

Systematic Review of Factors Limiting the Successful Management of Public Investment Projects

Gustavo Andrés Rincón Camargo¹, William Orlando Alvarez Araque², Hilda Lucia Jiménez Orozco³

^{1,2,3} Universidad Pedagógica y Tecnológica de Colombia

Abstract

The management of public investment projects has limitations that affect the proper management of invested resources, hindering the expected impact on public works and services. Therefore, the objective of this study is to analyze the limiting factors of public investment projects and propose improvement practices based on a systematic review of the academic literature. The study was conducted from a qualitative approach and under a documentary review design. The emerging results allow us to identify recurring problems, such as the low adoption of methodologies for the public sector, persistent defects in technical planning, poor administrative management, and resistance to change on the part of the managers themselves. Therefore, it is appropriate to carry out management training processes, increase stakeholder participation, or form groups with skills in innovation and technology management. This leads to the conclusion that in order to overcome these barriers, administrative, technical, and cultural reforms must be implemented to encourage transparency, reduce bureaucracy, and improve inter-institutional integration.

Keywords: Public investment, Management, Projects

INTRODUCTION

Public sector projects are essential to ensuring the socioeconomic development of people, as they increase the amount of infrastructure in cities, which in turn enables the proper provision of public services in important sectors such as health and education. These investments ultimately improve the quality of life of the population. However, according to Sobieraj et al. (2021), the proper management of projects in this sector faces problems that affect their effectiveness and can lead to a negative impact on the proper use of public resources. In this regard, it is important to identify and analyze the factors that limit the proper management of projects in the public sector in order to propose strategies and strengthen the practices used in identification, formulation, execution, and control, specifically in developing countries, where public projects improve the social welfare of people.

From the perspective of (Sian et al., 2020; Faria et al., 2023), one of the most important factors to consider in public investment project management is the limited use of management methodologies that are adapted to the problems and objectives faced by the public sector. The limited use of more adaptive and dynamic management methodologies is a significant limiting factor which, according to Yabar-Ardiles et al. (2023), has repercussions on problems such as schedule delays, inadequate resource allocation and planning, and a lack of coordination between stakeholders, implementers, and state entities. This situation is exacerbated when it is clear that dynamics that allow for high

participation by the target population are not being used, a situation that is evident from the early stages when objectives are not properly formulated, ultimately affecting the expected social impact.

Similarly, Adedokun et al. (2025) report that there are deficiencies in technical planning and administrative management that generate problems that in turn hinder the development and successful completion of public investment projects. For their part, the study by Sobieraj et al. (2021) shows that poor planning in the initial stages and traditional contractual practices can lead to increased costs, delays, and poor technical supervision. This is particularly worrying in contexts where public investment is used to try to close infrastructure gaps and where the success of the project depends on management between public and private entities. In this regard, Sabden et al. (2020) emphasize the need to implement modern and collaborative management processes that allow for more rigorous supervision and better risk management.

Finally, from the point of view of Momen and Behbahaninia (2021), another limitation is the poor technical and administrative capacity of the project managers responsible for supervision, which is due to a lack of specific training and experience in public procurement, as well as resistance to change. All of this prevents the proper management and control of public projects, leading to conflict, lack of control, and delays. This goes hand in hand with the findings of Faria et al. (2023), who argue that this deficit also affects the adoption of innovative technologies and methodologies that enable proper planning and monitoring, which in turn reduces the capacity and quality of public investment.

Based on the above, and in accordance with the study by Alragabah and Ahmed (2024), it is considered essential to implement project management practices that mitigate these negative impacts in order to seek improvements in the socioeconomic sphere of communities, improving the operation of the infrastructure built and the services provided. Changes in contractual models, training of stakeholders, and improvements in public management (Adedokun et al., 2025; Sabden et al., 2020; Faria et al., 2023; Yabar-Ardiles et al., 2023)

Theoretical Reference

In different countries, public management is essential for improving people's socioeconomic development. It has evolved from conventional administrative methods to methodologies designed specifically for this sector and focused on results. As Sabden et al. (2020) point out, this change has occurred because the public sector faces different problems that are not common in other sectors, in addition to being a more closely monitored and guarded sector.

