

PalArch's Journal of Archaeology
of Egypt / Egyptology

**MODEL OF PROJECT MANAGEMENT OFFICE (PMO) FOR
ORGANIZATIONS ACCOUNTABLE FOR IMPLEMENTING WATER
DEPARTMENTAL PLANS IN COLOMBIA**

Ivan Meléndrez L.¹, Yojana Pérez Pertuz², Jhon J. Feria Díaz³

¹Master in Project Management and Industrial Engineer, Independent Consultant,
Montería, Córdoba, Colombia.

^{2,3}Department of Civil, Faculty of Engineering, Universidad de Sucre, Sincelejo,
Sucre, Colombia.

Ivan Meléndrez L. , Yojana Pérez Pertuz , Jhon J. Feria Díaz , Model Of Project Management Office (Pmo) For Organizations Accountable For Implementing Water Departmental Plans In Colombia , Palarch's Journal Of Archaeology Of Egypt/Egyptology 18(4). ISSN 1567-214x.

Keywords: Projects, Project Management Office, Public Sector.

ABSTRACT:

Audit reports from the Colombian General Comptroller Office showed that, in the country, project execution did not improve management indicators from the National Development Plan. To support this mission and strengthen project culture at the local level, an organizational diagnosis was carried out to establish a general model of the Project Management Office (PMO) for the Public Service Companies accountable for executing the Water Departmental Plans (WDP) in the country. Implementing a PMO in this type of company helps improve project performance rates in terms of cost, time, and scope, with quality as the cross-cutting axis of all processes; positively impacting and providing greater benefits to the population in which the organization decides to develop projects.

1. INTRODUCTION:

Project management has become increasingly relevant in many economic sectors. The compendium of tools and techniques that this discipline provides, has demonstrated its impact on project success from its main constraints. Consequently, organizations have incorporated project management offices (PMO) creation when designing corporate strategy, mainly due to their

relationship and contribution to the organization maturity level and the establishment of a project management culture [1].

According to an analysis of the world state of PMO, carried out in 2015 by [2], global growth rates of PMOs remain constant. Nonetheless, there is evidence that their scope goes beyond only providing supervision, strategic support and control over project activities, at a higher level [2]. PMOs have a very interesting integrating role within the organizations where they are present, going through different evolutionary phases that cover all fields of project management knowledge. As defined by the Project Management Institute (PMI), a PMO is: "an organizational structure that standardizes the government processes related to projects and facilitates sharing of resources, methodologies, tools and techniques" [3]. From this, it is of great interest to know the influence that design, implementation and validation of a PMO would have in the Drinking Water and Basic Sanitation (DWBS) subsector for the Córdoba department, which it is showing a low performance in their projects according to the latest Republic General Comptroller report [4].

The PMI [5] proposes three types of PMO: (a) support, (b) control and (c) directive, each with specific functions and characteristics. There are authors such as [6], who segments the roles of PMOs into three levels: operational, tactical, and strategic. In each of these three levels the authors state:

- In the first instance, in the strategic role, PMO oversees that the projects are aligned with the organization's strategy.
- Secondly, PMO tactical level tends towards the synergy of the projects and that they offer the benefits for which they were proposed.
- The PMO operational role is to "lead project evaluations by building the operational review process, appreciatively requesting budgets and/or growth resources and ensuring that projects are led efficiently, to integrate derived knowledge.

This research study aimed to formulate a model project management office (PMO) for the company accountable for executing the WDP for Córdoba department in Colombia, to improve the performance of the projects under control. Initially, and for this study, the PMO will have a limited scope to the capital municipality, which can then be expanded to the rest of the department's municipalities.

2. MATERIALS AND METHODS:

2.1 Population and Environment:

The population under study is made up of people with direct participation in the organization's projects. Estimation of sample was made under non-probability sampling, since, within the organization, only the personnel from the technical and assurance area oversee the formulation, approval and monitoring of the projects and their benefits, distributed in tactical and/or operational levels.

