

# Explanatory Study on Impact of PPM on Plant Performance

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## Abstract

In the last few decades, evaluating the advanced technology investments in industries especially its contribution on enterprise performance has been a central concern of research and practice. Project portfolio management helps industries in executing the strategic activities and optimizing the investments with the effective project evaluation. The present paper aims at evaluating and establishing the impact of project portfolio management on productivity of industries in portfolio perspective. This exploratory research study endeavors its evaluation based on the statistical data analysis of primary data using cumulative weighed average. The primary data is collected with the help of a survey questionnaire from the selected respondents of the companies that are practicing the project portfolio management. The analysis reveals that the impact of project portfolio management on performance in the selected firms is highly moderate. Further the research suggests, companies must focus on weak areas that impacting the performance in order to gain the competitive advantage and to maximize the benefits.

## Keywords

Plant Performance, Strategic Management, Managing Industrial Projects, Project Portfolio Management

## I. Introduction

Evaluating the impact of advanced technology investments has been a central concern in information systems research and practice for decades. Many organizations are now taking an enterprise portfolio approach to manage their project investments. Projects created in different departments and the priorities of these departments often do not relate to each other and to the corporate level strategy. Thus the project evaluation, selection and funding should be at the enterprise level and the key criteria in project selection [1] and prioritization should be alignment with the company goals and this right project investment must help firms to move forward towards where they want to be, in the future. Project portfolio analysis often offers managers a better view of the impact of technology spending than traditional distributions. Historically, technology budget spending was analyzed by resource category or by productivity or function such as new development, application support and maintenance, infrastructure and administration. These two views, which are flawed in showing how technology contributes to enterprise performance, were developed during an era when spending was viewed as purely an overhead expense to be challenged relentlessly [2]. With effective project portfolio management, past performance should guarantee future returns. PPM allows industries to accomplish the full potential of their projects by aligning them with their strategic business goals. Certainly selecting the right portfolio is only one element of successful PPM. The organization first needs to focus then select the most appropriate projects and finally do a world-class job of managing those projects to truly be successful [4].

## A. Strategic alignment

The project portfolio management process has to ensure that the projects initiated and run are aligned with the organization's strategic objectives. Through the transparent and consistent

portfolio planning, there is a clear view on priorities of objectives and priorities of projects as well as programs.

## B. Value Maximization

The transparent project selection process has to ensure the maximization of the value of the total project portfolio.

## C. Balance

The portfolio planning has to ensure the balancing of risks in the total portfolio [5].

The portfolio planning and project selection process has to ensure a balance of long term and short term inflows. The overall project selection process has to combine all relevant aspects of the organization. In order to achieve these goals, there is a need for a consistent project selection and approval process and for an efficient coordination of concurrently running projects [6]. Transparent and effective project portfolio planning and efficient project portfolio coordination require a supporting organizational structure, well defined processes and systems as well as enabling human factors.

## II. PPM Performance

Evaluating the impact of advance engineering and technology investments has been a major concern plant productivity research and practice for decades. Project portfolio analysis often offers managers a better view of the impact of technology spending than traditional distributions. Historically, budget spending was analyzed by resource category or by activity or function such as new development, engineering application support and maintenance, infrastructure and administration [8]. These two views, which are flawed in showing how it contributes to enterprise performance, were developed during an era when it spending was viewed as purely an overhead expense to be challenged relentlessly [5].

PPM impacts the performance of the organization's strategic activities such as improving the projects value of each project in the portfolio, optimizing the investment and business strategy, delivering projects in on time, data availability for effective project evaluation.

## A. Data Elements of Performance of PPM

The following seven elements have been considered as parameters to measure the PPM performance [9]:

1. Alignment of Projects with Strategic Goals of the Company
2. Projects Value in Portfolio
3. Optimization of Investment and Business Strategy
4. Efficacy of Projects Deliveries in On-Time
5. Portfolio-Optimum Composition
6. Portfolio-Optimum Number of Projects
7. Data Availability for Project Evaluation.

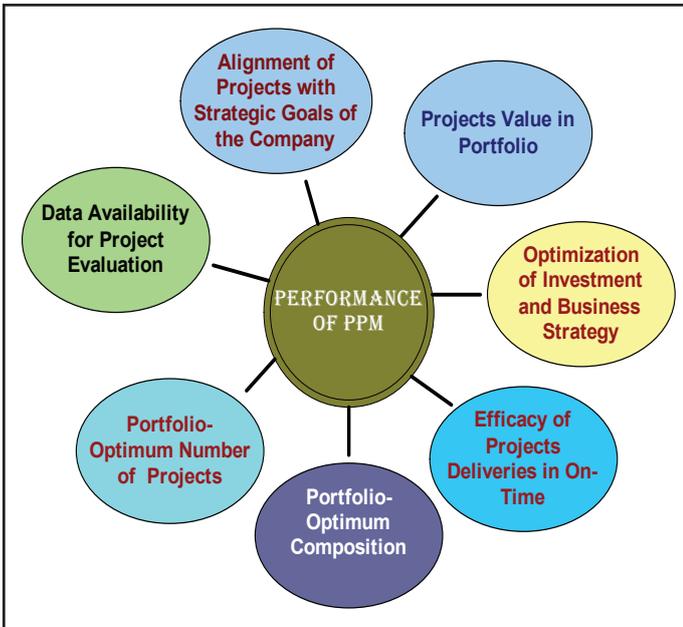


Fig. 1: Concept Elements of PPM Performance

**III. Research Design and Methodology**

Data collection techniques allow researcher to systematically collect the information that is relevant for evaluation and assessment of the defined objectives of the study. Data collection is necessary as it ensures that data gathered is both defined and accurate and that subsequent decisions based on arguments embodied in the findings are valid.

