

The Relation Between Risk and Portfolios – Risk Management Project Portfolios

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Abstract: Project Portfolio Management (PPM) is a subsidiary of project management. It is used to control and coordinate the projects in various organizations' portfolios with clear objectives of maximizing the project results, balancing portfolio threats, and aligning the projects to meet the business's strategic aims. In many organizations, PPM is ranked on a higher level than the project management concept because the goal of PPM is to achieve the strategic objectives of an organization. However, risks typically arise during project implementation and management. The project managers constantly work to minimize the project risks while simultaneously maximizing the intended values of a given project. The project management teams should manage the risks while achieving the strategic goals and objectives of an organization. This paper discusses the relationship between PPM and risk management during the project implementation process. The paper explored the use of a systematic literature review to come up with these critical findings. The author recommends that there's a need to use empirical data to validate the existing theories and published literature findings. The project Portfolio Risk Management (PPRM) has practical and theoretical approaches in risk management (RM), decision theory, and modern portfolio theory. The use of a systematic literature review approach was used in the execution of this study to gain more insights into the influence of risks on project portfolio and success, identification of the project portfolio risks, and the management of risks in the project portfolio management context.

Keywords: project portfolio, project management, risk management, investment portfolio, systematic literature review

1. Introduction

Implementing projects in organizations is critical for the success and achievement of a given entity. Project management ensures that a given organization maintains or improves its competitive advantage in a given market setting. The project management exercises are scheduled to complete specific tasks and activities and enhance organizations' operational objectives and activities [1]. Projects are considered temporary activities to create unique and competitive products and services [2]. The project's temporary forms have their beginning and a definite end, including their uniqueness to ensure they are distinct in their operations that are repetitive and constantly ongoing [2]. A more precise definition of the project is provided by Turner, who suggested that a project is an activity that ensures the organizing of human, material, and financial resources [3]. It is organized to achieve a

unique scope of work within a specified time and cost constraint. The deliverables of a project are measured by the change in qualitative and quantitative objectives.

Project management is also intended to complete daily operations within a given organization [4]. The concept of project management has been common in many organizations, particularly those located in developed countries and economies. The project management concepts are applied in various organizations to form a means of achieving their objectives and improve their planning abilities, controlling their activities as a way as to form a basis for organizing scarce resources. When a project succeeds, the project managers usually improve the operations efficiencies by applying the critical findings during the project's execution process. According to available data at the international project management institute (PMI), which is regarded as a body that foresees project management subject, about 1/5 of the global GDP (\$12 trillion) are spent on the implementations of various projects [5].

Additionally, multi-project environments call for the effective management of all the proposed projects within an organization to meet the intended objectives and meet an organization's mandates. Implementing similar projects within an organization has increased the importance of coordination, which is referred to as project portfolio management (PPM) [6]. Understanding the risks and their effects on PPM is vital for efficient project management in a given organization. When the two are combined, the project implementation can achieve the optimal combination of scarce resources while meeting the organizational key mandate and project objectives. Therefore, this paper focused on analyzing the PPM and the associated risks to minimize the risks while maximizing the project deliverables. Specifically, the analysis is focused on project portfolio management and risk management.

1.1. Research Problem and Contribution

In this paper, the holistic approach of project management and implementation is discussed. This entailed the understanding of the relationship between project management, risk management, and project portfolio management. The discussion focused on the selected organizations. The paper's findings are critical to inform the project management on the best approaches to combining the project management skills while simultaneously minimizing operations costs. The findings are helpful to project modern project managers and their implementation teams to achieve their intended objectives within the stipulated time framework, budgets, and available resources while keeping all the costs as low as possible.

2. Project Portfolio and Its Management

This section provides an in-depth discussion of the PPM and management and understands the risks associated with project implementation. The section also discusses the various forms of project portfolios and the associated risk management strategies. The recommendations on the project portfolio management and conceptualization of risks are also discussed to provide insights into how project managers combine the three concepts to achieve their objectives within an organization.

2.1. Project Portfolio

The concept of the project portfolio entails managing all projects within the organizations as a single group that is considered a set of investment activities and ultimately helps to balance the project risks. When applying these concepts, organizations have adopted higher portfolio levels of managing their projects [1]. The project portfolio in the context entails bringing together a group of projects that compete and share similar resources and are facilitated by the management teams of a given organization [7]. The project portfolio operates within a given organization's framework and consists

of proposed and planned activities to fulfill the organizational objectives and critical mandates. The portfolio components in several organizations are prioritized, ranged, and quantified at all levels within the organization. Most organizations embrace project portfolio management in their management systems and projects executions. The key competitive advantage of project portfolio management is the provision of insights into the components that reflect the organizational strategic goals and operational mandates. The implication is that the project portfolio represents the collection of the ongoing programs, portfolios, projects, and other activities within an organization [8]. Additionally, some organizations that operate typically have more than one portfolio at the corporate level.

