

PMO IMPLEMENTATION EXPERIENCES IN COMPANIES OF MEDELLIN CITY



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ABSTRACT

This article presents the results of a research project regarding the present status and implementation experiences with Project Management Office (PMO) in some organizations in the city of Medellín in order to summarize the lessons that could be later used as a basis from which to propose effective project management methodologies. First, the available literature regarding definitions, models, functions, roles, and maturity levels of PMOs was studied. This information was used to design semi-structured interviews that were completed with the PMO directors of selected organizations in the city of Medellín. Once the interviews were completed, an analysis of the information gathered was made to assess each PMO functions, roles, and models, as well as to classify each PMO on a point scale to determine its level of performance. According to the results, the lessons learned regarding PMO implementation were identified, highlighting conclusions and recommendations on key factors for success.

KEYWORDS: Lessons Learned; Maturity Level; Project Management; PMO.

EXPERIENCIAS DE IMPLEMENTACIÓN DE PMO EN EMPRESAS DE LA CIUDAD DE MEDELLÍN

RESUMEN

En este artículo se presentan los resultados de la investigación realizada acerca del estado actual y de las experiencias de implementación de Project Management Office® (PMO) en algunas empresas de la ciudad de Medellín, con el fin de recolectar lecciones aprendidas que pudieran utilizarse posteriormente como base para proponer metodologías efectivas de gestión de proyectos. Inicialmente, se realizó un estudio de la literatura que comprende las definiciones, modelos, funciones, roles y niveles de madurez de una PMO, lo que a su vez se utilizó para el diseño de entrevistas semiestructuradas que se realizaron a los directores de PMO de algunas empresas de la ciudad de Medellín. Una vez realizadas las entrevistas, se analizó la información obtenida y se evaluó cada PMO con respecto a funciones, roles y

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modelo, lo cual permitió clasificarlas dentro de una escala de puntuación y así determinar los niveles de desempeño. Posteriormente, con los resultados obtenidos, se identificaron las lecciones aprendidas sobre implementación de PMO, destacando conclusiones y recomendaciones acerca de los factores clave de éxito.

PALABRAS CLAVE: Gestión de Proyectos; Lecciones Aprendidas; Nivel de Madurez; PMO.

EXPERIÊNCIA DE IMPLEMENTAÇÃO DE PMO EM EMPRESAS DA CIDADE DE MEDELLIN

RESUMO

Neste artigo apresentam-se os resultados da investigação realizada acerca do estado atual e das experiências de implementação de Project Management Office (PMO) em algumas empresas da cidade de Medellin, com a finalidade de coletar lições aprendidas que poderiam usar-se posteriormente como base para propor metodologia efetivas de gestão e projetos. Inicialmente realizou-se um estudo da literatura que compreende as definições, modelos, funções, roles e níveis de maturidade duma PMO, o que utilizou-se também para o desenho de entrevistas semiestruturadas que se realizaram aos diretores de PMO de algumas empresas da cidade de Medellín. Uma vez realizadas as entrevistas, analisou-se a informação obtida e avaliou-se cada PMO com respeito às funções, roles e modelos, o qual permitiu classificar dentro duma escala de pontuação e assim determinar os níveis de desempenho. Posteriormente, com os resultados obtidos, identificaram-se as lições aprendidas sobre implementação de PMO, realçando as conclusões e recomendações acerca dos fatores chave de sucesso.

PALAVRAS-CHAVE: Gestão de projetos; lições aprendidas; nível de maturidade; PMO.

1. INTRODUCTION

During the last ten years, project management has experienced exponential growth. Companies that once considered project management to be an unnecessary cost are now seeing it as necessary and obligatory to ensure their sustainability over time. As organizations have various projects, the need to create an organizational and functional structure to group these projects arises, and this is how the Project Management Office or PMO comes to be (Kendall & Rollins, 2003).

