

An Assessment Methodology for Economic Benefit of Project Management

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Abstract—The meaning of project management determines the direct link between project management and company investment. The non-normative and less scientific of project management directly undermines the company cost-effectiveness. In this paper, we analysis the elements and strategic of project management, we explore strategies for improving and assessing economic benefit of project management. We try to establish a connection between the investments in project management and the financial return obtained by the companies.

Keywords—Assessment Methodology; Economic Benefit; Project Management

I. INTRODUCTION

The competitive environment that arises in the postindustrial era, characterized by the speed of technological changes and turbulent markets, demands learning and flexibility ability of organizations results. In consequence, Project management has been considered a strategic issue for successful companies. Several companies today work with projects, which could be demonstrated by the significant number of companies adopting the PM methodology [1]. It is easy to realize this, taking the increasing number of Project Management Institute (PMI) members as a parameter as well as the number of project managers certified as Project Management Professional (PMP) by the PMI. On the other hand, in the last few years many companies are spending significant quantities of resources in project management, remaining controversial the discussion about the results considering the return over the investments. They realized that it is important to have a structured project management methodology, but some questions about the results and benefits over project management investments arise, such as:

- How can we prove that spend money in project management worth?
- How can we improve management level committed to project management without the accountability of the results?

The main literature of project management concerns with tools and methodology implementation. There are just few papers about the economic benefit of project management to organizations. The accountability of the PM investments is another important issue that demands further researches.

Regardless of how much literature exists in the area of effective project management, executives will not become committed until they see the system operating effectively and producing the expected dollar economic benefit of profit on the bottom line of the project.

In order to effectively observe and comprehend the problems, executives must understand their new role in a project management environment and should attend the same "therapy" training sessions as middle management as suggested by [1]. Further, [2] argues that, if companies want to economic benefit the project management, they must be able to: develop a system to measure economic benefit in the organization; know how to priorities project management initiatives; make benchmark with other organizations in order to compare the economic benefit obtained by implementing project management; and, finally, sell project management to senior executives. It is important to highlight that the project management program should be aligned with corporate strategy and help its implementation. Porter [3] argues that the strategy's essence remains in choosing the activities to be made in a different way. The strategic planning could be defined as the process of creating and implementing decisions about the organization future [4]. According to King [5], the projects can unify the strategies and spread them to the whole corporation.

In order to contribute to the evaluation of PM economic benefit in organizations, this paper discusses, through a case study in a multinational company of Germany electrical industry, the strategic role of the project management activity, with the analysis of 150 projects conducted during the year of 2008.

II. PROJECT MANAGEMENT

The project management was developed as a leadership concept of interdisciplinary activities with the objective to solve a temporary problem. This characteristic permits the project management to reach a high degree of innovation in the presented solutions to more complex's works.

In the most significant areas of application, new products and services are created through projects, what could be demonstrated by the increasing number of companies that are adopting the project management methodology [1]. According to the PMI [6] a project could be defined as a temporary endeavor to create a unique product or service and project management could be defined

as the art of coordinating activities with the objective to reach the stakeholders expectations. Rabechini Jr and Carvalho [7] argue that in all the project definitions it is possible to realize two intrinsic concepts: temporality and uniqueness. The temporality means that all projects have a well-defined beginning and end. The uniqueness or singularity means that the product or service created by a project is different from all the others already made. These authors point out that, although not so explicit in most used project definitions, the degree of uncertainty and the complexity are also fundamentals issues. The uncertainty and the complexity impact the selection of the appropriate project management approach.

A. Project management and corporate strategy

Challenged by the changes in the markets and because of the aggressive competition, the companies learned to be flexible in order to quickly answer the competition. Searching to gain efficiency, the management best practices reach more importance [3].

The fulfillment symbol in the industrial era was the continuous improvement. Besides that, in the revolution era, it will not be the knowledge that will produce the new richness, but the insight - the ability to see opportunities of disruptive innovations [8]. For the first time in the history, our inheritance is not more our destiny. Porter [3] argues that, although the operational efficiency is necessary in the competitive scenery, it is not a strategy format and cannot replace it. A company can surpass the performance of other competitors only if it can establish a competitive advantage that could be perpetuated. Therefore, the company should try to deliver economic benefit to the client, to create economic benefit for itself with the lower costs or make both. The operational efficiency could be defined as the manner to carry out similar activities better than the competitors. To reach efficiency, many management tools were created, for example: total quality, benchmarking, outsourcing, partnering and reengineering. These tools are necessary, but not sufficient, to substitute the strategy of a company. In the other hand, a strategic position means carrying out different activities from the competitors or carrying out similar activities in a different way. So, one of the problems in drawing attention only in the operational efficiency is the fact that a few companies could compete with success for a long period, because quickly the excellence standards are reached by the concurrence, making the competitive advantage lose its power [3]. The operational efficiency fits some companies worried in measuring performance. Deciding for a strategy is difficult, trade-offs could scare and choosing a position have a risk to make a wrong decision. In this environment, the strategy seems to limit the growing of the company, because in choosing a group to serve, it is abdicating the revenues generated from the excluded groups.