2.2. Project Portfolio Management

Project portfolio management is applied in the implementation of most projects in organizations for efficient business operations. The main characteristic of project portfolio management is to ensure the ongoing project activities add significant value to the organization. Most organizations that embrace project portfolio management usually involve supporting premeditated goals, creating value, ranking the projects based on relative importance, managing the benefits flow, and integrating the stakeholders to achieve the intended project deliverables [9]. The strategies are based on portfolio management in the finance fields and the tested investments that can be applied in an organization. The concept of PPM was derived from two independent complements: making rational investment decisions to benefit an organization and optimizing the usage of assets to ensure that the benefits are conducted most efficiently and effectively [10]. The PPM concept has been practiced in most organizations by enabling them to coordinate the programs and projects in the operational framework of the concerned organizations to maximize the results optimization, balance the portfolio risk profiles, governing the alignment of programs with the strategic positioning of the organization and ensuring the projects are completed within the planned schedule and budgets [11].

The PPM embodies an ongoing structured development that requires regular evaluations to achieve the portfolio balance and a standard configuration with the organizational strategic goals and objectives. Most organizations, particularly financial institutions, regards PPM as a means for companies to assess and collectively manage their resources in a coordinated manner to reap maximum benefits that could have been lost [12]. Most PPM implementation teams work to increase the return on investment (ROI) and contribute to an organization's value proposition by embracing a holistic approach to manage the project portfolio. Several factors are recommended to consider, including the ability to predict future consequences to promote a critical decision-making matrix in the strategic project portfolio [13]. It can be concluded that PPM represents an ideal strategy for making critical decisions for project investments and developing value streams that will strategically position an organization in its industry and market [14]. The Promoters of the PPM decision-making process can look at the proposed project activities, relate them to ongoing or other proposed projects, and use various scenarios to analyze their impacts on the company or organization.

It is noted that most organizations typically formulate the business case scenarios before implementing proposed activities and programs. They derive their PM strategies based on the current information and communication technologies (ICT). When planning and developing the project portfolio, the project managers usually apply specific software that plays a central role in implementing the project activities. This involves using metrics and various calculations outcomes, linking other information resources and prerequisite knowledge such as manuals, standards, instructions, and professional literature derived from digital libraries. Project portfolio and support resources are considered common themes in the professional literature collected from the field. The project management and portfolio implementation protocol involve the following steps: choosing the correct PPM software, creating a list of the project portfolio components, financial analysis,

calculation of the financial values of the proposed project activities, analysis of the potential risks, organizational changes, technological valuations, cash flow analysis, market changes, budgets, portfolio level, and the project constraints. The project portfolio levels include the factors such as budgets planning and constraints, governance, selection, and activities categorization. Specialized project portfolio software develops structured resource allocation and portfolio management programs. The software is designed to enhance activity prioritization instead of politics to attain the maximum value of the project [15]. The supporting components of the IT systems in the software enables visibility, process improvements, and standardization with the primary goal to manage the flow of activities and their scheduling in a project [16]

The system applied across various organizations when implementing projects uses typically a system that allows for the exchange of information that accommodates the project components at all levels of implementation [17]. The software ensures that the planning and management of the project portfolio are aligned to achieve specific business objectives by following the organizational strategies. It also allows for the evaluation of the project progress and deliverables within a stipulated period. It helps promote the project execution as intended without overusing the resources and gives clear implications for the project's financial obligations. The strategy ultimately leads to realizing tremendous benefits from the proposed project activities [18].

Based on the report by Symons, the benefits of using the project implementation software helps to achieve the following benefits: reduces the project failure, lowers the costs of project execution, reduce wastage of time during the execution of the project, lowers the number of low-value projects, reduces costs of administration and facilitate reporting [19]. Additionally, the project benefits' timing, scale, and duration are estimated by considering several metrics and the organization's value to improve the project matrices over time. On various markets, there are several commercial tools for the PPM. The tools that support PPM have rapidly improved and full of graphics offering bubble diagrams, tornado diagrams, and ranking curves.

Best practices techniques in the form of out-of-the-box material to help the business get up and running faster. PPM software has a database of proposed and ongoing projects with project descriptions, cost estimates, activity schedules, resources required, projected benefits, and so on[20]. Some PPM solutions are tailored to a specific sector or project type, while others are more generic. Certain functionalities envisioned for that productiveness or project are frequently included in tools with a specific objective. Their methodology is built around occupational procedures, customer subdivisions, and standard success variables for that branch. On the other hand, these PPM software solutions play a supporting role; the most significant role is senior management and its commitment to implementing mature practices.