Public sector projects are becoming increasingly important, as argued by Blaskovics et al. (2023), who determine that these types of projects are more complex and that their impact is measured by development, social welfare, and economic growth. Furthermore, their proper execution seeks to increase transparency and be directed toward continuous improvement.

Efficient project management in the public sector can contribute positively to social progress and yield a number of important benefits. First, according to Yabar-Ardiles et al. (2023), it facilitates the distribution and proper use of public funds, which maximizes the impact of investments. Second, as mentioned by Horenko, Y. (2024), it promotes transparency and accountability, which are fundamental elements in preventing corruption and gaining the trust of the population. Finally, the study by Sabden et al.

(2020) reveals that proper management promotes the ability to adapt to changes and risks, which leads to avoiding delays and expenses in its execution. Thus, all these benefits ensure that projects are not only carried out on time, but also that the social and economic objectives set are met.

In light of the above, the analysis of academic literature in this study focuses on exploring the importance and impact of successful project management in the public sector, recognizing limitations in order to overcome the barriers that limit the success of projects.

Project management

Project management enables projects to be carried out properly, especially in the public sector, where complexity and the need for efficiency are paramount. As noted by Momen and Behbahaninia (2021), project management can be understood as a set of coordinated actions that serve to facilitate the achievement of established objectives in terms of time, budget, and quality, resulting in a true system that guarantees progress toward results.

However, Vorgers et al. (2022) note that project management is not limited to planning and control, but also includes contextualizing activities and managing stakeholders, among other key tools and techniques for efficient project development, regardless of whether they are public or private. This perspective is in line with the position of Williams et al. (2020), who affirm that it is important to help properly manage the factors that affect the project, specifically because proper management brings together technical, human, and organizational elements in an appropriate manner that are considered a solid pillar of leadership.

Similarly, it is important to highlight that the way in which a public project is managed has a direct proportional effect on the expected results; the proper application of practices can lead to positive outcomes. In line with this approach, Sherratt et al. (2020) argue that the use of project management practices in the public sector can be the key to overcoming gaps and limitations and opening up a strategy for change and efficiency.

For their part, Il'in and Sizova (2024) argue that the use of management methodologies allows for continuous evaluation and improvement in execution, as well as providing greater transparency and control, which are important aspects in public projects. Pysmenna and Drozd (2024) also note that the use of practices that are appropriate for public project management contributes to contractual collaboration or effective conflict resolution, thereby facilitating the effectiveness of both project delivery and quality. Finally, (Fan et al., 2024; Vorgers et al., 2022) emphasize that the use of new practices in project management geared toward adaptability is also key to addressing challenges and enabling public projects to meet current social and economic demands.

Benefits and Advantages of Proper Public Investment Project Management

Proper public investment project management provides benefits and advantages that translate into improved success and effectiveness. According to Vorgers et al. (2022), one of the main benefits is improved transparency and accountability, which is essential for the efficient use of public resources. Effective accountability, according to Williams et al. (2020), has an impact on whether projects can be delivered within the agreed time frame and budget, as well as contributing to greater public confidence in the public institutions responsible for their implementation. Furthermore, as mentioned by Andújar-Montoya et al. (2020), the use of methodologies and tools for training human talent improves environmental impacts, reduces risks, and increases the use of improvement plans and corrective measures.

This is why proper project management promotes continuous improvement and helps generate innovation processes. Furthermore, according to Moradi, S et al., (2024), it facilitates more efficient decision-making based on accurate and reliable data, promoting the ability to adapt to change and reducing bureaucratic barriers. This is in line with the views of Pysmenna and Drozd, N. (2024), who mention that improving these processes increases operational efficiency and improves the final quality of the infrastructure or services provided. According to Williams et al. (2020), this optimization also significantly reduces the risks associated with corruption and contractual disputes, ensuring greater compliance with regulations and customer satisfaction.

The importance of proper management in public investment projects.

It is important to highlight that proper project management plays an important role in decision-making, the use of public resources, and cost reduction. As Rowe et al. (2024) argue, one of the most relevant aspects is society's credibility in public administration.

Similarly, Blaskovics et al. (2023) provide a significant perspective on the value of management, considering that proper management can mitigate risks and increase transparency, aspects that should be decisive in building public confidence in public administration. This approach to management ensures that public investment projects meet their objectives in terms of implementation, paving the way for the achievement of strategic objectives that contribute to the economic and social development of the territory.