Some of the symptoms that require implementation of a PMO are the following (Alsina, 2004):

- Projects are not aligned with the company's strategic goals.
- There is always a lack of resources, time, and budget.
- Too many projects are started, and few are finished. New problems continue to arise and overwhelm the project teams, who are constantly trying to fix emergencies.

- Too many problems become crises, and some of them cannot be resolved.

Based on the above situations, questions begin to form about how to successfully implement a project management methodology and its respective PMO in an organization in order to avoid joining the ranks of negative statistics found among companies. Therefore, it becomes necessary to conduct research directly with the PMO directors of some companies in the city of Medellin in order to evaluate the current status of implementation and collect the greatest possible number of lessons learned regarding key factors for success, thereby fixing a starting point that will serve to propose project methodologies and implementation processes that will be effective thanks to the experiences analyzed.

2. CONCEPTUALIZATION

First, the literature that discusses the definitions, models, functions, roles, and maturity levels of a PMO was studied in order to contrast this theoretical framework with the practices most widely used by

project area directors in thirteen companies in the city of Medellin.

After the literature review, the next step involved creating an interview model to be responded to during personal meetings with each of the thirteen directors contacted. The interview covered topics related to this study.

2.1 PMO Definition

The “Project Office” (PO) came to be at the end of the Second World War through U.S. military institutions. Later, during the 70s and 80s, construction companies actively incorporated the concept, creating an office for large but isolated projects. Some companies adopted the PO to standardize and determine similar procedures and processes in the projects. Then, in the early 90s, companies related to Information Technology (IT) and other industries began to progressively restructure their project organization, incorporating the PMO first as a “tactical” entity, that is, one able to create norms and processes and select tools that were applicable to all their projects (Alsina, 2004).

During the same decade, the first PMOs proved themselves efficient and gained popularity, a trend which has been growing significantly since then (Dai & Wells, 2004).

Given that there is no single definition for the PMO, two definitions are presented below as a conceptual basis to orient this study.

PMBOK® defines the PMO as “an organizational unit for centralizing and coordinating the direction of projects” (PMI®, 2013).

It is also defined as a shared skill designed to integrate project administration within the company which, given the proper governability, can improve communication, establish a standard for project administration, and help to reduce the negative effects of failed development projects on productivity and company effectiveness (Crawford, 2002).

As a complement to these definitions, a review of the existing literature on PMO models and functions is necessary in order to contrast the theoretical bases to the experiences of some PMO directors in companies in Medellin.

2.2 PMO Models

Table 1 shows a comparison of models proposed by various authors.

For the completion of this investigation, we have chosen the proposal made by Kendall & Rollins (2003), which defines several PMO models according to the value they generate for organizations:

Project Deposit Model: This is a PMO model that generates little or no value for the organization. In this model, the PMO serves as a source of information, projects, methodologies, and standards. Generally, it gives the company a series of tools for design, management, and reporting on projects. It lacks responsibility for the projects’ final results and assumes that the information and methodology have inherent value. Therefore, the organization does not make an effort to generate greater value.

Table 1. PMO Models

Author	Model			
Gartner Research Group	Project Repository	Trainer	Company	
Englund, Graham, & Dinsmore	Project Support Office	Project Management Excellence Center	Program Management Office	
Kendall & Rollins	Project Deposit	Trainer	Company	Deliver Now
Garfein	Project Office	Basic PMO	Mature PMO	Corporate PMO

Source: Adapted from (Hobbs & Aubry, 2007)

Trainer Model: This model is an extension of the previous one, and the value generated only lasts a short time. A desire to share certain project management practices is assumed, and the PMO is responsible for coordinating the communication of these practices to the project directors. The best practices are documented in order to be shared, and project performance is constantly monitored. These results are used to increase the organization's global performance and train new project directors or those with lower-than-expected performance. Given that the PMO is a guide for project directors, generally, when the project is successful, the credit for success is assumed by the project director and his or her team, not by the PMO; but, if the project fails, the blame for this failure is attributed to the poor management of the PMO.