2.3. Management of Risk

A problem that may or may not develop during project management is referred to as project risk. Although it is impossible to anticipate all potential hazards, planning ahead of time can rescue your project from failure. It has the potential to have a positive or negative impact on the project. Risk assessment, often known as risk identification, accepts the possibility of anything going wrong. The project management team constructs a list of risks and explores ways to mitigate them in a risk assessment. Risk analysis should be done by several, if not all, members of your team. The distinction between the notions of risk and uncertainty is critical since it defines the extent of Risk Management and the features of its risk evaluation, and the creation of action plans. Various risk views are distinguished with the context of project portfolios: one approach suggests that such variance can be measured. Risk is defined as unpredictability which may be measured, and uncertainty is defined as variables that cannot be estimated whatsoever. Risk and uncertainty are possibilities under this worldview. According to an alternative viewpoint, all unpredictable aspects may be assessed and

divided into three categories: inconsequential activities (situations that have little impact on the project budget), positive and the possibility of loss, the last of which might jeopardize the project overall portfolio performance.

Risk is proposed as a consequence in a third viewpoint as a well-known strategy. This 3rd standpoint, wherein random factors portray the uncertainty, has been frequently employed in complex project evaluation, including risk concerns. In all acknowledged methods, the risk is characterized by its quantifiable attributes, including probability dispersal, occurrence, or impact. And those are the components, and the hazard is the outcome, which indicates the amount whereby the inputs' activity influences the predicted results.

Table 1: Consequences of not having project portfolio management.

No PPM suggests:	Short-term outcome	Long-term outcome
It doesn't fit the standards of the proposed project activities and programs.	The intended Projects are unlined up with the organization strategy;	Resources are squandered on wrong adventures
Reluctance to drop projects; Many tasks end up on the to do list	Several tasks; Assets meagerly spread; Quality declines;	Increased time to showcase; Business disappointment rates increment;
Powerless go/kill decisions	A disproportionate number of low-esteem projects; Great tasks are famished for resources.	Very few heavenly tasks
Absence of thorough determination of measure; Ventures chose on feeling, politics	Sinister plans are chosen.	Marketable and expert disappointments

2.4. Undertaking Portfolio Risk Conceptualization

A task portfolio is an assortment of single activities and projects that are done in an incorporated manner, through which an association looks to accomplish its essential targets by dealing with the interfaces among undertakings and adjusting scant assets across ventures and projects, just as dangers and advantages. In such a manner, feature the significance of undertaking interdependency the executives to accomplish venture portfolios. From a PPM cycle viewpoint, three nonexclusive, associated, and recursive primary stages are portrayed in writing: portfolio organizing, asset the board, and portfolio guiding. Portfolio organizing is related to crucial arranging cycles, which incorporate portfolio arranging and the determination of ventures as indicated by the association's technique. Asset, the board, infers asset designation across projects, with the asset the executives did in a coordinated manner. Portfolio guiding contains a highly durable execution and coordination of the portfolio, observing the various perspectives characterized as critical angles for every portfolio. RM is worried about how leaders characterize the sort and level of dangers that they consider suitable for every choice at each time. Hence, RM is centered around settling on decisions concerning chances, considering the conceivable award and its chance of achievement through overseeing individuals, cycles, information, and tasks. In such a manner, past examinations show the impediments of the traditional RM approach since it is situated to singular undertakings, overlooking the coordination levels and the collaboration of data. At the same time, the area of PPRM permits RM exercises to be combined, consequently staying away from a duplication of exertion and assets.

The beginnings of PPRM can be followed to crafted by Markowitz, among others. According to project portfolio achievement, they have recognized PPRM as one of the virtual spaces of work and exploration in PPM and a central theme. Therefore, this examination has embraced the viewpoint that PPRM should center, in addition to other things, on the recognizable proof and equilibrium of the dangers of the venture portfolio while looking to augment the worth conveyed to the organization, reflected in effect accomplished on essential objectives. Accordingly, PPRM should zero in on lessening adverse danger effects and openings while considering and assessing the interdependencies among hazards and projects, just as the administration abilities of the association.

3. Conclusion

Project management subject has tremendously improved globally. Most of the project managers have adapted to the use of new technologies, such as project portfolio management. The main goal of the project management teams is to ensure the project's intended deliverables are achieved within the stipulated period and the budget ceiling. Based on the systematic analysis of the implementation of project portfolio management and various risks, it is clear that most organizations, businesses, and companies are adopting advanced tools and software to achieve the intended deliverables. The PPM has been critical in managing the project activities most effectively, resulting in lower operations costs, efficient utilization of allocated resources, and completion of projects within the stipulated period. As the project management segment advances, the most efficient software and tools are applied in nearly all the projects implemented. The PPM strategy has ensured that various projects are completed on time and within the proposed budgets.

Additionally, the application of PPM in organizations has assisted the project management teams in addressing the risks associated with project implementations. The PPM has proved to be the most efficient and easy tool to reduce risks during the project execution process. This paper recommends that in the future, project managers and researchers should collect empirical data from various companies, businesses, and organizations to validate the theoretical findings of the existing literature concerning the use of PPM in project implementation cycles.

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