2.2 Interventions:

Information was collected from primary and secondary sources. Regarding primary ones, the "ANAIS M2" project management maturity model was applied to those responsible for the company's projects (13 officials in total), to diagnose and identify strengths and aspects to improve in the organization in matters of project management. Semi-structured interviews were

also conducted with these same personnel to determine the most relevant aspects and main needs of the company in terms of project management.

2.3 Data Collection Instruments:

Interview and survey were selected as data collection tools. Taking as main criteria in the first instance, the semi-structured interview because it allows a social interaction with the researched, facilitates feedback beyond the questions that can be asked, and provides interest data from the argumentation of the answers or greater clarity of these. Second, the survey, being a series of standardized questions directed at a representative population sample, helped to diagnose or analyze perception of individuals in the interest subject or research object.

Data obtained were then subject to a classification and tabulation of information and to a categorization of the typology of projects managed by the organization, to determine whether they belong to a program or portfolio, to estimate the most relevant type of PMO and maturity level in the organization project management.

3. RESULTS:

3.1 Organizational Diagnosis: Current Situation:

The main flaws found in the presentation of the services regarding project management are:

- Flaws in quality of designs
- Pros and cons of the single window for services.
- ✓ Failures in the implementation of the feasibility process in the single window
- ✓ Technical rigor of the projects
- ✓ Prioritization of the projects to be executed is defined by this norm: “project made viable first, is executed first”, and not by the technical prioritization exercise that the manager initially did as part of the planning exercise carried out.
- Quality of contractors
- Execution of projects
- Service assurance
- Institutional strengthening
- ✓ High staff turnover which causes repetitive training and induction processes.
- ✓ Political incidence through the local leaders in the selection processes of service provider personnel.
- Technical assistance from the organization to municipalities and providers
- Other aspects
- ✓ Does not have defined processes and procedures
- ✓ Lack of a project management methodology
- ✓ Absence of training or formation processes
- ✓ Lack of project management information systems that help in the processes of planning, monitoring and control of projects.
- ✓ Lack of a common project management vocabulary
- ✓ Ignorance of a large part of project management tools and techniques.
- ✓ They do not have additional sources of income. It absolutely depends on the resources of the WDP-WPP (Water Program for prosperity).
- ✓

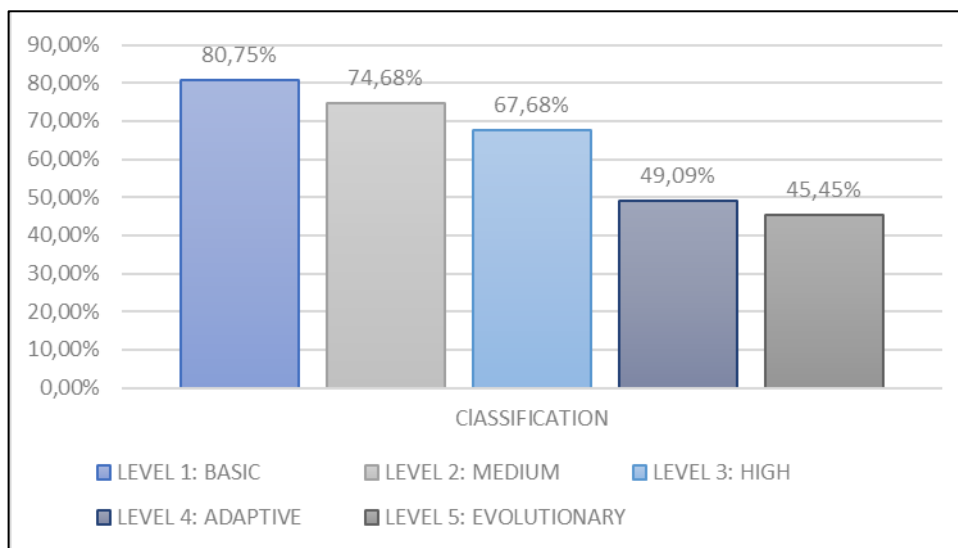
3.2 Results of the application of the ANAIS M2 model:

The following is the assessment scale of the ANAIS M2 Model:

- 70% and 80% at each maturity level will be classified as a reached maturity level, with mandatory improvement opportunities.
- 80% and 90% at each maturity level, will be classified as a reached maturity level, with recommendations
- 90% and 100% at each maturity level, will be rated as reached maturity level and perfected.

