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Application of the Multi-Project Management in Companies

Abstract

Contemporary companies use as a tool for strategy implementation project management. The problem of this approach is that the number of projects grows; the company must solve parallel projects of various types and priorities. On the other hand the growth of resources is not so remarkable. An effective management of project portfolio consists of three phases: formulation of the framework of portfolio configuration, portfolio design and portfolio management. The portfolio management is also called a multi-project management, concerning variety of activities including portfolio optimizing. The reasons for multi-project implementation are different (advanced globalization, the integration of markets or the development of new technologies). All these factors make great demands on the right implementation of multi-project management. The goals of this article are to analyze activities leading to an effective use of multi-project management, describe steps which are necessary to do for its successful implementation and illustrate the practical use on the example of one company as verification case study, which proved the theoretical background of this topic.

Key Words

multi-project management, project, project management, portfolio, strategy

JEL Classification: G32

Introduction

A number of today's companies use project management as a tool of the strategy implementation. Thus the number of projects in companies has increased. Companies have to manage projects of various kinds, the structure of which are being more complicated and depend on changed external and internal determinants. Therefore, it is necessary to create portfolios of projects which ensure linkage between strategic goals and projects, sustaining competitive position of the company and growth of its value with respect to limitation of disposable resources. An effective process of project portfolio configuration and management consists of three phases [5]:

- Framework of portfolio configuration and management;
- Portfolio design;
- Portfolio management.

The framework of portfolio configuration and management represent a set of conditions and requests, which are obligatory for the whole portfolio configuration and management process. Generally there are quality standards set in this phase. Among determining conditions aspects of linkage of project and strategy, resources limitation, portfolio balance, used methodology of evaluation are being taken into account.

Portfolio design means the right selection of suitable projects into portfolio. The balance of all types of projects (*Developing Projects*, enhancing the competitive position of the company for the future, *Renewing Projects*, keeping the technology in operation, *Rationalization Projects*, increasing efficiency of operating processes, and *Mandatory Projects*, going out of legislative demands) is necessary to compare with performance criterion and resources limitation. In this way decision about projects, which are included or excluded into portfolio are being met.

Portfolio management is a dynamic process which represents *Portfolio Evaluation*, *Portfolio Restructuring*, and *Portfolio Optimization*.

The Multi-project management contributes to ensuring the relations between strategic goals and firm's projects, reinforcement of competitiveness and effectiveness of resources allocation. For achieving high performance of the system, the multi project management must be right implemented into the firm's processes.

The aim of this article is to provide a brief survey about the principles of the use of the Multi-project management in Strategic management processes and to describe changes the company must meet for utilization of its benefits.

1. "Multi-project management" in context of Project Portfolio Management

The historical view of a multi-project management has its relevance. In the economic literature there can be found the first mentions at the end of the 60s. In this time it was concerning the allocation of resources within the mathematical programming [6]. Pritzker, Watters and Wolfe [9] analyze the linear planning in their essay from 1969. Generally, the aspects for the reduction of a project run-time are discussed. The authors look into a scheduling problem. The aim is to set an order of the projects to be able to finish all the projects in the shortest time. This similar task, which can be solved on the mathematical way, is a selection of the projects to reach a maximum of the benefit within the limited investment costs.

Fotr and Souček [5] use bivalent programming for project portfolio optimizing, in case when more resources limitation are given. The basic criterion is that chosen economical parameter must be additive through all evaluated projects (e.g. NPV or profit). Variables can then reach only two values, 1 (the project is included into portfolio) or 0 (the project will be excluded from the portfolio). If the portfolio optimizing will be designed under

