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Cross-functional integration case study from project management office: impacts, controversies and inhibitors

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Abstract: This research concerns how cross-functional integration can support a project management office (PMO) in achieving its goals in the execution of investment projects. A case study was accomplished in a large state-owned Brazilian enterprise that produces and transmits electric power. The results showed several factors that generate cross-functional integration, such as communication and group spirit support. These factors can generate the following impacts: enhanced control over process development; effectiveness of processes/projects; and standardisation of processes. Research also conceptualised the role of integration inhibitors that end up negatively influencing the joint performance of functional areas, decreasing the support that cross-function integration provides for the operation of a PMO. Moreover, another concept of cross-functional integration that emerged from the case is related to controversies that are integration initiatives generating positive results in parts of the process, but generate dysfunctions in other hierarchical levels or stages of the process.

Keywords: integration; project management office; PMO; integration failures; cross-functional teams.

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1 Introduction

In the 1980s, several countries started a wide-ranging process concerning the reform of the management model of states, whose impacts were practically felt in all western countries. The main factors that commanded the reform were: To reduce the cost of public machinery; reverse the poor performance of public services provided to the population; seek greater accountability of public officials; and finally, globalisation and technological transformations (Torres and Schugurensky, 2002; Bresser-Pereira, 2017).

Most of the literature on the new public management focuses on the need for structural and institutional changes in public bodies so that they can respond to the demands of the external environment. One type of managerial solution from this approach is the adaptation of private companies' practices for the public environment (Dunleavy et al., 2006; Bresser-Pereira, 2017). One of the management tools that has been adapted to the public management is the implementation of project management office (PMO) in direct and indirect administration with the goal to reduce failures in public projects and enable institutional and cultural changes in the institutions (Desouza and Evaristo, 2006; Carvalho and Piscopo, 2014). Recently, PMO has been further developed to include and integrate also sustainability practices (Silvius, 2021).

This research explores the concepts of cross-functional integration factors and project management, specifically using PMO. To analyse how literature associates both themes, it is essential to characterise the different research aspect in this area. Most studies found on these themes have as their study strand the determination of critical factors in project management (Söderlund, 2002; Thamhain, 2004a, 2004b, 2004c; Swink, 2005; Lakemond and Berggren, 2006; Scott-Young and Samson, 2008; Sommer et al., 2014; Anthony et al., 2014). The other explored aspect in those articles was the factors of cross-functional integration (Hobday et al., 2000; Thieme et al., 2003). Finally, the last study line identified in the literature review was the determination of the role of a PMO (Desouza and Evaristo, 2006; Unger et al., 2012). However, there are a scarcity of studies that address this theme in projects of public companies in the electricity sector that serve a large population.

Several studies shed light on approaches related to the operational perspective of PMO, such as: Rungi and Hilmola (2011), research which brings into discussion interdependency management; and Musawir (2023), who detailed the role of governance in complex projects organising. Despite the large repertory of perspectives to study this theme, there is one that can approach a simple, but relevant issue, specifically for the public sector: The internal integration, or cross-functional integration (Stipp et al., 2018; Zada et al., 2023). For example, Athanasaw (2003) highlights that one of the institutional changes that public organisations may adopt to improve the quality of their processes and services consists of creating cross-functional teams. These teams are based on the cross-functional integration of people from different areas with multifunctional knowledge (Pimenta et al., 2014). The integration presupposes cooperation between the various organisational functions in pursuit of achieving the organisation's core objectives. Cross-functional integration is achieved through several formal and informal processes that lead different departments to work together (Lawrence and Lorsch, 1967; Kahn and Mentzer, 1996; Ferreira et al., 2019). One key factor is knowledge sharing, especially in PMO environment (Pemsel and Wiewiora, 2013).

The study of cross-functional integration from the viewpoint of public management should be considered as an unusual adaptation. Unlike private organisations, public institutions do not seek profit, but the common good of the society and these institutions are still subjected to various rules that govern public law, which makes it necessary to be incredibly careful in the adaptation of private management techniques in the governmental scope (Meidinger, 2006; Stipp et al., 2018). To approach and be able to properly work with the two themes, public management, and cross-functional integration, we had the opportunity to investigate the processes executed by a PMO in one of the

largest public Brazilian electric power companies, which is also a mixed-capital company.

The creation of a PMO can improve the management of organisational projects, foster organisational learning, advance cross-functional integration, and contribute to the standardisation of technologies and procedures (Desouza and Evaristo, 2006). Furthermore, the implementation of a PMO can also represent a cultural change in organisations, because this new structure is implemented, in theory, in large levels of autonomy and independence, changing the organisational culture through the use of cross-functional teams (Smith and Beretta, 2021; Pimenta et al., 2016).

Aiming to narrow this gap and contribute to the contemporary debate on how to improve the management of public companies, this work seeks to answer the following problem: ‘how the cross-functional integration provides support for the functioning of a PMO in order to ensure the achievement of organisational goals in the execution of public investment projects?’, The objective of this study is to analyse how cross-functional integration can support a PMO in achieving its goals in the execution of investment projects.

In order to provide a deep discussion of this focal process, two other concepts, poorly mentioned in the literature of cross-functional integration, helped to interpret main constructs emerged in the field research: the integration inhibitors (Ellinger et al., 2006; Oliveira et al., 2016) and the controversies (Venturini, 2010a). The development of a framework containing these specific concepts may allow to analyse the internal integration through a more dynamic point of view, even at different structural levels or different processes’ phases.