The primary data was collected through a well structured and pre-tested questionnaire from the selected 143 employees of PPM implementing technology companies. The following management groups (see Table 1) were selected as respondents, because these groups are the only one involved in PPM process as well as in regular project management related activities.

Table 1: Profile of Respondents

Occupation Group	Frequency
Tier-I Management	8
Tier-II Management	16
Tier-III Management	48
Senior Technology Management	47
Operations Management	8
Marketing/Sales Management	16
Total	143

**A. Sampling Design**

**Sampling Universe:** Management groups  
**Sample Frame and Unit:** PPM implementing Engineering and technology companies  
**Sample Size:** 143 respondents  
**Sampling Technique Used:** Proportionate stratified random sampling  
**Sampling Procedure:** The study precisely selected the sample respondents in the approximate ratio of 1:2:6:6:1:2 from Tier-I, Tier-II, Tier-III Management groups, Senior Technology Management, Operations and Marketing/Sales Management groups

**B. Data Analysis and Interpretation**

The primary data that was collected through a survey questionnaire has been analyzed using Cumulative Weighted Average (CWA) and Chi-Square Analysis techniques in order to evaluate the objectives of the study. The questionnaire was designed to record the responses from the respondents on 5-point Likert-scale and thus the selected statistical analysis techniques were considered being more relevant and appropriate for this study.

**C. Cumulative Weighted Average (CWA)**

The data pertaining to the performance levels of PPM in the respondents' respective organizations are presented in the table 1 and the same is depicted in the radar chart (See Figure 1).

**D. Impact of PPM Performance**

The data presented in the Table 2 is related to the elements of PPM Performance along Occupation-wise classification regarding the attainment levels of PPM Performance in their respective organizations.

Table 2: Impact of PPM Performance

Performance- Elements	CWA
Alignment of Projects with Strategic Goals of the Company	3.28
Projects are Value-Addition in Portfolio	3.24
Optimization of Investment and Business Strategy	3.28
Efficacy of Projects Deliveries in On-Time	3.30
PPM has led to improved time-to-market	2.87
Portfolio-Optimum Composition	3.26
Portfolio-Optimum Number of Projects	3.25
PPM has led to increase the return on investment	2.98
Data Availability for Project Evaluation	3.26
Average	3.19

Source: Field Survey

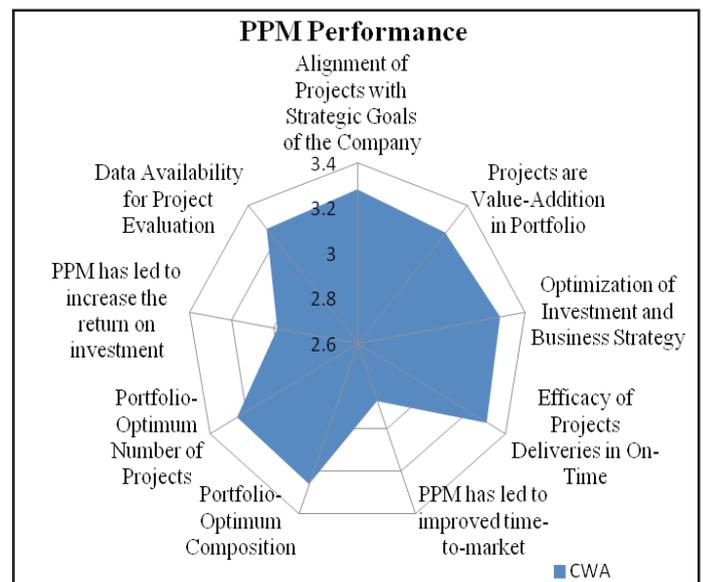


Fig. 2: Impact of PPM on Plant Performance

**IV. Findings and Conclusions**

Research effort aimed at evaluating and establishing the level of impact in terms of performance, finds high attainment levels with reference to Performance of PPM by all groups barring Operations and Marketing/Sales management groups. The

findings also highlight the concealed low ratings to Portfolio-Optimum Composition, a parameter of PPM performance by the confined groups of PPM is a raising concern to the companies. The impact of PPM implementation in terms of benefits, the findings confirms high levels of realization with reference to the benefits of the PPM.

The addressed issue of not having optimum number of projects in portfolio has two facades, one is groups did not have comprehensive knowledge to enunciate it appropriately or the companies are not certainly recognizing the importance and impact of not having optimum number of projects in portfolio. The study proposes special training program in evaluating the benefits of the PPM in order to transform the low PPM cognizant groups to at par with all other employees irrespective of the position.

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