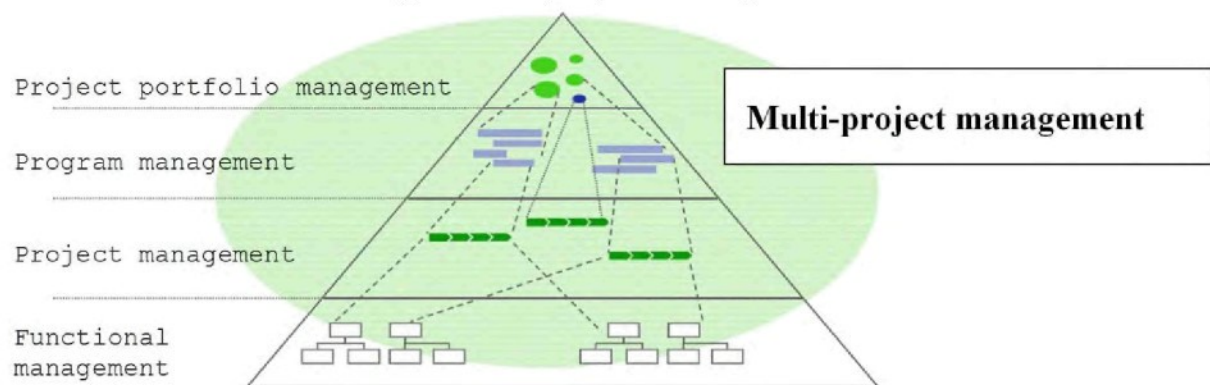
risk, stochastic optimizing methods based on statistical risk characteristics of given parameter are being used. For these methods software aid is necessary.

According to Engwall and Jerbrant [3] the term multi-project management can be used if the main part of activities is realised with the simultaneously running projects and the collective base of resources is used. The project portfolio management (PPM) is a term, which has been used since the 90s of 20th century. From Levine's point of view [7] the project portfolio management is a collection of processes, which integrate the projects with other company operations. The projects are in accord with strategies, resources and all activities of the company. The processes, which are used by PPM, are according to Project Management Institute the processes of collection, identification, categorization, evaluation, selection, prioritization, balance, acceptance and re-evaluation concerning the components of portfolios (projects and programs) [10].

The authors Pfetzling and Rohde [8] comprehend the meaning of the term "multi-project management" as an establishment and a development of more project structures and processes on the strategic and operative level. In the book "Projektmanagement" [1] there is a note, that the multi-project management is also suitable for a controlling of more projects in the organization. The aim is to make use of the synergy effects and to avoid any possible conflicts.

Basically, the multi-project management is a complex management of project environment to reach the defined aims of relevant stakeholders within coordinated effects of organization, strategies, structures, processes, methods and cultures [4]. This issue is clarified in the following figure 1.

Fig. 1 Multi-project management



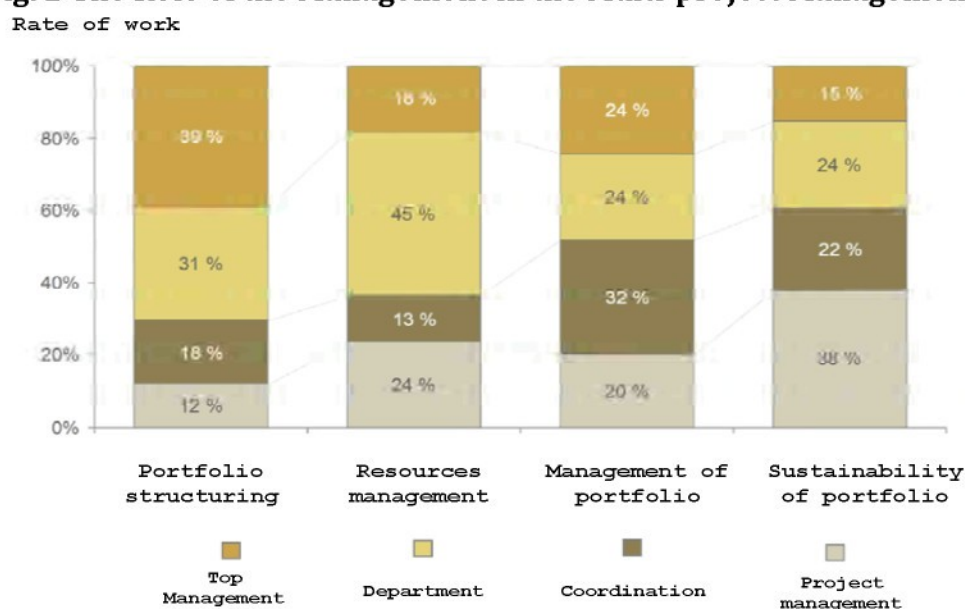
Source: [4]

The praxis has already recognized a need for the multi-project management. In the year 2009 and 2010 a study was performed by the Technical University Berlin [4]. The aim was to find answers for the following questions:

- Which demands are made on the strategy formulation?
- How can the multi-project management be helpful for better implementation of the strategy?