2 Literature review

As organisations begin to foster an organisational culture focused on project management, there is an emergence of an organisational structure called the PMO. The PMO is featured as an organisational entity created to assist project managers, teams, and various management levels in strategic matters in the implementation of management principles, practices, and methodologies (Dai and Wells, 2004). It is responsible for developing the set of rules and standards that will constitute the methodological basis for project management in the organisation. PMO has as characteristic to act as a disseminator of the project management culture in the organisation (Unger et al., 2012).

The PMO offers support to the project managers performing various roles: management of shared resources between all projects managed by the PMO; identification and development of methodology, best practices, and project management standards; guidance, counselling, training, and supervision; monitoring compliance with the standard project management policies, procedures, and models through project audits; development and management of shared project policies, procedures, forms and other documentation (organisational process assets); and coordination of communication between projects (PMBok, 2017). For the implementation of a PMO, the first step is to know how it is going to fit into the organisational culture, at what administrative level it is going to be positioned (strategic, tactical, or operational; Monteiro et al., 2016), and what will be its knowledge archetype (Desouza and Evaristo, 2006). The implementation of a PMO in organisations can contribute to improving the management of organisational projects, foster organisational learning, improving cross-functional integration, and

contribute to the standardisation of technologies and procedures (Desouza and Evaristo, 2006; Sandhu et al., 2019). Cross-functional integration is considered central to enable the implementation and operation of a PMO in organisations (Scott-Young and Samson, 2008; Carvalho and Piscopo, 2014; Sommer et al., 2014; Anthony et al., 2014; Feizabadi and Alibakhshi, 2022).

2.1 The importance of cross-functional integration for the PMO

As organisations become more complex, there is a need for specialisation and differentiation of tasks as a way of facing pressures and adapting to the external environment (Lawrence and Lorsch, 1967). When the tasks are simple and can be solved by a single department, only functional knowledge is sufficient, but if the process is complex and demands multiple bits of knowledge, it seeks coordination between departments. Therefore, arises the need for cross-functional integration (Pimenta et al., 2016; Khanuja and Jain, 2020).

Cross-functional integration can be defined as follows: ‘the quality of the state of collaboration that exists among departments that are required to achieve unity of effort by the demands of the environment’ (Lawrence and Lorsch, 1967). It is a process of interaction and collaboration between departments (Kahn and Mentzer, 1998), an ‘organisational phenomenon characterised by the dynamics between points of contact, factors that generate integration, level of integration, formality or informality of integration and impacts of integration’ (Pimenta et al., 2016).

In this work, the definition of cross-functional integration will be considered a process of interaction, collaboration, or a composite of both constructs. The interaction construct can be understood as the structural issues of relations between the departments. These are the formal aspects of cross-functional processes and tasks, for example, hierarchy, formal communication, follow-up meetings, and mechanisms of incentive and reward (Kahn and Mentzer, 1998).

The collaboration, in turn, is rooted in long-lasting interpersonal relationships, joint work, mutual understanding, informal communication, and collective goals (Badraoui et al., 2023). Several authors argue that collaboration is the most important aspect of the integration process, given that meetings, hierarchy, and formal procedures do not necessarily guarantee the increase of performance, as there is a need for interpersonal willingness to carry out formal processes (Kahn and Mentzer, 1996, 1998; Pimenta et al., 2016).

In addition, is relevant for this study to highlight two other concepts poorly mentioned in the cross-functional integration literature: the integration inhibitors and the controversies. According to Ellinger et al. (2006) there are several situations that can mine the integration between internal functions, such as: insufficient knowledge of the constraints and limitations of work colleagues, lack of cross-functional training, defensiveness, and incongruent functional objectives. Another situation that may inhibit cross-functional integration is mentioned by Oliveira et al. (2016), who brings about the social cohesion within a cross-functional team. According to them, there are situations in which people start to act more as colleagues than agents for innovation and change. In other situation, integration may be inhibited by a structure with excessive metrics of rewards and promotions related to the individual performance.

Vries et al. (2022) suggest that inhibitors of internal integration can emerge from the turbulence of the external environment of the supply chain. According to them, misleading communication and disruptions warning may be inhibitors of cross-functional integration.

There is another concept, derived from the actor/network theory that has a potential application in the analysis of cross-functional integration dysfunction: the controversies. According to Venturini (2010a), the cartography of controversies was developed by Bruno Latour as a didactic version of the actor-network theory, presenting a set of techniques and methodologies to observe and describe the social debate. Still, according to the author, the cartography of controversies leaves the researchers free to employ theories and observation methods appropriate to social dynamic, without the need to elaborate a priori referential or methodological protocols (Venturini, 2010a, 2010b).

A complimentary point of view is supplied by Wei (2024), who explains that actor/network theory helps to understand ‘human and non-human’ aspects involved in the networks of a given study. These aspects may involve power schemes, technologies, social conditions, and hierarchies, for example. Wei (2024) highlights the importance to the interaction between these aspects, mainly about the mechanisms able to integrate the human and non-human environment. This theoretical perspective may be used to analyse the internal integration through a more dynamic point of view, allowing, for example, to analyse the efficiency of a certain integration tool, (e.g., formal communication) at several hierarchical levels or at several phases of a given process.

2.2 Cross-functional integration factors in public organisations

Pimenta et al. (2016) characterise cross-functional integration through a dynamic that involves five elements: contact points (CPs), integration factors, levels of integration, formality/informality of integration, and integration impacts. CPs are defined as activities that require the participation of two or more organisational functions, generating in practice the cross-functional relationship. It is necessary to analyse in which way functions collaborate with the other to achieve the goals.