The results of the application of the ANAIS M2 Maturity Model in the organization are shown in Figure 1.

Figure 1. Degree of Maturity of the organization in Project Management



According to Figure 1, the company meets maturity level 1 (80.75%). Nonetheless, deficiencies were found in the following organizational processes, which must be standardized and implemented: lack of work breakdown structure (WBS), cost estimation, equipment acquisition for the project, safety and environmental controls in the execution of the project; ultimately, live start, tests and exits at the end of the project execution.

For maturity level 2, the organization received a 74.68% rating. The organization should standardize the following processes: development of the project management plan, scope management plan, schedule management plan, cost management plan, procurement management plan, procurement closure, management of communications, quantitative analysis of project risks, implementation of risk response, stakeholder participation management, and preparation of standardized reports on organizational project management.

Given the result found in each of the dimensions of the model, improvement actions should be oriented towards prioritizing the strengthening of institutional strategy and organizational management in the unit that receives and executes the company's projects.

Regarding maturity level 3: high (67.68%), level 4: adaptive (49.09%) and level 5: evolutionary

(45.45%), the organization did not comply with any of them.

3.3 Semi-Structured Interview:

Regarding the semi-structured interviews carried out with the personnel involved in the management of the organization's projects, only 10 out of 13 people responded and were willing to participate. It was found that the management personnel participating in the projects are not certified in any project management methodology.

Among the key aspects for performance in project improvement, 30% consider that contractor selection processes are essential, as well as knowledge of technical staff (20%) and the elaboration of project designs (20%). 90% of the interviewed staff consider that training is necessary to improve the knowledge and skills of the staff involved in the project life cycle stages. 100% of the interviewees agree that the organization does not currently use any project management methodology.

According to the documentary review carried out on the audits, diagnoses, and evaluations made to the organization, 30% of the documentation shows that the main drawbacks in the projects are due to audit deficiencies, 20% attributed it to the designs and defective technical studies and 20% for non-compliance with the works schedule.

Among the strengths mentioned by the staff regarding the organization under study, are:

- Good management and team of the area responsible for the surveillance, control and monitoring of project execution.
- Achievement of goals.
- Applied, continuous and efficient supervision.

Regarding culture of projects and in general, some aspects to improve, are:

- To raise awareness among contractors of good programming work, knowledge of organizational methodologies, improves in the result in the time of execution of contracts.
- That the organization carry out the pertinent actions to contribute more to strengthen knowledge and/or training of staff of technical area personnel.

3.4 Scope and Purpose of the Projected PMO:

The PMO projected for the Public Services Company, object of this study, was specifically designed for the technical area because of the needs and aspects to improve detected in the diagnosis. Nonetheless, there is no restriction that prevents this office from providing services to other organization areas, such as the insurance area. As fundamental purposes, the PMO will tend to:

- Face the risks and challenges that affect the fulfillment of the strategic objectives of the organization and the projects that it executes.
- Help in the materialization of the organization's strategic direction plan.
- Improve the performance indexes of the projects in their main restrictions: cost, time, scope and benefits.
- Strengthen the management of project stakeholders.

- Support in the prefeasibility, feasibility and viability stages of the project to reduce the number of projects returned due to adjustments.