In total there were about 301 participants. The structure was as follows: automotive/engineering (24 %), banking/insurance (18 %), IT (13 %), services (12 %), electric/electronics (9 %), chemicals (5 %), healthcare (4 %), consumer goods (3 %), science (2 %), others (10 %). In all, there were 276 portfolios analyzed, where the average number of projects in the portfolio was 143. The Technical University Berlin is focusing exclusively on the multi-project management. From this reason the number of projects in portfolio was at least 20. The aim of the Technical University Berlin was especially the identification of actual trend of the multi-project management and getting the suitable ratios. In this study there were also activities of the multi-project management analyzed to determine who the main participant is. According to the following figure 2 it can be assumed that the top management is regularly focusing on the portfolio structuring.

Fig. 2 The Role of the Management in the Multi-project Management



Source: [4]

The results of the research have proved the strong correlation between the Strategic management and the management of project portfolio. The main topics connecting the strategy to multi-project management were:

- Stability of strategy;
- Clarity of strategy;
- Conformity of strategy and portfolio;
- Formalization of the project prioritization;
- Evaluation criteria for projects prioritization.

It is undisputed that the top-performers make a systematic analysis of the environment, draw a long-term strategy, and deduce the aims of project portfolio with a view to the strategy.

2. “Multi-project management” implementation

Transformation from the separate project evaluation to systematic project portfolio checking forms the basic change in investment decision and steps of strategy implementation. It is mostly connected with process reengineering, redefinition of criterions creating benefits for the firm and controlling of value drivers correspondence comparing the projects performance and the company's strategic goals. The effective multi-project management requires more centralized tools of investment decision. Thus the projects inside of the organization are getting competitive. It was proved that effective configuration of the project portfolios and setting the right priorities concerning each project, can be not only helpful for the better realization of the firm's strategy, but it also diminishes a number of trouble projects. All these facts yield lump-sum savings over approximately 20 – 30 % of investment costs.

To the basic activities preparing the restructuring of the organization to the multi-project management belongs the **process analysis**, which enables to introduce the multi-project management on the operational level, **organizational analysis**, which enables to set the relevant communication lines, **personnel analysis**, which enables to improve the preparedness of project teams. Considerable changes must be done in the **controlling**, which must be more focused on the investment management procedures, project performance monitoring, reporting the portfolio and strategy conformity. The whole organization will become more flexible if introducing the multi-project management.

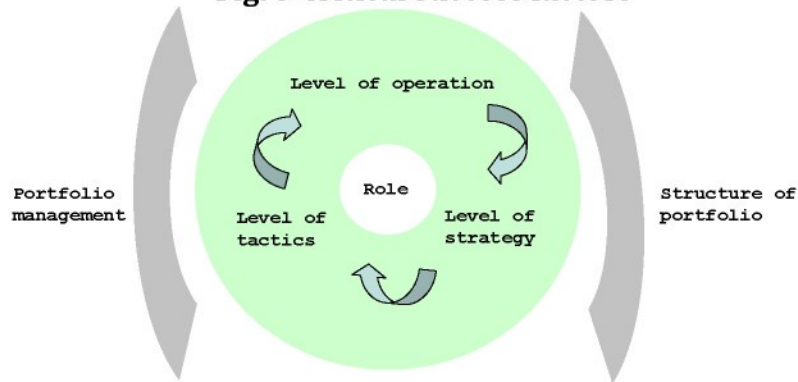
The portfolio creation is also a remarkable tool of risk treatment. Degree of reduction of the portfolio's risk exposition depends on the portfolio scale (large portfolios contribute to risk decreasing), statistical dependence of projects (negative correlation or non-correlation of projects decrease the risk). The tool of risk exposition estimation used in contemporary praxis is the **stress analysis**, shows key risk factors influence the project portfolio.