The integration level is related to the intensity in which a function interacts with the other. The level of integration is a measure based on the presence, or absence of certain integration factors and the frequency of contact between the functions (Pimenta et al., 2016; Ferreira et al., 2019), but not all organisation’s situations require a high integration level, as in the case of organisations that are in stable markets and the activity is internal of a department. However, a critical process in turbulent environments requires high levels of integration (Kahn and Mentzer, 1996).

Finally, integrational factors are the managerial tools or interpersonal collaboration that stimulates integration. These are the factors that generate and maintain and, therefore, relate to all the other cross-functional integration elements. The manager must be aware of the existence of these factors, their impact and must manage them in order of being able to integrate the functions (Pimenta et al., 2016). Table 1 presents several integration factors that have appeared in literature.

Table 1 Integration factors of an organisation

<i>Integration factors</i>	<i>References</i>
Joint planning	Murphy and Poist (1996)
Mutual understanding	Ellinger et al. (2006)
Longevity of relationships	Ellinger et al. (2006)
Cross-functional meetings	Lambert and Cook (1990)
Information sharing	Kahn and Mentzer (1996) and Daugherty et al. (2009)
Mutual evaluation and reward system	Lambert and Cook (1990)
Support from senior management	Pagell (2004) and Poberschnigg et al. (2020)
Informal consideration of the work groups	Ferreira et al. (2019)
Trust	Ellinger et al. (2006)
Hierarchical dependence among functions	Jüttner et al. (2007)
Cross-functional training	Ellinger et al. (2006) and Swink (2005)
Adequate communication	Pagell (2004) and Seno et al., (2019)
Cross-functional teams	Lambert and Cook (1990), Flint et al. (2008) and Feger (2014)
Willingness and teamwork to solve conflicts	Jüttner et al. (2007)
Physical proximity of workplaces	Pagell (2004)
Job rotation	Pagell (2004)
Group spirit	Ellinger et al. (2006)
Non-conflicting objectives among functions	Kahn and Mentzer (1996)
Congruence between functional goals and organisational strategy	Pimenta et al. (2016)
Recognition of functional interdependence	Daugherty et al. (2009)

The methodology proposed by project management body of knowledge (PMBok, 2017) can be adapted to the public sector, but this adaptation must take into consideration the organisational atmosphere of the public environment, especially due to the radical transformation that the implementation of a PMO generates in the already consolidated bureaucratic routines (Esquierro et al., 2014).

Before continuing the explanation on the context of this study, is paramount to clarify the nature of some Brazilian public companies. In the Brazilian public administration, there are common governmental organs (country, states and municipalities), but there are also public companies that provide products and services to the markets (such as Petrobras®). Some of these companies' trade shares in the stock market, characterising a mixed capital structure (public and private). The case studied by this research has a mixed capital structure; however, the majority of its ownership belongs to the government of Minas Gerais State, in Brazil. Therefore, the public management has decision control over the company.

The main barriers to the functioning of a PMO in a public organisation are the bureaucratic and rigid organisation environment and the difficulty of adapting the hierarchical functional organisational structure to the matrix flexibility that is fundamental to the functioning of a PMO (Rego and Silva, 2011). The barriers refer to

the complexity of management of public servants, in terms of qualification and training, retention of already trained servers, besides the issue of functional stability and engagement of the employees.

Given the challenges presented for the implementation and operating of a PMO in a public organisation, this research analysed, how cross-functional teams can provide support for the operation of a PMO to ensure the achievement of organisational goals in the execution of investments projects in a public organisation, using the detailed method below.

3 Research method

A case study was accomplished in a large state-owned Brazilian enterprise that produces and transmits electric power. Case studies are appropriate to provide deep understanding of the researched themes, allowing an intense analysis of a relatively small number of situations (Yin, 2009), which is in line with our research objectives. In this research, semi-structured in-depth interviews were used as the data source. To conduct them, a script was developed based on the main topics found in the theoretical review. This script is divided into three parts:

- 1 Management tools from the private environment and their adaptation to the public environment (Rego and Silva, 2011; Esquierro et al., 2014).
- 2 The PMO functioning, structure, and goals of the researched organisation (Söderlund, 2002; Dai and Wells, 2004; Thamhain, 2004a, 2004b, 2004c; Swink, 2005; Desouza and Evaristo, 2006; Lakemond and Berggren, 2006; Hobbs and Aubry, 2007; PMBok, 2017; Scott-Young and Samson, 2008; Unger et al., 2012; Sommer et al., 2014; Anthony et al., 2014).
- 3 Integration factors (mechanisms that generate cross-functional integration) existing within PMO teams (Kahn and Mentzer, 1996, 1998; Hobday et al., 2000; Thieme et al., 2003; Scott-Young and Samson, 2008; Pimenta et al., 2014; Murillo Oviedo et al., 2021).

The choice of this company was due to the theoretical sampling criterion adopted: having a PMO that coordinates the work of different functions to enable the execution of the projects. Besides, the company was also chosen due to the access and availability of data to carry out the research. The selection of respondents answered to the following parameter: having direct contact or professional experience with PMO processes. Table 2 details the role of each one of the interviewees.

The entire field study was held with formal consent from the researched organisation, and all interviews were recorded with the consent of the participants. The interviews were recorded in digital audio. Then, the audio was transcribed to a *word processing software* file and then released for coding in spreadsheet. All data obtained through the interviews or direct observation was submitted to the technique of content analysis.