B. The benefits of project management

Several authors highlight the benefits of a project management methodology. Kerzner [1] presents the following list of benefits from project management:

- Identification of functional responsibilities to ensure that all activities are accounted for, regardless of personnel turnover;
- Minimizing the need for continuous reporting;
- Identification of time limits for scheduling;
- Identification of a methodology for trade-off analysis;
- Measurement of accomplishment against plans;
- Early identification of problems so that corrective action may follow;
- Improved estimating capability for future planning;
- Knowing when objectives cannot be met or will be exceeded.

III. ECONOMIC BENEFIT ANALYSIS

A. The economic benefit definition

Economic benefit Analysis and economic benefit engineering are not new concepts, their origin date to World War II. Their successes were challenged at times, yet flexibility and continued improvements have enabled economic benefit analysis and economic benefit engineering to overcome roadblocks with remarkable results. As the old saying goes, the proof of the pudding is in the eating. Economic benefit analysis and economic benefit engineering were first developed by Lawrence D. Miles, an electrical engineer with General Electric (GE), now universally known as the "father of economic benefit engineering." When World War II broke, material shortages began occurring, and electrical components that once were plentiful were committed to strategic applications.

A product that had been produced easily in the past had to be redeveloped using different materials. The function remained the same, but the method of providing that function had to be changed. Miles, who had often in the past been dissatisfied with the high cost of many of GE's projects, realized that many times when circumstances force people to do things differently - altering a design or using a different material, for example - the result is superior performance combined with reduced cost [9].

Since Miles' times, economic benefit has evolved from a simple quality/cost ratio to a more customer-oriented notion. Economic benefit increases when the satisfaction of the Customer's need augments and the expenditure of resources diminishes [9]. Customer economic benefit is a measure of relativity that consists of a balance between quality and resources. Quality is the capability to respond to the customer's needs, and resources are the global overall resources needed to fulfill that need. Womack and Jones [10] say that the economic benefit should be expressed through a specific product or service that satisfies the desires of the customers with reasonable price and time of delivery.

It is important to say that the economic benefit concept that would be worked in this paper is related to companies and not to the shareholder economic benefit concept, as presented by Williams [11], besides others authors.

B. Types of economic benefits

Thiry [9] arguments that there are many types of economic benefit and all of them must be considered in a economic benefit study. Depending on the client's objectives, they will vary in importance, and more energy should be spent on optimizing those considered most important, while the less important ones might not be considered at all.

- Use Economic benefit: the amount of current resources expended to realize a finished product that performs as it was intended.
- Esteem Economic benefit: the amount of current resources a user is willing to expend for functions attributable to pleasing rather than performing; e.g., prestige, appearance, and so on.
- Exchange Economic benefit: the amount of current resources for which a product can be traded. It is also called worth, as the minimal equivalent economic benefit considered.
- Cost Economic benefit: the amount of current resources expended to achieve a function measured in dollars.
- Function Economic benefit: the relationship of function worth to function cost.

C. The concept of economic benefit for project management

The current literature on the evaluation of project management commonly reports that efficiency measures in terms of time, cost and scope, focus on control techniques such as Earned Economic benefit Management (EVM) [12], [13], [6], [14]. Financial terms are generally limited to the project, as opposed to broader evaluation practices that extend to the organization. Some widely used financial indicators are net present economic benefit (NPT), return on assets (ROA) and return on sales (ROS). Thus, the project management's economic benefit is generally perceived to be at the operational level, and, in consequence, as a tactical issue. On the other hand, the top management level generally focus on corporate issues and those related to business strategy and results. This gap is also part of the conundrum within project management that affects the sale of project management. Thus, it is necessary to show quantifiable evidences of the benefits of project management. Crawford and Bryce [15] emphasizes the importance to built an appropriate Monitoring and Evaluation Information System (MEIS) that should allow the monitoring of performance metrics, in both effectiveness and efficiency, as well as promote accountability Thomas et al [15] state that is necessary to measure the following items of project management:

- Contribution to improved financial measures;
- Enhancement of staff growth and development;
- Enhancement of customer satisfaction, profits and market share;
- Economic benefit of new projects obtained.