Company Model: This model usually implies a larger investment of resources for PMO function and likewise has a wider mission, offering more support to the organization than the previous two models. This model allows for project analysis using the concept of risk management and identifies bottlenecks that hold projects up. This type of PMO model frequently gathers information in order to construct a project portfolio for the company. Commonly, a PMO using this model has a senior project manager on its work team and a group of experienced managers that offer their services to the different projects within the organization. These projects are assigned to them according to necessity. In this model, the PMO assumes a governing role over all the company's projects, regardless of their size.

Deliver Now Model: In this model, a greater value is generated for the company, and emphasis is placed on delivering this value in a way that is measurable for the organization's upper management within the first six months of implementation. The sponsor of this type of PMO is generally part of the company's upper ranks of management. With this model, the PMO aims to have an influence on one of the following aspects:

- Strategic planning (selection of appropriate projects).
- Project assessment to identify opportunities for speeding up delivery and avoiding threats to delivery.
- Reporting on the status of the set of projects and its relationship to the organization's project portfolio.
- Transference of expertise to selected resources.
- Project portfolio, including relationships to the company's goals, assets, current workload, and other factors
- Operation plans and monthly forecasts to identify opportunities and threats, problems and key risks, and the projects that are under and over budget in the portfolio.
- Creation of a global priority model for all the organization's projects, both current and proposed
- Training, tracking, and tutorials on management for the company's key projects.

2.3 PMO Functions and Roles

Among the most relevant functions that the PMO must fulfill, the following have been identified (Crawford, 2002):

Project Support: There is a significant element in project management that requires planning, schedule elaboration, cost control, and other technical tools, which are known as the science of project management. However, a more important segment of the project manager's work is related to the art of management: leadership, negotiation, motivation, team-building, and the creation of incentives are skills that provide the appropriate level of technical support to project managers so that they can concentrate on the aspects in which they create a greater impact.

Documentation: The project support team is responsible for estimating and budgeting, which includes cost and capital estimates and the development of plans and schedules. Therefore, they must provide updates on the project's status and perform variance analyses with regards to the plan. There is a great deal of information related to project support, and this is the reason for project control.

Change Control: The support functions for projects are critical for change control due to the fact that each change must be documented in a change request form, including impact analysis on cost, schedule, and technical base line. A visible registry of the status of all changes, both approved and unapproved, must be maintained. This assures that approved changes

will be reflected in specifications and contracts and that the people who must be aware of new information will be duly informed.

Project Repository: This can be as simple as a project book or as complex as a knowledge management system. It consists of consolidating a history of all project documentation in case a project manager or project team member leaves his or her position. This repository can serve as training for new project team members since they will be able to access lessons learned from the project.

Tracking and Reports: This refers to generating executive reports that can be captured on a control table (whether electronic or on paper) to show information that is precise, concrete, and focused on what executives require for effective decision-making.

Risk Management: Each project's risks must be identified, analyzed, mitigated, and tracked. Response plans for managing each high- or moderate-category risk must be created so that, in the event that a risk develops into a problem, the response plan can be executed in a timely fashion.

Resource Repository: This is an inventory of all the available resources within the organization. It guarantees that all the correct resources are working on the correct projects at the correct time.

Cost Tracking: Organizations with mature project management processes create an accounting system to provide the project manager with direct access to current costs so that he or she may obtain precise and real information online regarding project costs. If this possibility does not exist, the PMO steps in to perform the role of looking up and validating information on costs from the available sources.

Software Support: It takes care of everything related to managing project administration software.

Gartner Group has identified 5 key roles for a project office (Crawford, 2002):

- **Developer, Documenter, Standard Methodology Repository:** a consistent set of tools and processes for projects.
- **Resource Evaluator:** based on experiences in previous projects, the project office validates assump-

tions regarding projects, individuals, costs, and time.

