Enhancing Project Organizational Efficiency through the Establishment of a Project Portfolio Management Office

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Abstract. The selection of an organizational structure greatly impacts the success of research projects. As the number of projects increases and collaboration across sectors or organizations becomes more common, managing multiple projects poses significant challenges. One challenge identified is the inefficiency of the current organizational structure in responding quickly. To address this issue, we propose establishing a Project Portfolio Management Office (PPMO). The PPMO serves as a dedicated entity to ensure the achievement of organizational goals and improve the agility and performance of the research organizational structure. Implementing a PPMO enables research organizations to effectively manage their project portfolios and overcome the challenges associated with multiple projects. The PPMO is responsible for project coordination, decision-making, and resource allocation. It provides a framework that optimizes project management processes and aligns them with organizational objectives. Furthermore, the PPMO enhances the organization's responsiveness to project demands and facilitates collaboration among different teams and stakeholders. In conclusion, selecting an appropriate organizational structure is crucial for successful research project management, and establishing a PPMO offers a solution to the challenges of managing multiple projects.

Keywords: Project management; Organizational structure; Project portfolio management

1   Introduction

The organizational structure has a significant impact on the successful completion of a project. An appropriate project management organizational structure not only facilitates the implementation of desired outcomes and benefits at the strategic level but is also considered a key responsibility of the owning organization in terms of strategic capability. When a project is properly supported and managed by a dedicated organization, top management can influence both the research and the organization's culture by offering policies, strategies, professional skills, extensive experience, and resources. This support facilitates coordination, resource allocation, decision-making, and environmental impact management for academic research. The increasing number of projects being handled by organizations has led to the development of the project portfolio management office (PPMO), which is responsible for developing project management competence, performance monitoring, and coordination [1]–[3].

Research projects can benefit from PMMO support, which involves a series of key activities implemented with a clear set of inputs, outputs, control, and resources. Governance within the permanent project organization guides the project along its lifecycle [4], defining objectives, monitoring progress, and allocating resources [5]. Projects play a significant role in addressing complex and large societal challenges. By leveraging resources, knowledge, and skills from various entities, projects can effectively tackle these challenges and achieve successful outcomes. [6]–[8]. This paper aims to propose recommendations for the organizational structure of research projects.

2 Background

Determining the organizational structure is a crucial decision when structuring a project. The organizational structure defines the relationships among project members, their authority levels, lines of supervision, communication, coordination, and collaboration. The chosen structure significantly impacts the successful completion of the project. There are three commonly adopted project organizational structures: functional, pure project, and matrix.

The functional organization follows a traditional line approach. In this structure, the project is divided into segments and assigned to relevant functional groups. Project members temporarily form a team with a stable hierarchical structure and are located at various organizational levels.

In the pure project structure, project managers hold high levels of authority and full responsibility for project performance. Personnel are specifically assigned to the project, and the project team functions as a self-contained unit, developing a strong sense of project identification and understanding of project goals.

The matrix organizational structure combines elements of both the functional structure and the project structure. In this structure, the functional organization exists on the horizontal plane, while the project organization exists on the vertical plane. Project managers share responsibility with functional managers and closely collaborate with other team members, sometimes competing for the same resources.

It is important to note that no single structure is ideal for all project types, as each form has its advantages and disadvantages. If organizational coordination is not critical, a functional organization is suitable. Team members work within their groups on routine tasks, even though they may not see the bigger picture of the project. However, the lack of clearly addressed authority and accountability for the project may slow down the decision-making process. Frustration can arise in joint projects when different organizations use different project management structures.

The pure project structure is recommended for large projects that require a substantial workforce and several specialists from different disciplines answerable to a single manager. In this structure, the project manager has strong project control and full responsibility for project performance. This structure establishes clear authority, accountability, and a broader perspective that speeds up the project.

The matrix organizational structure allows team members to share information more readily across unit boundaries, facilitating strong project coordination and control. It strikes a balance

between functional and project organizations and has been widely used in various project-based organizations due to its flexibility and efficiency. However, in the matrix organization, authority and responsibility are shared with functional managers, which can lead to conflicts and fuzzy authority definitions.

3 Implementation challenges

Managing a large number of research projects effectively is a significant challenge for many research institutions. By adopting the matrix project structure, these institutions have achieved high flexibility and improved efficiency in utilizing human resources, resulting in cost savings. However, with the growing workload in research organizations, projects now face large and complex challenges that require coordination across multiple projects and specialties distributed among different organizations. Team members may be involved in several projects simultaneously, which poses challenges in terms of resource allocation and prioritization among projects.

