EVOLUTIONARY–ATTRACTIVE APPROACH TO PROJECT MANAGEMENT

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The essence of the modern project environment is extremely variable. This is due to the innovative component of a significant number of projects, the turbulence of the external environment, the impact of economic and political instability. This leads to the fact that modern projects are planned, executed and completed in the face of risks, changes, deviations and uncertainties. In such conditions, investors, customers and project managers should make a decision to initiate and correct the methods of strategic project management in general, and for each of its phases, to ensure the successful completion of the project. But world statistics indicate that almost 70% of the projects started are not successful. This means that the probability of successful completion of projects started is small. Thus, increasing the likelihood of successful completion of initiated projects is an important scientific and technical problem.

One of the reasons for the low probability of successful completion of projects is precisely the imperfection of existing project management methodologies. Thus, in the most common standards and methodologies: integrated management of project deviations, project-vector management of educational environments, security of project management for the development of complex systems, the project is viewed as a closed linear system, where models, methods and tools for increasing the reliability of successful completion of a project in conditions Risks, changes, deviations and uncertainties - are absent.

The analysis showed that the project management system (PMS) exchange information, resources and energy with the environment, are dissipative systems, processes which are irreversible. This means that PMS has all the properties of open and non-linear systems.

This leads to a contradiction between the essence of the Project Management System and the main model, which is provided by the existing project management methodologies. That is, the reason for the low probability of successful completion of projects is precisely the imperfection of existing project management methodologies. As a consequence, there arises an important scientific and technical problem in the methodological and applied aspects of increasing the likelihood of successful completion of projects begun. To solve it, the following approach is proposed:

- consider the project as an open nonlinear system;
- reliably estimate the probability of successful completion of projects in the phase space through the identification and evaluation of attractors of success, including in the early stages of the life cycle of the project;
- to choose methods of strategic management on the basis of the evolutionary approach that allow to reach the area of global optimum of the multimodal target function of the successful completion of the project by the criterion of achievement;
- to change the methods of operational control in accordance with random disturbances and unforeseen changes in the external environment when planning the project.

Based on the proposed approach, a conceptual model of evolutionary-attractive project management (fig. 1)

It is shown that the project as an open non-linear dynamical system is described by a set of parameters and that the probability of successful completion of the initiated project is determined by the multimodal target function of the successful completion of the project, and depends on the success of the stages of the project's LC (initiation, planning, decomposition, execution, monitoring and adjustment of project Solutions).

We consider that the product of the project (PP) depends on the financing (F), the time (T) and the quality (Q) of the work: PP = f (F, T, Q).

Then, under the success of the project, we will consider the state of the system in which the variables, when the project is completed (t = y), approach the planned or optimal value, that is $F_y \to F_{opt}, T_y \to T_{opt}, Q_y \to Q_{opt}$.

Analyzing these dependencies, we can say that the successful completion (sc) of the project will depend on the availability for the project: financing, resources, information and a qualified project team. On the basis

of this and the model of excellence of the projects of IPMA Project Excellence Model, the general view of the objective function takes the form:

$$P_{sc} = P_{pp \to opt} = f(F, R, I, C)$$

where F - availability of project financing; R - availability of project resources; I - availability of information on the project; C - availability of a qualified project team.

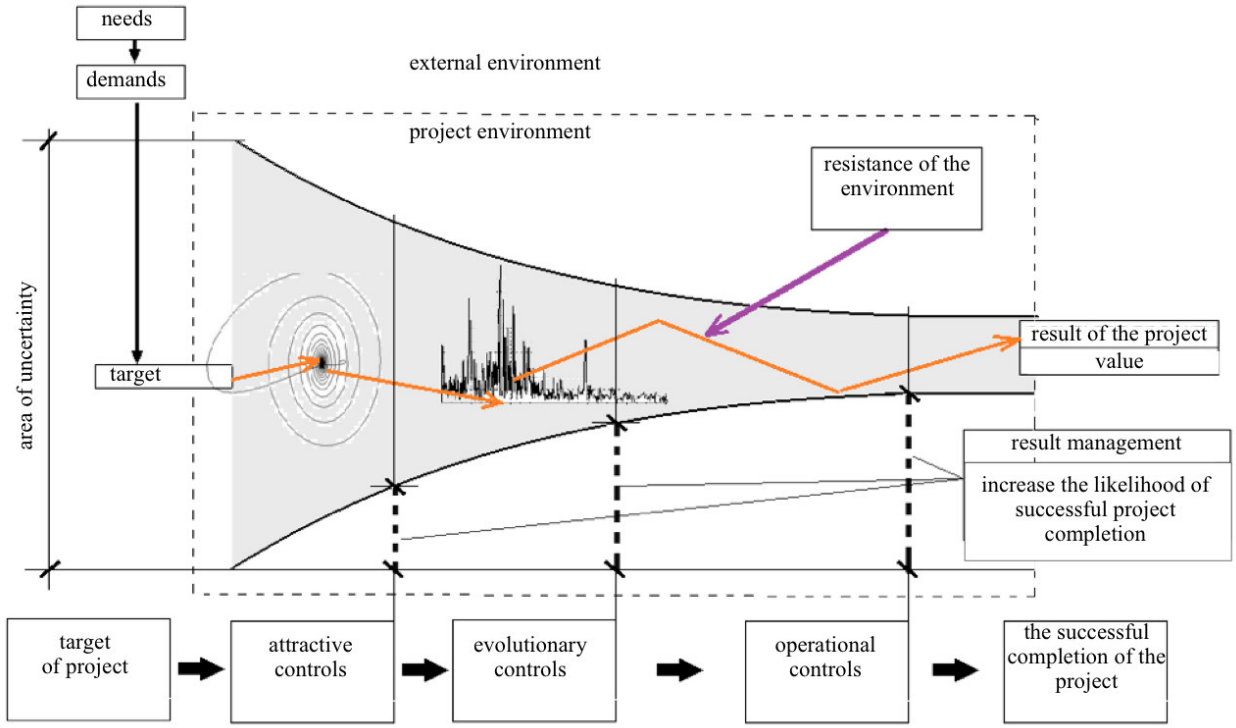

Fig. 1 - Conceptual model of evolutionary-attractive project management

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