Content analysis is a set of communication analysis techniques that, through systematic and objective procedures, seeks to obtain quantitative or non-quantitative indicators that allow the inference of knowledge related to messages (Bardin, 1977). A process of coding was the basis of the content analysis, in which the transcriptions of the interviews were separated into sentences, and coded according to their meaning and

capacity to explain how the processes of PMO could be influenced, and or practiced by cross-functional integration factors.

Table 2 Position of the interviewees

<i>Interviewed</i>	<i>Position</i>
1	Superintendent
2	PMO member
3	Regional manager
4	Technical contract manager
5	Technical contract manager
6	Technical contract manager
7	Technical contract manager
8	PMO member
9	Engineering manager
10	Planning area coordinator
11	Regional manager
12	Planning area coordinator
13	PMO manager
14	Planning area engineer
15	Technical contract manager
16	Technical contract manager
17	Regional manager

4 Results and discussion

4.1 The researched organisation and its project management methodology

The organisation that serves as the background for this research is a mixed-capital company society, composed of more than 175 companies and with interests in consortia and participation fund. Their stocks are traded in the São Paulo, New York, and Madrid stock markets. It operates in the infrastructure sector in 22 Brazilian States and the Federal District. This economic sector is strongly regulated by a federal agency that dictates all rules related to concession of public services, inspection, and regulation, including rates and economic-financial stability of companies.

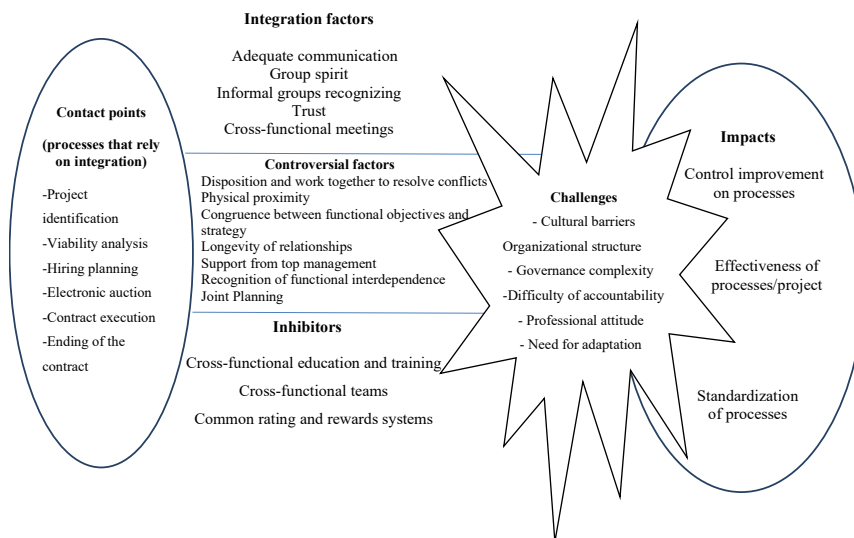
Due to its state-owned nature, the studied organisation is obliged to follow all the rules of public law that apply to this type of institution, such as, for example, the laws that rule the purchase of materials and services by the public administration. Furthermore, in the function of operating in a highly regulated environment, the organisation is also required to follow certain parameters for the financial, accounting, and equity classification of its assets and to follow quality goals and the expansion of its services.

Because of these regulatory requirements, the pressure from society for better services, and the shareholders for greater profitability, in 2012 the company opted to set up a PMO to manage investments in one of their operational areas. The main aspiration

of this implementation was to improve the management of their investments in pursuit of achieving the organisational goals. Currently, all the projects of investments are executed by this operational area managed via the PMO, these projects are generally of great technical complexity, high strategic impact, and high financial value.

The PMO is configured as a functional unit inside the board of this operational area, has its project management methodology, based on the modelling of PMBok, and also has a dedicated IT platform for the registration and physical and financial monitoring of investment projects. It is responsible for consolidating information about the ongoing projects as well as monitoring the performance indicators. The synthesis of the findings can be seen in the structure analysis proposed in Figure 1.

Figure 1 Integration in the management of investment projects in the case organisation (see online version for colours)



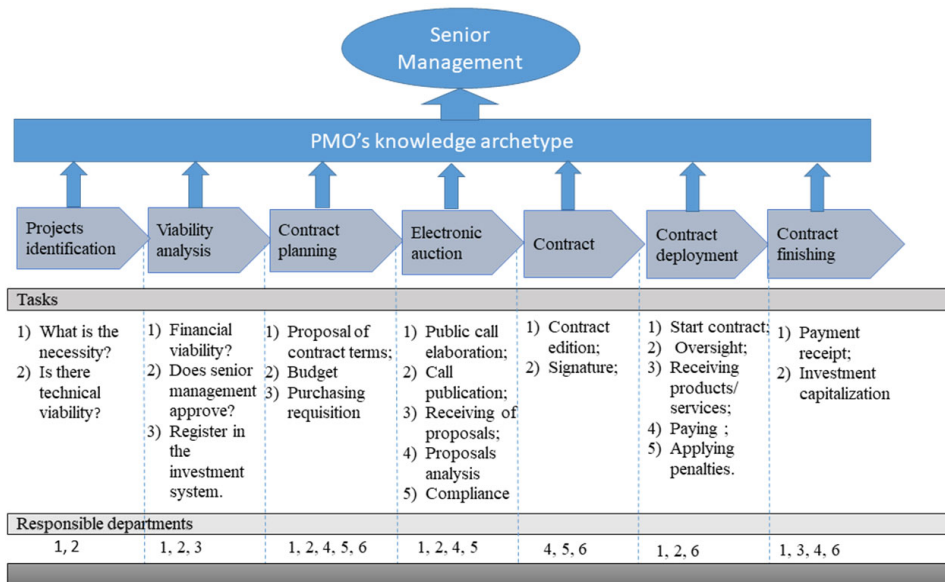
Field research shows that the PMO of the studied organisation is an office of investment project portfolio management. In the studied organisation, what characterises whether a project is an investment, or an expense, is the accounting classification determined by the regulatory agency of the sector in which the company operates. Investment projects are, for example: the restoration or construction of hydroelectric plants, solar plants, transmission lines, and substations; the modernisation of control systems, control panels, and telecommunications equipment; the acquisition of specific materials and services detailed in the controlled manual in the regulatory body's equity. As usual, the projects are complex and involve high financial amounts; they involve several specific activities that in turn are performed by different areas of the state company, the so-called CPs.