- **Project Planner:** a knowledge center and library for previous project plans.
- **Consulting Center for Project Administration:** promotes the responsibility of governability in project administration, names project directors, or supports projects by naming the directors as consultants.
- **Center for Project Revision and Analysis:** a knowledge administration center where information on projects, goals, budgets, progress, and history is stored, both during the project cycle and afterward in the form of lessons learned.

2.4 PMO Maturity Levels

A PMO can be implemented in any of the three existing levels. It is also possible to implement these levels in parallel, but isolated from one another, in an organization (Crawford, 2002). These maturity levels are described as follows:

Level 1: The office controls only one project because it does not have the ideal structure for managing multiple projects. Generally, this project is long and has a certain degree of complexity in its implementation. It is made up of one or two people that have certain abilities for administering project management tools.

Level 2: Also known as a business unit, it can support individual projects, but its main challenge is integrating multiple projects of various sizes within one division or department for short- or medium-term initiatives that require dozens of resources and complex technology integration. At this level, an organization can integrate resources for the first time, because it is at this level that the control of resources begins to play a more valuable role and to compensate for the project direction system.

Level 3: It is considered to be a strategic project office that applies processes, administers resources, prioritizes, and applies systematic thinking transversally throughout the organization. At the corporate level, the project office becomes a repository for standards, processes and methodologies that improve the individual performance of projects in all divisions. It breaks the conflict of competition for resources and

identifies areas in which resources can be shared throughout the organization.

3. METHODOLOGY

3.1 Interview Model

An interview model was created with ten questions. These questions, listed below, dealt with topics related to the literature review: structure, functions, and roles. In addition, this instrument allowed for gathering complementary information on the implementation process, the current status, and lessons learned. This was the base for inferring the maturity level of each PMO.

- How long has the PMO been established in your organization? How long did implementation take?
- Did you use a third-party resource (a consulting company) for PMO implementation, or was it completed with internal resources and experience?
- What were the main difficulties you ran into during the implementation process?
- What is the structure of your PMO? What positions/profiles make up your PMO?
- What are the PMO's main functions and roles?
- What are the prioritization criteria among different project alternatives?
- What technological tools do you use for project management? What type of reports and indicators do you work with?
- Are projects selected for the PMO aligned with the company's strategy/strategic objectives?
- Is the PMO recognized and does it have a place within the organizational structure?
- From the company's perspective, what would you recommend regarding implementation and operation of a PMO? What lessons have you learned so far?

The application of the interview model was subject to the availability of the PMO leaders in the companies contacted. The level of response was from thirteen companies in different economic sectors. Each interview lasted approximately one hour, during

which the interviewee was able to contextualize their company and area, then answer the questions.

Table 2, below, lists the economic activity of the companies contacted.

3.2 Evaluation of Current Status

To get the result regarding the current status of the PMO in each of the companies contacted, a point scale was created for Model, Functions, Roles, and Maturity Level. The above criteria were combined since, according to the literature review, a PMO should fulfill all of these areas.

For this study, the PMO's performance is represented by the sum of the score for each criterion evaluated according to the point scale proposed in **Table 3**. A minimum score of 3.30 and a maximum of 12.00 can be obtained.

In order to complement the point scale described above, a five-level qualitative scale is presented in **Table 4**. A score range was assigned in each level. The sum of the score for each criterion establishes the level at which each PMO evaluated is currently situated.

4. RESULTS

4.1 Level of Performance

Table 5 shows the scores that were given to each company according to the criteria defined. The Level of Performance is shown with the corresponding color for each range.

Of the 13 companies evaluated for performance, two reached a World Class level, one a Mature Level, three an Emergent Level, two an Initial Level, and, finally, five a Null Level.

Those that received a score in the World Class range were the Beauty Product Sales company (E2) and the Insurance Sales company (E11), both of which are characterized by having a PMO for more than four years whose structure is completely visible in the organization and which is supported by a team with a high professional profile (Project Management Professional PMP® certified).

Table 2. Economic Activity of the Companies Contacted.