Another fundamental aspect to highlight is the improvement in decision-making based on scorecards defined within the project, identifying roles and responsibilities. In this same vein, Fareed and Su (2022) note that project governance in the public sector not only allows for a more efficient allocation of resources, but also a decrease in conflicts and greater alignment with institutional goals. This coincides with the views of Yabar-Ardiles et al. (2023), who argue that effective project management not only allows for smoother execution, but also helps to strengthen accountability and quality in the administrative management of public resources.

Similarly, the study by Fukuzawa et al. (2022) notes that proper management of public investment projects is related to mitigating the impact of emerging risks and reducing unforeseen situations. On the other hand, the study by Liu et al. (2020) illustrates that management processes and digitization consolidate the operational resilience of public institutions, providing the possibility of achieving efficiency and contributing to the continuity and sustainability of public works.

Another considerable benefit generated by proper management is the reduction in the likelihood of failure of critical processes such as risk management and change management, which are closely linked to the success of the project being developed. According to Rowe et al. (2024), controlled flexibility in the regulatory framework reduces significant delays and preserves the institutional image. For their part, Atli and Krystallis (2025) mention that flexibility contributes to more agile project management and the continuous improvement of public investment execution by ensuring that project execution generates the expected utility and public confidence.

Finally, it is clear that good management of this type of public investment project facilitates the integration of tools and practices that ensure good inter-institutional coordination, effective communication, and stakeholder participation. Researchers such as Blaskovics et al. (2023) emphasize that the implementation of methodologies adapted to the public sector context promotes the improvement of internal processes. Alzayed

(2024) also notes that these methodologies contribute to greater transparency and social responsibility. Not only in the technical improvement of project execution, but also in more comprehensive and sustainable governance, which are fundamental elements in the execution of public resources.

METHODOLOGY

This research is limited to a qualitative approach through which the problems and limitations that public investment projects may face are analyzed in order to properly implement successful project management methodologies. According to Krikushenko, M. (2025), this methodological approach allows for an explicit analysis of the most important elements of social phenomena. It also allows for research into different dimensions and realities of the object of study. According to Fort, A. (2020), these elements are important for understanding the dynamic nature and possible changes in the context under study.

In terms of scope, this study focuses on a descriptive approach, which allows us to specify the characteristics and contexts that restrict the management of public investment projects. According to Furidha, B. (2024) and S. Siedlecki (2020), this method allows for a systematic and organized description of the intrinsic elements of the phenomenon under study, providing a realistic presentation of the events and features perceived in the natural environment.

With regard to methodological design, a documentary review of the literature was conducted, focusing on a research process of recent studies that focus on the limitations and barriers evident in the management of public projects. From the point of view of Martínez-Corona et al. (2023), this research method is characterized by the systematic use of secondary sources to make a connection between existing information and the phenomenon under study, and subsequently analyze the existing information in order to conduct in-depth research on the subject.

Therefore, the study is based on a documentary review focused on analyzing the perspectives provided by academic literature on the barriers that hinder the successful administration of public investment projects. It takes into account elements such as the connection between the protocols defined in reference documents and the practice of public administrators, as well as the impact of ethical, methodological, regulatory, and pragmatic elements on project execution.

Research techniques and instruments

The main technique chosen for data collection in this research was a review of the academic literature, carried out by constructing and managing a document corpus, structured with the support of Microsoft Excel.

Although the document corpus has been the main tool for collecting, organizing, and analyzing information on public investment project management, its design has also made it possible to relate the authors' theoretical perspectives in order to achieve a comprehensive understanding of the state and problems of project management in the public sector. The following aspects were considered in its design:

- Identification and compilation of problems and deficiencies in public investment project management evidenced in each source of the corpus.
- Recording of specific objectives.

- Analysis of the methods and procedures described, which made it possible to characterize the strategies used to diagnose problems and evaluate best practices.
- Synthesis of results and recommendations from each study or report, facilitating the detection of trends, common challenges, and possible applicable solutions.
- Critical exploration of conclusions to assess their relevance and contribution to the effective improvement of public investment project management.

In short, with the consolidated documentary corpus, it was possible to carry out a detailed and analytical review of research related to the subject of study, using significant official regulations and reports as a reference, which allowed for an analysis from a well-founded and up-to-date perspective.

