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Concept of the integrated environment of management by large scientific projects

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The developed concept has long history of the development. The first work on this subject was published in 1993 [1]. Initially the concept developed as the tool of the system analysis of safety of the ITER reactor project, at this time on the basis of the conceptual project of the ITER reactor was developed multilevel (up to the 19th level of hierarchy) structurally functional hierarchical computer model of the ITER reactor. The hierarchical structural functional model was developed on the basis of constructive indications. It means that the principle of decomposition from more difficult to elementary using only vertical links of hierarchy of construction elements of the reactor was used. This decomposition of construction elements of the ITER reactor begins with the main complexes of the ITER reactor and completes on the one-piece details or standard elements. Elements of structural functional model were coded in decimal system, therefore, so that each element of a design has the unique code defining its full identification in hierarchical structure of the reactor model (belonging to a certain complex or system, the hierarchy level, functional and constructive mission). Such way of identification allows to add to the developed hierarchical structure all processes of implementation of the project, including research and development, manufacture and assembly. However, in process of development of hardware and software possibilities of 3D-design tools, opportunities of databases, technologies of remote access, information technologies of administration systems and management of manufacturing processes, formations of concepts of electronic life cycle of products and a common information space extended ideas of opportunities of the developed concept.

Now the representation allowing to join of all activity connected with implementation of large scientific projects and to present it in the form of the interconnected systems of databases, three-dimensional models of object, temporary schedules of realization of tasks and representation of the reached results into integrated environment is created. Implementation of the developed integrated concept allow in future to increase essentially efficiency of invested funds due to minimization of losses from errors of design, the wrong administrative decisions, to optimize costs of research and development and production, to optimize technologies of assembly and commissioning, and also most seriously to reduce probabilities of realization of various types of risks.

Eligible for student paper award?

No

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