Company	Economic Activity	# Employees (approx.)
E1	Cement Production.	7300
E2	Beauty Product Sales.	700
E3	Social Programs for Employees and Their Families.	1100
E4	Clothing Production.	3500
E5	Construction.	223
E6	Energy Transportation.	1200
E7	Production and Sales of Home Appliances.	3150
E8	Engineering Consultancy.	1200
E9	Mining.	1575
E10	Production and Sales of Supplies.	800
E11	Insurance Sales.	10000
E12	Lumber Industry.	750
E13	Production and Sales of Ceramics.	7200

Table 3. Point Scale for Criteria

Criterion Group	Criterion	Point Scale	Observations
Model	Project Deposit	1	Only one Model applies per company.
	Trainer	2	
	Company	2,5	
	Deliver Now	3	
Function	Completes 0-2 functions	1	
	Completes 3-5 functions	2	
	Completes more than 6 functions	3	
Role	R1: Developer, Documenter, Standard Methodologies Repository	0,3	Companies can have one or more Roles at once. The total score represents the sum of each of the roles fulfilled by the company.
	R2: Resource Evaluator	0,3	
	R3: Project Planner	0,6	
	R4: Consultation Center for Project Administration	0,8	
	R5: Project Revision and Analysis Center	1	
Maturity	Level 1	1	Only one Maturity level applies per company.
	Level 2	2	
	Level 3	3	

The Construction company (E5) was the only one with a score in the Mature Level range because the functions it applies are completely oriented toward project management. In addition, of the 13 companies interviewed, it was the only one that designed its own technological tool for simultaneously controlling and

registering costs; this is a key and sensitive restriction for companies in this economic sector.

In the Emergent Level, there were three companies: the Cement company (E1), the Production and Sales of Home Appliances company (E7), and the Production and Sales of Supplies company (E10).

Table 4. Level Scale for PMO Performance

Level	Point Scale	Description
Null Level (NL)	3.30 – 6.50	At this level, the organization has neither developed nor executed any activity specifically related to Project Management. It has not developed or implemented the mechanisms for planning, prioritizing, coordinating, assigning, and controlling the use of necessary resources to execute its projects.
Initial Level (IL)	6.51 – 8.50	At this level, the organization recognizes that some elements of project management have been implemented. There are only some informal signs of this, or only inconclusive exercises have been done regarding each element. Despite having done some exercises to analyze project information for tracking and control regarding scope, time, and cost, this has not been done in a structured, standardized, and continuous manner.
Emerging Level (EL)	8,51 – 9,80	At this level, despite the fact that several components of the project management model exist and are carried out in the organization, the components are not integrated, the processes have not been formalized, and not all the procedures have been socialized among the staff. Therefore, they are still not considered to be organizational standards and do not apply consistently to the operation.
Mature Level (ML)	9,81 – 11,00	At this level, the organization has all the project management components, and its processes are implemented, documented, and established as organizational standards. However, the project management model still does not help the organization to integrate and align the efforts of all its staff members. Therefore, it is difficult to identify the contributions that each person makes to the strategic plan. Also, the information regarding all components is not integrated in order to facilitate its management. Despite the fact that the process is consistently carried out and controlled, there is not participation and involvement of all staff members at all levels of the organization in this process, or not all the staff members know the process or are capable of expressing its goal, or there is not a common understanding regarding the strategic direction.
World Class Level (WCL)	11,01 – 12,00	The processes are implanted and their use is evident, allowing for continued improvement of project management activities and practices. Lessons learned are regularly studied and used to improve standards, practices, methods, and documentation. Management and the organization are not only focused on managing effectively, but also on continuous improvement. The metrics collected from each of its components are used not only to evaluate performance, but also to feed a knowledge base that establishes an appropriate management information system for future decisions. There is a common understanding regarding the strategic direction.