Research phases

With regard to the process of searching for and selecting bibliographic sources, a search equation was structured based on keywords related to the subject of study, including the following: "practices," "project management," "public investment," and "government." These were also combined with Boolean operators (AND, OR), which allowed the terms to be integrated and, in this way, the general search equation to be constructed.

The bibliographic sources were consolidated based on a review of the Scopus scientific database, thereby ensuring the scientific quality and validity of the studies selected and analyzed during the period from 2020 to 2025. The selected sources belong to indexed publications, scientific articles, postgraduate theses, and chapters from books specializing in the subject of study.

The inclusion criteria used were: works related to successful project management in the public sector, publications in Spanish and English, articles that included empirical results, systematic reviews, and articles associated with documents published in the last five years. Exclusion criteria were also considered: documents that do not explicitly address issues related to project management in the public sector, bibliography without methodological support, studies that repeat some results, and research that does not include recommendations.

The research process was organized into three phases. First, primary sources of information were collected and searched, where the previous information search strategy was finalized and documents that met each of the defined criteria were selected. To this end, a solid documentary base was constructed that adequately represents the field of study.

Subsequently, the documentary corpus was organized for further analysis. To this end, the information was systematized using analytical matrices that allowed the studies to be classified according to their objectives and methodological approaches. Synthesizing the information enabled a critical reading to be carried out, identifying common patterns, research gaps, and good practices in project management in the public sector.

The final phase of the study focused on formulating guidelines and recommendations aimed at overcoming the barriers that arise in the management of public investment projects.

RESULTS

The results of the research process are geared toward meeting the study objectives and developing the phases proposed in the methodological design.

- Results of the first stage

In the first stage of this research, primary sources of information were searched for and collected, applying the document selection strategy previously designed and defined in the methodology. The purpose of this stage was to identify recent studies addressing the limitations in the management of public investment projects. The sources consulted came from the SCOPUS academic database, which ensured the quality and relevance of the sources consulted.

Studies published in the last five years were established as the temporal inclusion criterion, taking the years 2020 to 2025 as a reference, in order to ensure the relevance of the findings and methodological approaches analyzed. The search strategy combined keywords such as “management,” “projects,” “public investment,” and “success,” using Boolean operators (AND, OR). Additional filters were then applied to exclude studies that did not meet the criteria of relevance and rigor, or that did not directly address the subject of the study.

After the initial screening, 91 documents were initially identified. Following an exploratory reading of titles, keywords, and abstracts, those that did not meet the relevance criteria were discarded, reducing the number to 75 potentially relevant studies. These were then subjected to a detailed and analytical reading, applying the established inclusion and exclusion criteria. Finally, 62 sources were selected to form the definitive documentary corpus for analysis.

Once the corpus was consolidated, the documents were organized into a matrix created using Microsoft Excel software. This matrix was designed based on the following fields: study title, authors, year of publication, country of origin, type of document, methodological approach used, practice or methodology used, limitations or problems encountered, and main findings. This systematization made it possible to identify emerging categories and common patterns around the factors that limit the adequate management of public investment projects. It was also identified that the use of practices and methodologies in project management in the public sector is a factor that guarantees their success. Likewise, a bibliometric network was constructed (see Figure 1) that integrated various key aspects related to the object of study, allowing for a broad and structured view for subsequent analysis.

Figure 1. Keyword co-occurrence network



Note: The figure shows key aspects of the factors that limit the management of public investment projects. Source: Vosviewer.

The construction of the semantic network uses the full counting method, setting a threshold of at least three matches in the co-occurrence of keywords. This map highlights the relationship between the practices that guarantee the success of projects in the public sector and the main limitations faced by this type of project; significant limitations in the integration of methodologies, deficiencies in technical planning, administrative management (Liu et al., 2020); and the gap in cognitive flexibility and resistance to change (Lee et al., 2020). In addition, representative constructs such as citizen participation and innovation were identified (Dias et al., 2023). Therefore, following the authors' approaches, the use of practices (Andújar-Montoya et al., 2020) that involve the need to improve technical, training, administrative, and cultural skills in order to transform project management in the public sector becomes relevant.

