saving management in the cycle "from the project of an innovative product (technology) - to its commercialization and update parameters of customer value"; 2) the application of the so-called integrative-cyclical approach which consistent with complexity and type of the concept, to studies allowing to get quantitative assessment of the stages of achieving of the consistency of these objectives (from baseline of imbalance, their compromise to achievement of positive synergies). For implementation, the following mathematical tools are included in the integrative-cyclical approach: index-factor analysis (to identify the most relevant factors); regression analysis of relationship between the quality control and the factors; the use of results of the analysis in the model of fuzzy sets (to adjust the feature space); method of non-parametric statistics (for a decision on the completion or repetition of the cycle in the approach in depending on the focus and the closeness of the connection of indicator ranks of disbalance of purposes). The repetition is performed after partial substitution of technical and technological factors ("hard") by management factors ("soft") in accordance with our proposed methodology. Testing of the proposed approach has shown that in comparison with the world practice there are opportunities to improve the quality of resource-saving management using innovation factors. We believe that the implementation of this promising research, to provide consistent management decisions for reducing the severity of the above-mentioned contradictions and increasing the validity of the choice of resource-development strategies in terms of parameters of quality management and sustainability of enterprise, is perspective. Our existing experience in the field of quality resource-saving management and the achieved level of scientific competence of the authors allow us to hope that the use of the integrative-cyclical approach to the study and evaluation of the resulting and factor indicators will help raise the level of resource-saving characteristics up to the value existing in the developed economies of post-industrial type.

**Keywords :** integrative-cyclical approach, quality control, evaluation, innovation factors. economic sustainability, innovation cycle of management, disbalance of goals of development

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