The current system presents challenges for meeting project requirements, leading to issues such as difficulties in advancing projects, decreased enthusiasm among team members, and poor quality and inefficiency in work outcomes. In some research organizations, managing multiple projects is particularly challenging due to budget constraints, staffing limitations, organizational structure, and geographic distribution. Project managers operate in different contexts and face unique issues. Medium-sized and large projects, in particular, often pose significant problems for the following reasons:

(a) Confusion over roles and responsibilities is common within a matrix organization.

(b) Staffing can be challenging, especially when many human resources are part-time. Multiple organizations or sectors within the same organization may be involved, and coordinating meetings can be difficult due to the number of members or their dispersed locations.

(c) Lack of robust management infrastructure, leading to inefficiencies caused by the absence of capable institutions, a shortage of well-trained managers, and the lack of well-established administrative systems and procedures.

(d) The need to enhance top management's awareness of project management. Many administrators and managers are unfamiliar with project management principles and the implementation of this innovative management system.

Over the past several years, there has been a growing trend of establishing Project Management Offices (PMOs) in organizations that undertake large and complex projects. PMOs specialize in collaboration and communication, combining project management skills with research to enhance project quality and performance. However, PMOs often lack a clear understanding of multi-project activity patterns within specific contexts, such as project portfolio management. PMOs typically focus on individual projects, whereas Project Portfolio Management Offices (PPMOs) are dedicated to project portfolio management. In this paper, we propose the establishment of PPMOs to provide a clearer understanding of the governance mandates of multi-projects.

4 Benefits of establishing a PPMO

A PPMO holds a significant governance mandate to ensure the implementation of organizational goals. The need for establishing a PPMO arises from several considerations:

(a) Improving decision-making and resource optimization: Government agencies often face multiple projects with limited resources. A PPMO provides a holistic perspective, strategic orientation, and integrated management of project portfolios. It helps in evaluating, prioritizing, and investing limited resources into projects aligned with strategic goals, improving the science of decision-making.

(b) Planning Flexibility: Detailed or complete plans may not always be desirable or feasible, and fixed plans may need to be updated quickly. Close and frequent engagement of first-tier senior managers can be time-consuming and may not always be feasible. Implementing a project portfolio becomes necessary as part of the accountabilities of first-tier senior managers. A PPMO can carry out activities delegated to them by first-tier senior management, leading to increased efficiency.

(c) Information Management: Making decisions on project portfolios requires continuous and consistent collection and provision of vital information according to uniform standards. A PPMO, as a central unit, can handle this duty effectively, ensuring up-to-date, accurate, and specific information is available for decision-making.

(d) Support for Project Managers: PPMOs provide support to project managers in terms of skill training, project implementation assistance, motivation, and more. Project managers benefit from quick and direct decision-making following the decisions of first-tier senior managers.

Within a PPMO, staff members directly address the requirements of crucial leaders and assume responsibility for coordination, information management, decision-making, reporting, training, motivating, and other crucial tasks. The PPMO is a vital component of the organization, playing a key role in coordinating project activities, managing project information, making informed decisions, generating reports, providing training, and motivating project teams. Through these responsibilities, the PPMO significantly contributes to the success and achievement of organizational goals.

4.1 Roles and Performance

The roles of PPMOs have a tremendous impact on the success of project portfolios. We will analyze the roles of PPMOs in four aspects.

(a) Strategic controlling: The PPMO has a significant governance mandate to guarantee the implementation of organizational goals and fit into the overall organizational management structure. It delivers corrective measures and provides support to top management. The PPMO takes the lead in managing, supervising, monitoring, and controlling the portfolio and individual projects. They may create an information database to manage necessary information for decision-making on the portfolio, ensuring that relevant stakeholders have access to accurate, reliable, specific, and up-to-date information during the implementation process. The PPMO actively participates in generating related information and improving its

availability and quality. The information management system supports the whole lifecycle management of enterprise knowledge, facilitating the building of a project-based organization and creating an organizational project management ecosystem. As a strategic controller, the PPMO advances preparation and management, ensuring the supply of accurate, reliable, specific, and up-to-date information for projects and the organization. When implementing a project portfolio, the PPMO is involved in various tactical managerial activities.

(b) Coordinating: PPMOs directly link to first-tier senior management and play a crucial role in coordinating resource allocation. They handle resource allocation across the portfolio, including appraising projects, prioritizing resources, and optimizing their allocation to targeted recipients. By acting as a core conciliator, PPMOs enhance communication and cooperation, making resource allocation smoother and minimizing failures during the process.