Table 5. Results of the Score Assigned

Criterion Group	Criterion	E1	E2	E3	E4	E5	E6	E7	E8	E9	E10	E11	E12	E13
Model	Project Deposit			✓			✓		✓				✓	✓
	Trainer				✓					✓	✓			
	Company	✓				✓		✓						
	<i>Deliver Now</i>		✓									✓		
	Model Score	2,5	3	1	2	2,5	1	2,5	1	2	2	3	1	1
Function	Project Support	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓
	Documentation	✓	✓			✓	✓	✓	✓	✓	✓	✓		✓
	Change Control	✓	✓		✓	✓		✓	✓	✓	✓	✓		
	Project Repository	✓	✓			✓		✓		✓	✓	✓		
	Tracing and Reports	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Risk Management	✓	✓	✓	✓		✓	✓		✓	✓	✓		✓
	Resource Repository	✓	✓			✓				✓		✓		
	Cost Tracking	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	<i>Software Support</i>	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓		✓
	Function Score	3	3	2	3	3	2	3	3	3	3	3	2	2
Role	Developer, Documenter, Standard Methodologies Repository	0,3	0,3	0,3	0,3	0,3	0,3			0,3	0,3	0,3		0,3
	Resource Evaluator	0,3	0,3			0,3		0,3	0,3	0,3	0,3	0,3	0,3	0,3
	Project Planner	0,6	0,6				0,6			0,6		0,6		
	Consultation Center for Project Administration		0,8			0,8					0,8	0,8		
	Center for Project Revision and Analysis	1	1		1	1		1			1	1		
	Role Score	2,2	3	0,3	1,3	2,4	0,9	1,3	0,3	1,2	2,4	3	0,3	0,6
Maturity	Level 1												1	
	Level 2	2		2	2	2	2	2	2	2	2			2
	Level 3		3									3		
	Maturity Score	2	3	2	2	2	2	2	2	2	2	3	1	2
Total Score		9,70	12,00	5,30	8,30	9,90	5,90	8,80	6,30	8,20	9,40	12,00	4,30	5,60
Level		EL	WCL	NL	IL	NM	NL	EL	NL	IL	EL	WCL	NL	NL

These companies stood out because, despite the fact that they still have considerable difficulties regarding implementation, the progress they have made has left them with important lessons, and they are reaching a representative level because of their implementation time. They are PMOs with unconditional support from upper management, which allows them to make great strides in short amounts of time, showing the most effective path toward the corporate strategy.

The companies that recognize that they have implemented some project management processes that are still not fully structured at the Clothing Production company (E4) and the Mining company (E9), which were classified in the Initial Level. These companies are in this range for different reasons; in the Clothing Production company, although there is support from upper management, the PMO's advances have been slow, mainly due to the project leaders' resistance to change; the Mining company, meanwhile, has a much more serious weakness regarding PMO success, which is the partial support from the organization's upper management, which restricts its functions.