Figures 2 and 3 show the organization and organizational chart proposed for the PMO, with defined specific influence groups and roles that facilitate and promote greater interaction with the PMO:

Figure 2. Proposed organization for PMO

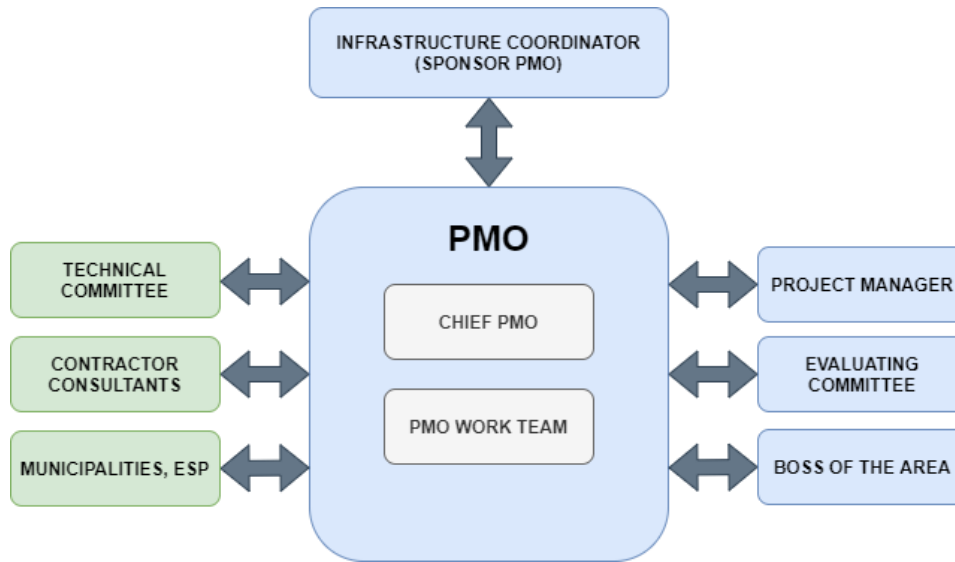
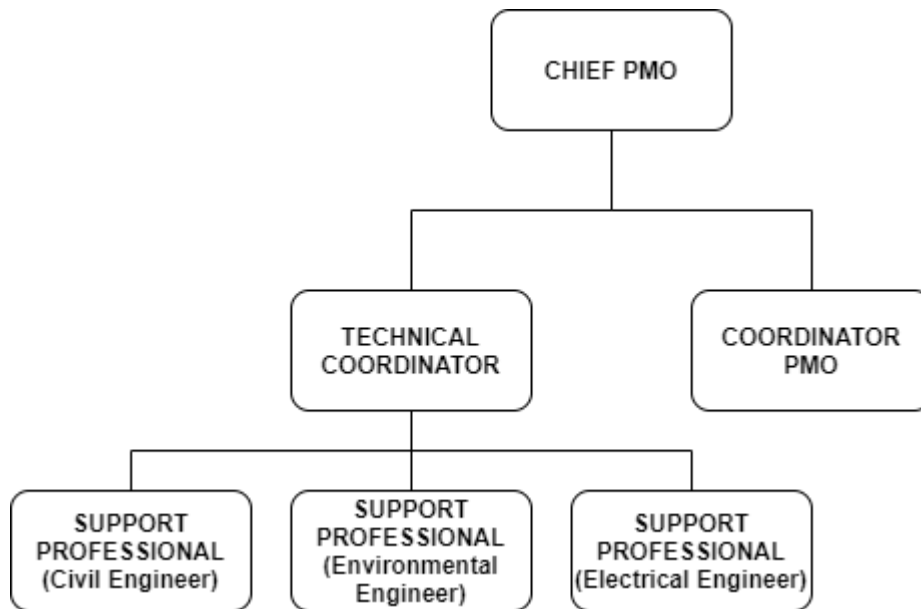


Figure 3. Proposed organizational chart for PMO



It is very important to outline the authority that the PMO will have so that it can fulfill its business purpose within the organization. This level of authority will depend largely on its position within the organization. It is expected that as the company increases maturity degree, the PMO will evolve to other types of PMO and move to other levels of the organizational structure

or that it will exist in parallel with another PMO. Since it will be a new PMO, the scope of its authority will be progressive as it becomes appropriate and becomes part of the company's organizational culture.