- Second phase results – Analysis

The results of the second stage of the research reveal that project management in the public sector faces various challenges, which hinder the achievement of the expected objectives. Academic literature indicates that the barriers affecting this process are: the low use of project management methodologies that ensure coordination among stakeholders and reduce conflicts during implementation; deficiencies in technical and administrative planning, resulting in delays, cost overruns, and weak supervision during project development; there is also evidence of a gap in cognitive flexibility and recurrent resistance to change on the part of those responsible for project management and supervision, which contributes to low efficiency in contract execution and works control. Consequently, the following sections present the findings of some studies that address these issues.

Lack of project management methodologies

Based on a review of the literature, authors such as Alragabah and Ahmed (2024) have identified that one of the main factors limiting project management in the public sector is the absence or inadequate use of methodologies, as they are not adapted to the specific characteristics of the public sector. Funes (2022) reaffirms this limitation, identifying that the limited use of methodologies has a direct impact on recurring problems such as extended deadlines, insufficient resource allocation, and lack of coordination among the actors involved.

In turn, this problem is exacerbated by the limited implementation of technological strategies that promote greater stakeholder participation throughout the project life cycle. This is consistent with the findings of Adedokun et al. (2024) and Yi et al. (2021), who emphasize that the limited inclusion of stakeholders leads to poor formulation of strategic objectives and insufficient analysis of social needs, resulting in projects being perceived as alien to communities.

Along the same lines, research such as that by Akhorshaideh (2024) and Alragabah and Ahmed (2024) shows that the absence of project management methodologies prevents the promotion of collaboration and effective communication between different entities and actors in the public sector. These studies coincide with the findings of Fareed and Su (2022), who note that the lack of methodologies to facilitate inter-institutional coordination, improve governance, and strategically align the actors involved leads to redundancies, conflicts, and errors in execution, causing delays in administrative procedures. Therefore, methodological adaptation not only involves incorporating techniques, but also developing interaction processes appropriate to the institutional complexity of the public sphere.

For his part, Gasik (2023) has pointed out that generic methodologies used in other types of projects, when implemented without the necessary adaptation, do not meet the needs of the public sector. Specific factors such as bureaucracy, accountability, and transparency lead to improvised or partial use of project management methodologies. An insufficient contextualization of the methodological use of strategies makes it impossible for managers to develop the ability to anticipate and manage the risks of public investments.

Finally, research by Alragabah and Ahmed (2024) found that overcoming these challenges requires developing and promoting project management methodologies that integrate technical, social, and political elements specific to the public sector, prioritizing stakeholder participation and alignment with specific social objectives. Secondly, Alragabah and Ahmed (2024) assert that this proposal implies a cultural and training change in public project managers, so that they adopt flexible, collaborative, and impact-oriented approaches, thus ensuring more successful management that is relevant to the demands of the sector.

Deficiencies in technical planning and administrative management

There are notable deficiencies in the technical planning and administrative management of project managers today. According to Lee et al. (2020), these shortcomings impact schedule compliance, resource use, and risk management. This statement is fundamental, as technical planning is not only the starting point for formulation, but also guarantees the basis for good management throughout the project life cycle. In line with this approach, Gasik (2023) argues that inadequate identification of the social problems detected and flawed formulation of the proposed objectives directly affect the expected impact of public investment projects.

Exploring this limitation, Andújar-Montoya et al. (2020) point out that poor initial planning creates gaps between stakeholders, permeating a culture that generates conflicts, delays, and poor supervision of the work. Similarly, Nezami et al. (2024) emphasize that in contexts where public investment is key to closing social and economic gaps, these shortcomings impact people's social well-being and allow corruption to permeate these types of projects.

On the other hand, Moradi et al. (2024) emphasize the urgent need to adopt management models that integrate early collaboration between public and private entities as a mechanism to improve planning and administration. Fan et al. (2024) highlight that the shift towards collaborative projects by government entities, target individuals, and the project team could mitigate current deficiencies through incentives that improve transparency, fluid communication, and joint risk management. This collaborative approach fosters an environment where technical planning is not limited to its initial phase but is kept alive through dynamic and sustained adjustments in coordination with all stakeholders.

Considering the overall picture, Cairampoma-Caro et al. (2022) show that there is a gap in the use of tools that affect technical planning, cost and execution time control, and the quality of care provided. Rowe et al. (2024) address and argue this issue, highlighting the need to adapt the tools used in public contract management in response to the technical and administrative deficiencies that are currently lacking.