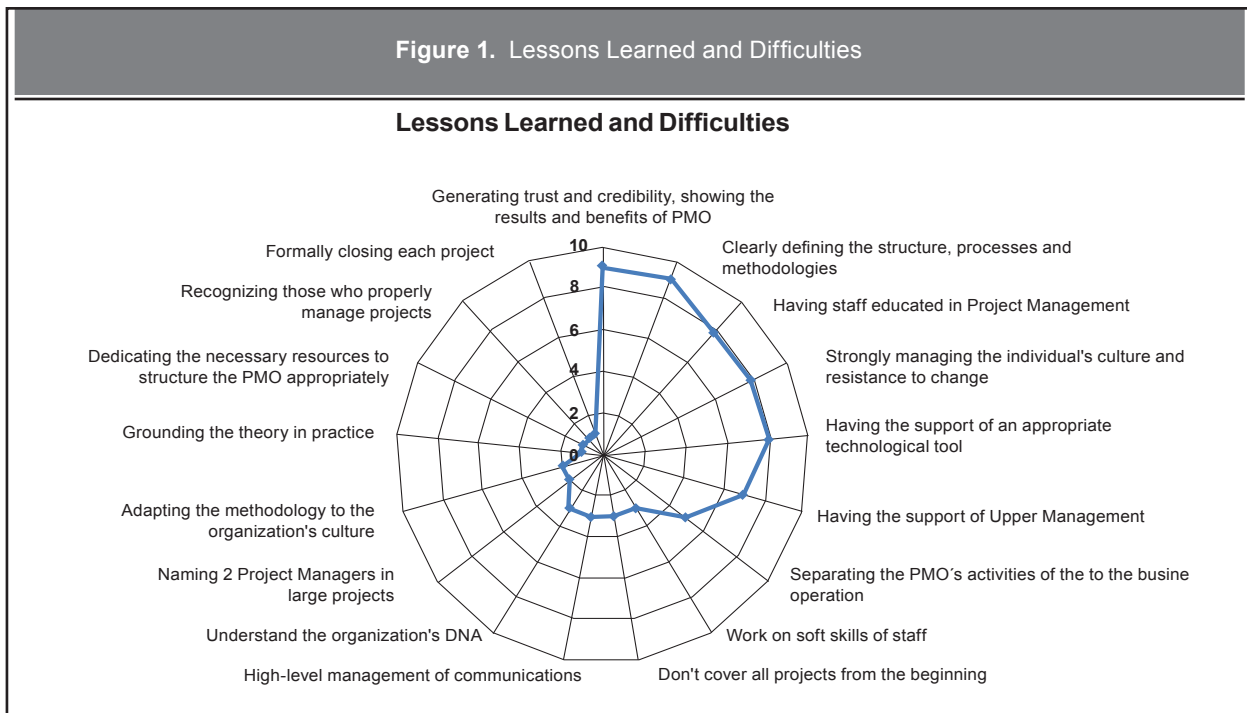
Finally, in the Null Level are the companies that have identified the need for a PMO in their organizations. These companies are: the Social Programs for

Employees and Their Families company (E3), the Energy Transport company (E6), the Engineering Consultancy company (E8), the Lumber company (E12), and the Production and Sales of Ceramics company (E13).

4.2 Lessons Learned

Based on the difficulties and the lessons learned collected, a grouping was made between similar themes in order to consolidate the most representative lessons and difficulties that were most often repeated in the PMOs contacted. These are represented in **Figure 1**.

The following six are among the most important: Generating trust and credibility (9), Clearly defining the structure, processes, and methodologies (9), Having staff educated in Project Management (8), Strongly managing the individuals' culture and resistance to change (8), Having the support of an appropriate technological tool (8), and Having the support of Upper Management (7). Other lessons that do not carry the same weight, but which also merit attention are: Separating the PMO's activities from the business operation, Working on the staff's soft skills, High-level management of communication, and Understanding the organization's DNA.



5. CONCLUSIONS

The interviews allowed for the creation of a profile for each company's PMO by collecting relevant information regarding difficulties, implementation and execution times, functions, technological tools, and lessons learned. Based upon this information, contrasts could be made with the criteria groups defined.

The study's results showed that the PMO's Performance Level is not related to the number of employees in the company.

Among the most important lessons learned that can be consolidated as key factors for success are the generation of trust and credibility for the PMO as well as a clear definition of its structure, processes, and methodologies. Likewise, it is necessary to have support from Upper Management in order to separate the PMO's activities from business operation, to hire resources educated in Project Management with highly developed soft skills (especially communication skills), to strongly manage individuals' culture due to resistance to change, and to have the support of an appropriate technological tool.

According to the sample chosen for this study, it was determined that in the majority, the PMO is in the implementation stage and that it is an issue that companies have recently become aware of in terms of its importance and the benefits that it can bring to the company and to its processes in general.

It is important to point out that this study carried out with companies that have different economic activities showed that it is not possible to standardize a single methodology for all of them. Instead, it is necessary to first understand each organization's DNA to adapt the corresponding methodology. There is an incorrect understanding of project methodology implementation which holds that the methodology can be followed like a manual.

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