4.2 *Contact points*

The activities performed by two or more functions are called CPs. CPs are activities that require the participation of two or more organisational functions, generating in practice, and cross-functional relationships (Pimenta et al., 2016). Figure 2 shows the life cycle of

an investment project in the researched organisation, separated by its CPs and the functions that act in each stage.

Figure 2 Project CPs of case company (see online version for colours)



- Notes: 1. Regional maintenance and asset management departments.
 2. Maintenance planning and engineering management.
 3. Corporate planning and control department (finance and accounting).
 4. Material and services supply department.
 5. Legal department.
 6. Contracts and payments management.

Each department operates in a determined part of the project life cycle, and the PMO, through its management tools, seek to control and administrate the organisation's project portfolio, acting directly or indirectly in all phases of the life cycle of the project.

4.3 PMO knowledge archetype

Interviews showed that the main attribution of the researched PMO is to act as an information control centre and a tool for monitoring project status and reporting to senior management.

"Our project office, today, is more of a controller, right? It is a centralized area, which receives information and keeps monitoring and reposts it to the superintendents and directors." (Interviewee 17)

"Nowadays, the office is more in charge of supplying information, data than managing the project itself." (Interviewee 7)

Another important finding is that 70% of the interviewees would like the PMO to act more in consulting and aid element for the execution of the projects and not only as an element of information control. Besides, approximately 52% of the respondents affirm

that the PMO should act more strongly by disseminating the best practices and lessons learned from the projects.

“I’m going to insist on that issue of the office as a facilitator element and someone who is looking down to add something that will help the projects to happen.” (Interviewee 5)

“Methodology, consultancy, experience from other projects, part of lessons learned. We cross a little more information because it is clear that, like this, many problems that we have in our projects, they repeat themselves in other ones and sometimes we do not have the knowledge, the information. It could be an easier path, if we were already practicing the experience learned from other projects.” (Interviewee 6)

Given the situation and resuming the study by Desouza and Evaristo (2006), the PMO organisation can be classified as an information manager PMO. This kind of archetype, according to the authors, is characterised by monitoring and reporting the progress of the project, functioning as a monitoring panel, while it rarely takes initiative and has no authority, because the functional departments remain responsible for the success of the project.

The PMO provides an improvement in the management of projects in the organisation, especially through the acquisition of knowledge of failures of previous projects, standardisation of information, and provision of support and knowledge to project managers (Dai and Wells, 2004). The change in the knowledge archetype, to obtain better results in project management within the organisation, depends on the degree of maturity of the project management culture (main challenge of PMO implementation in study of Singh et al., 2009). Because, it is useless, for example, to force the PMO – Coach in an organisation that would reject this type of structure (Desouza and Evaristo, 2006).

The analysis of this CPs of the case studied allowed to advance these concepts in the literature and defines that the archetype characteristics depend on the type of authority between the PMO and the top management. This archetype can be characterised at four levels, in terms of its authority delegated by the high administration:

- 1 monitoring authority
- 2 conductor of learning to avoid future failures
- 3 project implementation consultancy and assistance
- 4 authority for changes throughout the project.

Thus, level 1 receives from the top management the least authority, and subsequent levels have more authority over the conduct of the project.

4.4 Cross-functional integration factors

The analysis of the interviews allowed to characterise the factors that generate integration shown in the first part of Table 3. About proper communication, it was found that there is a formal policy of the organisation to provide good communication between the areas, this policy translates into the acquisition and implementation and constant improvement of a large IT structure. This structure is vital for the company management due to its great geographical dispersion.

“We have all the resources here: screen sharing, teleconferencing, video conferencing if you need, phone, and e-mail. The infrastructure is very good.”
(Interviewee 15)

Table 3 Factors that generate integration perceived by respondents

	<i>Factors</i>	<i>Existence 4 e 5</i>	<i>Fault 1, 2 e 3</i>
Recognised integration factors	Adequate communication	16	1
	Team spirit	15	2
	Consideration for informal working groups	13	4
	Trust level	13	4
	Cross-functional meetings	11	5
Controversial factors	Willingness and working together to resolve conflicts	10	7
	Physical proximity of workplaces	9	8
	Congruence between functional goals with organisational strategy	9	8
	Longevity of relationships	8	9
	Support from top management	8	9
Inhibitors	Recognition of functional interdependence	8	9
	Joint planning	7	10
	Cross-functional education and training	4	14
	Cross-functional teams	3	14
	Mutual rewards and evaluation system	1	16

The group spirit represents the existence of a cooperative atmosphere in the organisation environment.

“This cooperation, I think, is even more personal with the people in the office. To try to cooperate with that item that you are hiring or purchasing using the project’s office itself. Yes, it exists. This part eases the projects to flow.”
(Interviewee 7)

The consideration to the informal working groups indicates the existence of a feeling of unity between departments, which encourages working together through informal collaborative actions.