(c) Supporting: PPMOs take on the role of developing and improving standard specifications and cultivating a project management culture within the organization. They provide legitimacy and acceptance for the presence of a project management agent, institutionalizing and enforcing the existence of the PPMO. This role also involves providing services such as skill or career training, rewarding and motivating adherence to project management standards and practices within the organization. PPMOs may also conduct academic workshops, sharing information about scouting new consortia, maintaining contact, facilitating research communication, and providing support for agreement preparation, budgeting, and quality assurance of applications. The existence of a PPMO empowers management members, improves their initiatives, and contributes to project success by providing organizing principles, belief systems, templates, and tools for effective decision-making.

(d) Customer interface: PPMOs play a significant role in interface activities with external and internal stakeholders. They actively engage in lobbying for new calls for proposals, exploring new opportunities for consortia and applications, networking, disseminating, and promoting research achievements. Moreover, PPMO members act as internal consultants or specialists, providing professional project management skills. They possess specialized education backgrounds, extensive experience, and large professional networks, often being members of professional project management communities. Their broad perspective, rational professionalism, and proficient expertise in project management, communication, and financial matters contribute to the success of projects in a research environment. Regarding research achievement management, the PPMO effectively handles achievement appraisal, registration, declaration and reward, compilation, archives, confidentiality, and promotion. The customer interface role of PPMOs strengthens the management of research achievements within the organization, promotes the improvement of research achievement management and technical levels, accelerates the popularization and application of research achievements, and enhances the organization's market competitiveness.

4.2 Benefits

Research institutes derive several benefits from PMMO. The implementation of an academic version has resulted in a more professionalized approach to working with relevant partners. The PMMO staff possess exceptional relationship-building skills, actively fostering relationships and promoting cooperation. Research institutes can avail themselves of the following offers:

(a) Alignment with organizational strategy and goals when establishing, governing, and controlling projects.

(b) Monitoring and financial guidance to safeguard assets and uphold the organization's reputation.

(c) Access to an overview of collaborative and shared projects, including the project portfolio and new opportunities.

(d) Assistance with planning, proposing, budgeting, staffing, presenting, reporting, negotiating, and lobbying.

(e) Facilitation of workshops and idea seminars.

(f) Management of the project's database.

(g) Advisory services regarding project management.

Researchers also stand to benefit from PMMO support when applying for research projects. They receive valuable assistance in managing relationships and gaining a better understanding of project implementation. The benefits offered to researchers include:

(a) Advice and mentorship on project management, application processes, budgeting, and the implementation and quality assurance of applications.

(b) Specific roles in the application process for projects.

(c) Assistance in managing project processes for calls with relevant grantors.

(d) Support in communication, negotiation, networking, matchmaking, and arranging meetings (e.g., start-up meetings).

(e) Assistance in disseminating and promoting applications.

(f) Access to information as potential applicants and tips regarding new calls for proposals.

For particularly complex or strategic projects, the PMMO can join the team in writing the proposal, and in some cases, act as subproject managers or specialists. Once these projects become operational, they require dedicated attention from the PMMO. Adequate support can be provided for projects with large and complex budgets, while advisory support is generally offered for less strategic projects.

5   Conclusions

In research institutes, the traditional matrix organizational structure for project management has been widely used. However, with the increasing complexity of projects, the establishment of a PPMO can provide more efficient multi-project management. The PPMO addresses the management needs of project portfolios and key stakeholders within the organization. By integrating the PPMO into the matrix project structure and aligning it with the overall organizational strategy, technical, cultural, and administrative issues can be balanced, and roles and responsibilities within the project organizational structure can be clearly defined.

Establishing a PPMO allows research institutes to set clear expectations for their teams, define responsibilities, and establish accountability. The PPMO's role and authority are more effective than the existing structure, providing a significant governance mandate to ensure the implementation of organizational goals. The PPMO brings professional expertise, mediation skills, extensive experience, and large professional networks to benefit both the research organization and the researchers themselves. The PPMO plays a key role in strategic control, coordination, support, and interface activities.

By organizing projects through the PPMO, participants can focus on problem-solving and avoid getting sidetracked by project management tasks. The establishment of a PPMO allows for the successful institutionalization of the organizational structure for managing research projects.

In conclusion, the adoption of a PPMO in research institutes can greatly enhance project management effectiveness, align projects with organizational goals, and provide support and guidance to project teams. It is recommended that research organizations consider establishing a PPMO to optimize their project management practices and improve overall project outcomes.

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