Successful implementation of the multi-project management presupposes:

- The strong support of the top management;
- The clear specifying and communication of benefits for the organization and its stakeholders;
- Priority of processes before tools and methods of project evaluation and choice;
- Organizational supports, quality standards setting, build new procedures in the organization's regulations.

The Technical University Berlin has also defined the critical factors for success of the multi-project management (see Fig. 3). The illustration is as follows:

Fig. 3 Critical success factors



Source: [4]

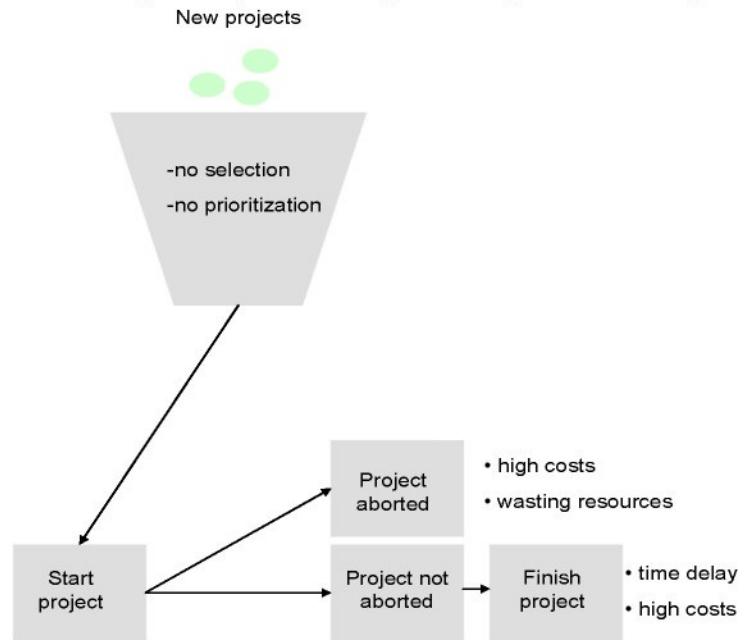
3. Case study: Analysis of Organizational Changes after Multi-Project Management Introduction on example of a specific German Company

The object of the research was a German company, which is specialized on the renewable sources of energy. The annual turnover is about CZK 1.000 mil., and the number of employees is 100. The discussions with the management showed that company had problems concerning performance decrease and raise of costs, which were solved by implementation of the multi-project management. This instrument has been introduced in the year 2006. The goal of the research was to analyze the changes of the project management organization after the multi-project management introduction.

3.1 Situation before 2006

An analysis was performed that showed that the number of projects in the company has been growing very fast since 2000. Further, the projects have become more complicated. On the other way the amount of sources was limited. The growth of projects quantity and their complexity was more rapid in comparison with the resources growth. Until 2006 the formalization of methods and processes was not realized. The projects with similar content were not bundled. Beyond the line organization structure the project organization structure became more important. Successively both types of structures without clear priorities were used for project and organization management. The communication between strategic and project management was poor. Contribution of performed projects to the growth of firm's value was not monitored. Figure 4 shows the primary project management scheme.

Fig. 4 Project management (before 2006)



Source: own

The above mentioned process of project management was not effective. The main problems were:

- small or no conformity with the strategy;
- no prioritization of projects;
- no identification of the synergy effects among the projects;
- missing and wasting resources;
- low transparency and high costs.

3.2 Situation after 2006

The process of the project management (project portfolio management) was redefined in the year 2006. The goal of reengineering was to reduce the costs and to use the resources more efficiently. The changes were focused on determination of two phases. Firstly, planning and determination of the project portfolio should lead to the constitution of effective projects corresponding with organizational strategy, and secondly, the portfolio will be properly managed with the stress on relevant controlling and reporting the projects procedures.