IV. METHODOLOGICAL APPROACH

This paper discusses one possible systematic to measure the economic benefit of project management, trying to establish a connection between the investments in project management and the financial return obtained by the companies. The adopted methodological approach was case study. The case selection criteria were the following: the relative importance of project activity in total revenue; the investment on project management tools, the maturity level of project management methodology and structure. Based on these criteria, the selected company was a multinational of Germany electrical industry. In this company we investigated more than 150 projects conducted during 2008.

V. RESULTS ANALYSIS

A. Analysis systematic

The evaluated projects are related to equipments delivery and implementation to the companies' clients. These projects are managed through contracts signed between the company and their clients. The systematic of analysis for the projects in the surveyed company consists in the evaluation of these projects through their gross sales margin in two moments, in the signature of the contracts (order entry) and during the closing phase of the projects. This variation economic benefit shows an improvement or a waste in the gains of the project. The trend in the quality of order entry for new projects, along with the improved margins attainable in projects, serve as a yardstick for effective implementation of elaborated actions regarding the project management methodology.

The effect of these actions shows up in the operative projects business. A report on the project business situation of the organization is therefore produced at regular intervals with the aim of identifying improvements and analyzing how worthwhile measures taken to date have been. The projects business of the company is shown based on the data for the individual project as a means of identifying its relevance for business success and hence of creating a basis for planning the objectives and implementation of improvement measures. Later on, the success of the improvement measures of all the company is derived from the development of these figures. Detailed analysis of projects business shows the changes that have occurred in a project during the course of it's to the 150 analyzed projects was verified a negative average variation of the margins of 0.47%. Besides that, to the same 150 projects, was verified an improvement in the total margins of US\$ 13.1 million. This information seems to be conflict, besides that an analysis more precious shows the real font of these numbers. The main reason of this difference is that the best projects are bigger than the worst projects. This difference in the volumes justifies the small percent improvement in the projects' margins. The 5 best projects had an average improvement in the margins of 9.08%, generating an average improvement of US\$ 4.5 million and a total improvement of US\$ 22.3 million. The 5 worst projects had an average decrease margin of 14.88%, generating an

average cost of US\$ 2.3 million and a total waste of money of US\$ 11.3 million. The conjunct information of the 5 best and worst projects are presented in the table in the line of the 10 bigger projects. It is possible to see that these 10 projects represent 83.7% of all the gain presented in the complete list of the 150 projects. It is also possible to perceive not-measurable benefits generated for the company:

- Uniform culture of Project Management;
- Better communication within company, through different business unit integration, due a common objective;
- Better project controlling; processing as a function of new order costing in a particular fiscal year. The project data shows the improvement potential that could yet be exploited within the scope of processing, along with the qualified project managers.

In the analysis made here the variation is credited to the project management methodology used in them. It is important to highlight that other factors could also influence the margins variation: gains in the negotiations with providers and with clients, receiving the payments of the clients earlier, postponing the payments to the providers and economies, in general, obtained in the projects.

B. Results obtained

The analyzed projects were initiated and concluded during the year of 2008. To the 150 analyzed projects the total volume of them, the margins in the signature and at the closing phase of the projects were surveyed. The variation between the margins was obtained and multiplied by the total volume to result in the money gain or waste obtained with the project. The economic benefits were summarized and are here presented. The table 1, below, presents the data obtained with the analysis of the 150 projects in a summary format.

TABLE 1. SUMMARY OF THE ANALYSIS OF THE 150 PROJECTS

Number of Projects Analyzed	Average Margin Variation	Average Margin Variation per Project (x1000 US\$)	Total Margin Variation (x1000 US\$)
150	-0.47%	87,32	13.098,00
10 bigger	-2.90%	1.096,75	10.967,50
5 best	9.08%	4.462,36	22.311,81
5 worst	-14.88%	-2.268,86	-11.344,31

- Clear analysis of maturity level;
- Opportunities to obtain new projects, due satisfaction increase, and project;
- methodology improvement;
- Consistent project planning.

VI. CONCLUSIONS

The total volume of the gains presented by the analyzed projects in this paper, US\$ 13,1 millions are very much superior to the US\$ 1,36 millions spent in the surveyed company in project management methodologies during the

year of 2008. The relation gains / investments presented give us a ratio of 9,6 or, for each US\$ 1 spent in project management methodologies, we have a gain of US\$ 9,6, a very significant number. It is possible to imply that the company is generating economic benefit with its project management methodology. Simply improve the way the work is done is not enough. This enormous change means walk over the obvious, reaching a second logical level and examining the situation through a different pair of lens. In management, this means to adjust the philosophy top-down, to secure that the proposed improvements in efficiency are related with a project management strategic approach in the whole organization [16]. Though the analysis of the economic benefit creation methodology of the company, presented previously, it is possible to confirm that it is supported for the existed theory. It was possible to prove that spend the company's money in project management gave them an opportunity to gain more money, reduce costs and manage effectively their projects.

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