“There is an incentive, but at least, mainly through volunteering, the guy joins, you are going to have a project, if you join areas, put it to sit everything down, even I already did that in development, developing projects gives you.”
(Interviewee 2)

The trust level corresponds to the relationship longevity, mutual trust, mutual commitment, and collaboration to problem-solving. This factor is another one in which collaboration between employees is predominant.

“Here within the company, I believe so, with rare exceptions. The tendency is to be frequent (to work).” (Interviewee 5)

The signal cross-functional meetings occur periodically between the teams/function to monitor investment projects, the participation of people with decision-making power. In these meetings, there is the attendance of superintendents and directors.

“It occurs frequently, there are monthly business meetings. Superintendents participate and often the director. But, like, there is no superintendent of the purchasing agency nor the legal entity, for example.” (Interviewee 13)

Thus, the cross-functional integration factors in the case under analysis are achieved more through interpersonal relationships and collaboration than through a management structure and administrative support. The five factors discussed above are influenced by the moderating cross-functional integration factors considered as rare or that generate a low level of cross-functional integration and by the factors considered controversial.

4.5 *Integration inhibitors*

The integration inhibitors are factors that end up negatively influencing the joint performance of functional areas, decreasing the support that cross-functional integration provides for the functioning of a PMO and does not contribute to the achievement of organisational goals.

The interviewers recognised the importance of a mutual reward and assessment system. However, there are some reservations, such as the complex issue of implementing financial rewards within a public organisation. This factor can lead to political dysfunctions between different departments, due to the difficulty of measuring the exceptional work in the public sector. However, non-financial rewards could be explored.

“It is difficult for a public company to say something like ‘I am going to give you a bonus here because your investment project went very well’, or ‘you are being punished because you only achieved 50% of the forecast’. But, for example, it would be possible to give someone an award like ‘here, take 3 days on the beach, take your family’.” (Interviewee 1)

The respondents also recognised the importance of education and cross-functional training but highlighted that the organisation is deficient in providing training to its employees in this area. Even when these occur, the lack of standardisation in these trainings can reduce the integration between the areas involved with the PMO. It happens because, in most of the processes of the studied company, integration initiatives are learnt in practice, and training is directed to specific functions, often to an individual and in a non-coordinated way from the cross-functional point of view.

“The difficulty that we may have is that, inside the public company, since it is something very specific, we learn by doing, there is not the orientation part, I think it is a little deficient. Sometimes, our management here does training differently from other management, because it does not have standardization.” (Interviewee 7)

“Because the training process is not standardized, many times the training often comes after you already racked your brain there several times trying to solve something. Therefore, the training often disrupts what has been learned about integration in practice.” (Interviewee 4)

Another factor that inhibits cross-functional integration is the cross-functional team. Despite being disseminated in the literature as one of the most efficient and most

implemented factors that generate integration in private companies (Wang and He, 2008; Edmondson and Nembhard, 2009; Pimenta et al., 2014; Oliveira et al., 2016), this practice has some performance restrictions in the public sector, according to the respondents. First, cross-functional teams can generate the trade-off: either they work to integrate, or it performs the individual task in the area. Consequently, labour constraints are generated if there is no clear policy for the implementation in this regard.

“Here I don’t think these teams could be a good thing. In the public sector there is a labor restriction, you know? When we see this happening, each area grants a person who understands about the subject, but a person who is more available at the moment. The person who could solve the problem, the areas will never provide.” (Interviewee 3)

On the other hand, the cross-functional teams in the studied company work well for large projects, because the members are stable until the end of the project. However, on small projects, the team usually disintegrates. There is no permanent policy of the members until the end of the project, and members are often disconnected in the middle of the project. These cross-functional teams can cause operation and integration problems by letting it drain the knowledge and operational capacity of the project.

“The structure that we have here is very dynamic, right? This means, you can start a project dealing with a person and in 2 or 3 months, that person moves to another area. But it would be interesting, for example, if the people were formally nominated and remained throughout the whole project. Only in large projects such designation occurs.” (Interviewee 8)

It is determined that these factors that generate integration, classified and inhibitors, are linked to the interaction (Kahn and Mentzer, 1996), that is, the development and application of formal management tools by the organisation. This allows concluding that the organisation management is not aware of the importance of developing formal management tools that benefit and foster cross-functional integration.

4.6 Controversies

The controversies (Venturini, 2010a, 2010b) represent the cross-functional integration factors that pointed out contradictions among the interviewees. These elements cannot be classified either as cross-functional integration factors or as inhibitors of integration; however, they influence the integration between departments in project management.

Regarding the controversy ‘support from top management’ eight interviewees said it was frequent, and nine affirmed that this support rarely occurs. This contradiction is clear in the statements below:

“Yes. I think that there is not a lack of support from the management for this integration between the areas to occur.” (Interviewee 15)

“I think the sponsorship of the company’s direction was decreasing too much. It’s one of the reasons that I think it came to this point. The office was withering, it was decreasing, it was getting small. Today we have two people inside, a business that many areas still do not give the due importance, which I believe would be a really important one.” (Interviewee 3)

Another example of this contradiction of information question between the participants is the ‘joint planning factor’.