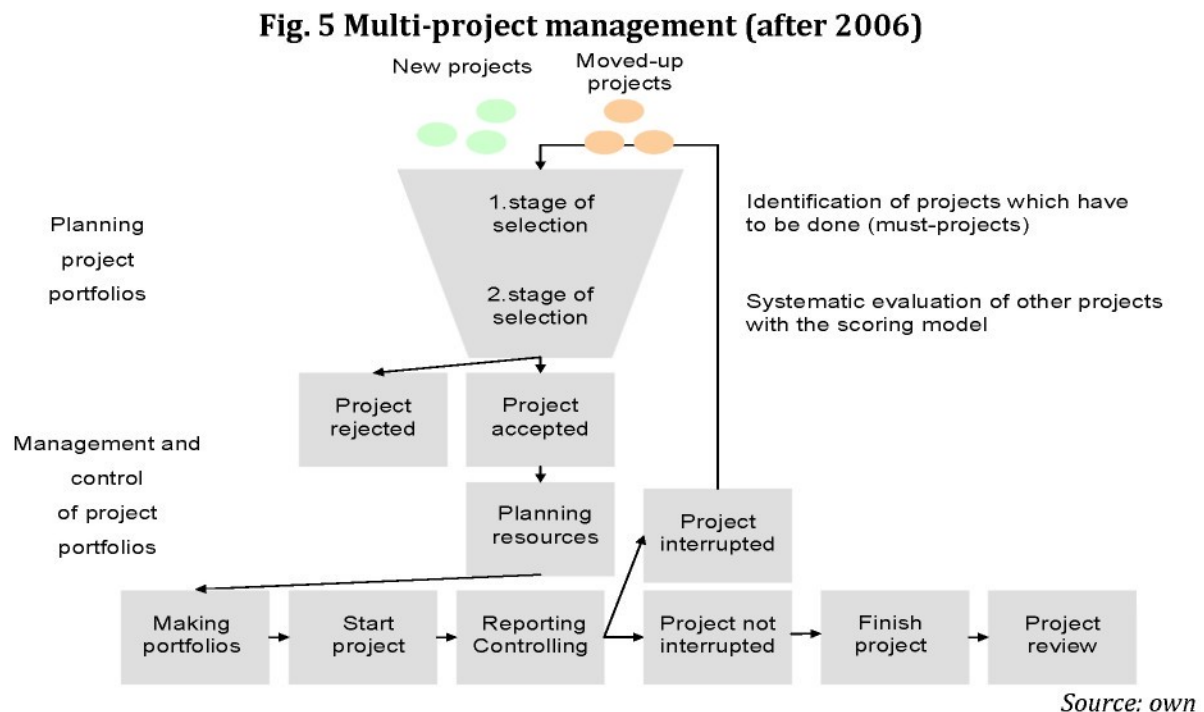
The process of the multi-project management can be thus divided into two parts – planning and management/controlling. Concerning planning the identification of projects must be done at first. Especially relevancy of accepted projects over the whole portfolio must be checked. The reasons for this are as follows:

- requirements from the state (authorities);
- closed contracts;

- necessity on the operative level;
- actual results of research and development.

Other projects are evaluated with regard to the strategic and financial benefit for the company. The projects with high benefits are accepted. When the project selection is completed the allocation of resources (human, financial, space) will be done. Subsequently, the project portfolios will be designed. Examples of respected criteria are: similarly content, conformity with the strategy, the same resources, or the same initiator.

The introduction of multi-project management has considerably improved the performance of the company. Conformity of project portfolio with the strategy of the organization has raised the company's value. The communication within the organization has become more transparent. The progress of project management has become regularly monitored and controlled. In case of discrepancies the project portfolio can be modified and the selected project interrupted. The project review is made for every project. Figure 5 shows the new project management scheme.



Conclusion

The article presents the modern tool of process management – the multi-project management. The advantage of this technique consists in the work with the project portfolios, concerning and optimizing all types of projects that are necessary for company's performance and competitiveness. It is obvious also that the mastering of the multi-project management contributes to the growth of the firm value. With regard to

the increasing requirements to the management quality the multi-project management can be indicated as a critical factor of success.

The presented study on a case of a specific German company showed that the strategy of this company and the project portfolios configuration were not in a correlation before 2006. The result of this was the performance deceleration and loss of competitiveness. When the implementation of the multi-project management was realized the position of the company has considerably changed. The effective organization of multi-project management is a tool to improve the effectiveness of the strategic management processes in companies that use the project oriented management. Of course, to use this concept effectively the managers must have knowledge about the instruments, methods and processes on the strategic, operative and tactical level.

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