3.5 Strategy and Implementation Processes:

The time horizon established for the PMO implementation in the company is estimated at one (1) year. Figure 4 shows the main activities needed for the PMO implementation in the organization.

Figure 4. General structure of the implementation proposal



3.6 PMO validation plan:

For the PMO validation, a set of indicators are proposed to help measure performance and the contribution making to the organization in accordance with the strategic framework, functions and other aspects with which the PMO was formulated. In this way, the criteria for understanding the contribution of PMO to organizational performance will be further enriched. Considering the above, the battery of indicators proposed by [7] was taken as the basis, taking those indicators that best fit the organization, scope and purpose of the PMO. The indicators will be divided into the following dimensions:

- Indicators within the conception of human resources.
- Indicators within the conception of internal processes.
- Indicators within the conception of rational objectives (efficiency).
- Indicators within the concept of open system (effectiveness).
- Indicators within the concept of output quality.

3.7 PMO Maturity Plan:

For the PMO maturity degree to increase, it is necessary to periodically apply a maturity model in project management to the firm. The proposed evaluation period is annual in such a way that, from the findings, they can be socialized in a distinct way with senior management, stakeholders, customers and suppliers, and finally, with the organization's business units.

Based on the results from each evaluation of the maturity degree, the need for the PMO to move to the next level will be determined by performing a role, assuming functions and with a level of authority in line with the strengths, aspects to be improved, threats, and opportunities of the environment; and articulated with the organization strategic direction plan.

4. CONCLUSIONS:

Maturity degree of the company studied is at a basic level. Nonetheless, absence of standardized procedures and an organizational strategic framework, as well as other aspects to improve, make the organization fall into repetitive processes that do not generate any improvement in the management of the projects it executes.

The project office model formulated for the company, PMO Básica, will allow the company to strengthen the aspects to be improved and face the challenges that the organization is currently facing in terms of project management. Establishment of a project management office in such a visible and recognized entity as the WDP management company from Córdoba department, would be a catalyst to promote the project management culture in other private and public organizations in the region.

5. FINANCING:

This research shows the results of the Project: "Model of Project Management Office for Companies Responsible for the Execution of Water Departmental Plans in Colombia", sponsored and endorsed by the Technological University of Bolívar, Colombia.

REFERENCES:

- [1] B. Hobbs, and M. Aubry, "An empirically grounded search for a typology of project management offices", *Project Management Journal*, Vol. 39, No. 3, pp. S69–S82, 2008.
- [2] ESI Comunicación, "The Global State of the PMO. An analysis for 2015", ESI International. London, U.K., 2015.
- [3] Project Management Institute, PMI, "A guide to the project management body of knowledge (PMBOK guide) 6 ed.", Project Management Institute. Newtown Square, Pennsylvania, USA, 2017.
- [4] C.S. Ruiz, J.A. Fuentes, and D.A. Chaves, "Gestión y resultados del sector de agua potable y saneamiento básico con énfasis en los recursos del sistema general de participaciones 1994-2017", Contraloría General de la República. Bogotá, D.C., Colombia, 2018.
- [5] S. Sokhanvar, J. Matthews, and P.K.D.V. Yarlagadda, "Management of project knowledge at various maturity levels in PMO, a theoretical framework. Paper presented at Project Management Institute Research and Education Conference", Project Management Institute. Phoenix, AZ. Newtown Square, USA, 2014.
- [6] K. Desouza, and R. Evaristo, "Project management offices: A case of knowledge-based archetypes", *International Journal of Information Management*, Vol. 26, No. 5, pp. 414-423, 2006.
- [7] B. Hobbs, and M. Aubry, "The Project Management Office (PMO): A Quest for Understanding", Project Management Institute, Inc. Newtown Square, Pennsylvania, USA, 2010.