“Before, there was no reason for different areas to sit together, right, to be able to evaluate and plan the projects they were going to develop. Today, it happens.” (Interviewee 2)

“Often, the purchasing agency, that makes the bid, is not even aware that there is going to have this demand. They do not participate in the planning of these projects.” (Interviewee 13)

Additionally, Table 4 shows another controversy that follows the same dynamic of contradiction among the interviewees. Emphasises that this construct was identified directly by the field research, which means, there was no literature on this subject in the cross-functional integration scope to guide the data collection. Thus, it was not foreseen at the beginning of the planning of this work. Considering, to make the data analysis possible, there was a need to search the literature for any technique that would make it possible to safely interpret the data, considering the contradictions identified, especially in these integration factors. Because of it, this work identified and analysed the data following the parameters of the technique called cartography of controversies (Venturini, 2010a, 2010b). With the data of these elements properly catalogued and analysed, the following conclusion is reached: The origin of the controversy lies in the difference of perceptions between the crowded workers in the organisation’s Headquarters and those who work in units located in other state’s cities. Headquarters’ employees have a greater perception of the cross-functional existence factors. This perception is 40% higher than the workers operating in decentralised units within the state; nine employees of the headquarters and eight employees of the countryside were interviewed.

This may indicate that the physical proximity between the departments located at the headquarters generates a better perception of the integrative process. Also, it is possible to infer that proximity to the organisation’s top management can increase the perception of cross-functional integration. These controversial elements are presented in the organisational day-to-day, interfering in the relationship between the functions and impacting the organisational performance. However, this research could not define whether these contradictory elements are predominantly formal or informal.

In this matter, controversy occurs when a person diverges from the majority, however, this study considered as controversial factor those elements in which the number of interviewees who stated that the factor is rare. This option was made to keep the focus on the search for management solutions that improve the project management practice.

Thus, it is possible to conclude that the controversies of the case studied are integration factors that generate positive results in parts of the process but generate dysfunctions in other hierarchical levels or other stages of the process.

4.7 Challenges to adopt practices from private companies

The studied company already uses several management tools from private organisations, including project management practices through a PMO. It was noted during the field research that all the interviewees agree with the management practices incorporation in the company’s day-to-day activities; however, they listed the following challenges described in Table 4.

Table 4 Challenges of project management practices

<i>Challenges</i>	<i>Description</i>	<i>Quotation</i>	<i>Number of quotes</i>
Cultural barriers	Cultural aspects involving the researched organisation, public management in a general way, or aspects related to cultural relation at work in public organisations.	In reality, the biggest difficulty I see is the cultural question, you know? We don't have a result-oriented culture. And all these tools aim to have a result (Interviewed 13). I don't think it's of any use. You don't change an organization's culture with a tool. On the contrary, you adapt the tool to the management culture (Interviewed 17).	10
Organisational structure	Aspects related to work duplication, insufficient work structure or reduced teams.	If we look at the volume of service, the main difficulty is that the office has a reduced number of people. Our office only has two people. Any portfolio office within other companies of the same size has a group at least 3 times larger than ours. (Interviewed 8).	8
Governance complexity of a state-owned company	Legal, administrative, and regulatory framework that the mixed economic capital is obliged to follow, which make its management difficult.	A company same size as ours, that has the many areas, so segregated, and possess such a heavy, robust, governance, ends up plastering some things and creates a larger hindrance, in the case of projects. (Interviewed 2).	7
Difficulty of accountability and professional posture	Difficulty in holding employees accountable for deviations in project management due to the bonds of the state-owned company and how workers act in the face of work routines.	If someone says they are going to spend I don't know how many millions and don't spend, nothing happens? In a private company, the person would have a responsibility, right? It could even be fired. And unfortunately, here there isn't (Interviewed 13)	7
Need for adaptation	Need to adapt the project management tools to the state-owned company reality.	The PMBoK gives you there three knowledge lines for you to implement in the area, but sometimes your area only has one. So, there is no point in performing... I always say that a Ferrari was delivered, but our road was made of land and stone. So, there is no use, you should have started with a cage. (Interviewed 2). So, the PMO has this role of taking a tool, for example, making it available for the users, but with the face and the company's resource. So, people can use that in the company reality and not in market reality. (Interviewed 8).	3

There is difficulty in adapting the hierarchical organisational structure to a flexible matrix, which is fundamental to the operation of a PMO (Rego and Silva, 2011). Finally, Esquierro et al. (2014) address the issue of the need for methodology adaptation to project management in the public environment. Rego and Silva (2011) address the capacity aspect, motivation, and worker's accountability.

Therefore, as addressed in this link of structure analysis, the mixed-capital company, which is the focus of this research, executes several projects that are managed/controlled through a PMO. This PMO has as the main attribution to centralise and pass on information about the progress of investment projects to senior management. The interviewees demand from PMO a more active stance in the aspect of consultancy, methodology, and support to the project's execution. This change in performance represents a new cultural step for project management within the organisation, must analysing the challenges inherent to this change, some of these challenges were also addressed in this topic.

This construction's revelation allowed to deepen the concept of adapting management tools from private companies to public organisations. Through the case study, it was possible to understand the factors that must be considered in the transition from project management tools from private companies to public organisations. Thus, for a public organisation to succeed in the transition of methods in the project management from the private sector, it must execute an adaptation plan, based on cultural, structural, governance, and personal characteristics.

4.8 Cross-functional integration impacts in the PMO

Unger et al. (2012) state that PMOs are essential to achieve success in projects. Besides, they also claim that portfolio management PMO has a strong responsibility in the fulfilment of organisational goals and stakeholders' interests. They are fundamental pieces for the control and coordination of the portfolio.

The field research demonstrated that the management of investment projects, in the researched state company, is complex and full of management challenges. It also showed that the cross-functional integration factors: proper communication; group spirit; Consideration of informal working groups; trust level; and cross-functional meeting provides support for the PMO functionality, enabling a higher level of integration in CPs and generating the following impacts on the processes:

- 1 Control improvement over the progress of the process. This impact is closely related to the integration factor named cross-functional meetings and the communication and IT system of the organisation.

