УДК 005.7

COMPARATIVE ANALYSIS OF PROJECT MANAGEMENT METHODS USED IN THE HIGH TECHNOLOGY

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Modern world changes rapidly with the speed, which increases every year. Moreover, the high technology sphere of science develops faster than all others areas.

A guide to the project management body of knowledge (PMBOK Guide) originally was published in 1996 [1]. Thus, initially project management developed within the construction and engineering industry for maintaining project plan goals and controlling schedule and resources [2]. With the development of science and technology, project management got new methods and instruments.

The goal of the original paper is to make comparative analysis of project management methods. To achieve main goal we solve the following tasks: to describe the changes in project management methods during the years, analyze theirs advantages and disadvantages and highlight key modern techniques, which is applicable in high technology.

Scientific, high technology projects have specific features: they usually need high investment, often have no precise objective and its outcome sometimes unpredictable.

The project life cycle defines the principle style how the project is supposed to be made, what actions should be done and which are not. As high technology project usually involves a lot of resources (labor, time and capital) it can be implemented in the 4 stages [3].

Project management methodologies can be choose differentiated to increase the effectivity of project. Since 1999, PMMs are firmly placed as one of the top ten contributing factors toward project failure, according to the Standish Group (2010) [4]. Considering this fact, different popular methodologies (including waterfall, agile, scrum, etc.) are examined in the original work.

To control the activities during every stage it is possible to use different knowledge areas of management. As the most of high technology project are labor-intensive, money consumptive and risky, in the current work was made a decision to consider methods in these areas (project scope, risks and time management) more circumstantially.

To plan project scope it is essential to understand, what are the product description, constraints, strategic plan and its assumptions. That is why on this stage managers use decisions trees to understand the main project theme, decompose work breakdown structure (WBS) to create precise tasks for personnel and evaluate benefit with simple or dynamic indexes such as ROI, PP or DPP.

Without a clear idea of continuance of each task, it is impossible to calculate the project duration and control its performance. Project manager can use diagramming methods to manipulate the situation. Risks can occur accidentally and affect the whole project therefore simulation and complex methods from mathematical analysis can be suitable for the risky situation prevention. The most popular tools of project management includes Gantt and Pert charts, WBS, CPM analysis and others developed decades ago. Today, most of the automated project management tools include these classic tools. Advancements in software project management will help to increase the rate of software project successes [5].

The report considers some popular project management methods and methodologies, describes and compare simple and dynamic types of them and exemplify implementation in the high technology.

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