PROBLEMS OF INTRODUCING AN INTEGRATED SCIENTIFIC DEVELOPMENT MANAGEMENT SYSTEM

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Abstract: To achieve the required quality of technology in the creation of new technology, an applied research management system is required. The purpose of the article is to identify problems and ways to solve them when introducing a complex new system in high-tech industries. The methodology includes a systematic analysis of sectoral scientific activities in strategic planning and forecasting the development of technologies and management of the creation of a reserve. The system is built on modern principles of technology development and scientific potential: programmatic and targeted approach, optimization of research in several areas and choice of one as the main research concept, assessment of the level of technical excellence, strategic and tactical planning to achieve the predicted result. An attempt is made to cover the whole range of problems of introducing an innovative system with the aim of general understanding of the strategy of its implementation, development of a methodology and program.

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To create new samples of complex technology requires innovation (new technologies, solutions, materials, etc.) at the stage of integrated design and production. In recent years, the need for scientific research has been proven to achieve the required level of technical perfection of the proposed innovations. “Saving” money and time for such work significantly increases losses at the subsequent stages of the product life cycle and reduces its characteristics. We need special management systems for the creation of scientific and technical reserve (STR) and localization of accumulated technologies. The need is caused by two circumstances: beginning of the sixth technological order and transition from the traditional (directive-sequential) to the innovative principle (multi-vector, optimization) of the creation of new technology.

Various aspects of creating STR are discussed. In Russia, models are being developed for financing the innovative activities of high-tech enterprises. Models of a comprehensive technical and economic assessment of options for the joint use of new and traditional technologies for creating STR are investigated. The research and development management system is studied based on technology readiness levels, program-target budgeting and target indicators. A methodological toolkit is being developed to assess the technical and economic efficiency of the technologies being introduced.

CMS R&D model, which has been tested at the НИЦЖ and analysis of the features and difficulties of implementing CMS R&D in high-tech industries, is presented. The problems of introducing a new system for creating STR (innovative principle) in the structures of organizations and enterprises operating according to the previously established practice (traditional, design principle) were identified. The logic of the introduction of the scientific development management system to solve the identified problems has been substantiated.

The presented results are the product of analysis, synthesis, generalization of rather unsystematized data, and some of them require serious substantiation, rechecking at the level of deep sociological research. An attempt was made to cover the whole range of problems and difficulties in implementing an innovative system (such as CMS R&D) for a holistic understanding of the strategy, development of a methodology and implementation program.

The proposed CMS R&D is similar to the system operating in the field of creating product technologies based on monitoring their readiness levels. CMS R&D contributes to an increase in the level of scientific and technical excellence, research efficiency, development of a scientific resource, reducing costs and risks of not achieving target values.

The implementation of the proposed CMS R&D or a similar system for creating STR is a necessary, but laborious and lengthy process that requires the involvement of external competencies, development of methods, organization standards and other regulations that take into account the peculiarities of its functioning.

In an institution, enterprise, organization, the conditions for the functioning of the applied science development system (such as CMS R&D) must be taken into account for its successful implementation. Thus, a favorable external condition will be the creation of "centers of competence" of applied science, which can eliminate the previous shadow management mechanisms that are emerging between the leadership of a scientific institution and specialized executive authorities. Strategic planning for the development of technologies and the development of scientific potential can be improved: there is still a strong influence of potential performers on the setting of goals, which reduces the quality of goals (there is planning "from the achieved").

Thank you for your attention!