“After the implementation of the office, the control improved a lot. Control over investment management. Both the planning and the execution phase, the final phase of investment projects. So, I believe that investment control and management has improved a lot.” (Interviewed 11)

- 2 Effectiveness of processes/projects. This impact was related to the PMO implementation and the factors: cross-functional meetings and trust level.

“Things became clearer, the processes were mapped, and then, after that information was also released and disseminated, people found it easier to understand how the thing worked and the process efficiency increased.” (Interviewed 2)

- 3 Standardisation of the process. This aspect was related to PMO implementation and cross-functional meetings.

“I understand that the project office, when it was conceived, was because previously, the areas, each area defended their project. We, the demanding area, requested, raised this need along with engineering and such, running after defending budget and such. And that was kind of dispersed in the company, each area was running after its needs. With the project office implementation, one of the things that improved was the centralization and standardization of such demands.” (Interviewed 12)

It is important to highlight that the impacts treated above do not refer to the organisation as a whole, but only to the processes managed directly or indirectly by the PMO. It appears, therefore, that the PMO was able to achieve success mainly in the control related to the execution of projects and in the standardisation and alignment of process issues. These results are aligned with the research by Desouza and Evaristo (2006), Dai and Wells (2004), who claim that the PMO implementation improves project management and contributes to the standardisation of information, procedures, and technologies.

The five integration factors that provide a high level of integration between the functions generate the impacts listed above, this being the operational support that the cross-functional integration factors provide to the PMO. It is through these elements that the PMO can achieve these positive processes impacts. It is important to highlight that such positive impacts are also, influenced negatively by the moderating factors. Controversial factors also influence impacts, but it is not possible to determine whether positively or negatively.

According to Ferreira et al. (2019), cross-functional integration is characterised by a dialectical relationship of cooperation and conflict within organisational processes. This dialectic is evident in this research's data; because even though there are several CPs and the existence of a PMO that by design should improve and foster cross-functional integration, the company's employees list that there are more elements that moderate integration than cross-functional integration factors.

The dialectic becomes even more evident when there is a contradiction of the workers related to the same integration factor. This contradiction is based on the difference in perception of how the process is managed. The difference in perception is due to the workplace of employees. Evidencing that the company management must seek management tools that foster the cross-functional integration in the CPs and pay special attention to the integration of employees whose workplace is decentralised, which means they are not at the company's headquarters.

5 Conclusions

The case studied revealed that the PMO implementation may brought positive impacts in the public electric sector, especially related to the control of the processes derived from projects, improved information, and control over the progress of investment projects, and greater standardisation and process efficiency. The operational support that the cross-functional integration factors provide to the PMO could be greater and better if there were not so many moderating factors acting at the CPs.

It also appears that the cross-functional integration in the processes managed by the office is still flawed, especially regarding the implementation of management tools that

foster integration. This statement is based on the finding that the most frequent factors that generate cross-functional integration are linked, primarily linked to collaboration and moderating factors of integration. In other words, there is a lack of implementation of management tools to improve integration, and therefore to increase the PMO's impact and effectiveness in the management of investment projects.

5.1 Theoretical implications

This study sheds light on the particularities of a public organisation towards an innovative concept about the factors that generate cross-functional integration, i.e., their possibility to inhibit integration depending on the way they are practiced. The studied literature points out the necessity of integrating internal areas to coordinate efforts within PMO (Rungi and Hilmola, 2011; Musawir, 2023). Some other efforts have been made to address practices of cross-functional integration in the public sector (Athanasaw, 2003; Stipp et al., 2018; Zada et al., 2023). However, these insertions on the cross-functional integration literature have not brought new concepts, or better explained the already known concepts of integration factors (Lawrence and Lorsch, 1967; Kahn and Mentzer, 1996; Ferreira et al., 2019). Even very specific studies about PMO integration (Desouza and Evaristo, 2006; Unger et al., 2012) poorly describe the role of integration in the public sector.

The case related to this research helped to conceptualise the role of integration inhibitors in the cross-functional integration processes of a PMO: integration inhibitors and factors end up negatively influencing the joint performance of functional areas, decreasing the support that cross-function integration provides for the operation of a PMO, and do not contribute to the achievement of organisational goals.

Another concept of cross-functional integration dynamics that emerged from the case is related controversies. With the help of the theory of the cartography of the controversies (Venturini, 2010a, 2010b), it was possible to insert this new concept in the study of internal integration. The controversy occurs when a person diverges from most of the agents involved in the process. Therefore, it is possible to conclude that the controversies of the case studied are simply factors that generate positive results in parts of the process, but generate dysfunctions in other hierarchical levels or other stages of the process.

5.2 Managerial implications

In a managerial perspective, this research revealed that in public companies, cross-functional teams may be an inhibiting factor of integration, despite being one of the most efficient factors that generate integration in private companies. Managers should institute permanent policies, to keep the same members until the end of the project; otherwise the teams may have integration problems due to the draining of knowledge and operational capacity of the project.

5.3 Limitations and future research

Regarding the study limitations, the controversies identified in the case comprise an advance in the study of factors that generate integration, as they can generate integration in some phases of the process, and, at the same time, do not achieve an impact in other parts. However, this research could not define whether these contradictory elements are predominantly formal or informal. Future research using case studies may explore this specific construct with greater depth. Moreover, as the type of method (case study) is naturally restricted in terms of locus, future research could investigate this phenomenon in other sectors and locations.

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