Furthermore, Yabar-Ardiles et al. (2023) conclude that weaknesses in administrative management are the result of design problems, low professionalization, lack of motivation, and poor communication. Fan et al. (2024) refer to the importance of

modernizing supervision and risk management, in line with the approach of Zaytsev (2020), who proposes a process of transforming public management with information technologies and stricter controls, thereby improving the planning, execution, and management of public investment projects.

Cognitive flexibility gap and resistance to change

Based on a review of the literature, Nayef and Bilani (2024) conclude that the skills and knowledge management of senior management are decisive for the success of public projects, as these factors influence decision-making. According to Alzayed (2024), there is evidence of a gap in cognitive flexibility and resistance to change among managers responsible for supervising and monitoring public projects.

For their part, Kulakov et al. (2023) assert that the lack of specific training in public procurement and experience in project management leads to resistance to change, which can limit the possibility of incorporating innovative management practices or technologies to assist in project planning and monitoring. That said, Horenko's (2024) analysis identifies that poor training and capacity building in an emerging economy such as the current one is the cause of ineffective management, which is interpreted as resistance to the use of digital tools, poor knowledge management, and cognitive gaps on the part of those responsible for projects (Liu et al., 2020).

The study of this limitation highlights a lack of skills, which not only impacts the effective operation of projects that lack them, but, according to Irfan et al. (2021), is also a limiting factor when it comes to implementing specific methodologies and modern management tools that have been a key success factor in other scenarios. Similarly, Dias et al. (2023) indicate that a manager with training deficiencies has difficulties in detecting and anticipating contingencies, negotiating unfavorable contract clauses, and quickly resolving unforeseen events that may arise.

Furthermore, as mentioned by Funes (2022), it is important to highlight that a deficiency in the level of skills and updating to current tools affects the daily operation of projects and also acts as a barrier to planning and the real identification of society's problems. As emphasized by Fareed et al. (2021), managers with low levels of training and experience encounter problems in aligning project objectives with departmental and national policies and regulations, an increase in observations in audits or fiscal review processes, and a lack of strategies to highlight achievements and progress, reducing political or citizen support. In turn, Chandrachoodan et al. (2022) argue that interorganizational cooperation can help design change management strategies that reduce resistance and improve the capabilities of public investment project managers.

One of the noteworthy aspects of the analysis is the effect of the skills gap on the motivation and professional ethics of different public managers. Research such as that conducted by Momen and Behbahaninia (2021) confirms that the cultural role in which project managers are immersed can impact attitudes of resistance to change and conformism, potentially creating gaps where supervision loses effectiveness and, therefore, giving rise to spaces that can be exploited for unethical practices or to promote inefficiency. This reinforces the perception of the need to work on technical training but also on strengthening a culture of professional ethics that favors continuous improvement.

- Third phase results – Discussion

Inadequate management of public investment projects leads to stagnation in the socioeconomic development of communities. Specifically, factors such as the failure to

use project management methodologies adapted to a specific context, deficiencies in technical planning and administrative management, as well as the cognitive gap and resistance to change, have a direct impact on the expected outcome. Various scientific studies have documented the relationship between project management and project success. As argued by Faria et al. (2023), the limited use of project management methodologies leads to a lack of coordination between activities, failure to identify the critical path, and low stakeholder participation.

Various studies report on the impact of management methodologies at different stages of the project life cycle. According to Vasyutynska et al. (2025), the absence of appropriate methodologies hinders the implementation of citizen participation mechanisms, limiting the adaptation of projects to changing environmental conditions and social expectations. According to Villac et al. (2024), this lack of involvement also has an impact on the social appropriation of projects, reducing support and legitimacy, which are fundamental aspects for the sustainability and impact of public investments. Research by Sian et al. (2020) reinforces this idea, pointing out that participation and collaboration are crucial for defining clear, realistic objectives that are aligned with real social needs.

On the other hand, Faria et al. (2023) show that the limited use of methodologies not only impacts resource management and work plans, but also limits the ability to identify and manage risks. As Vorgers et al. (2022) point out, risk management in the public sector is the result of contextualized approaches that consider the particularities of the institutional, social, geographical, and political environment, according to researchers Williams et al. (2022), risk management in the public sector is the result of contextualized approaches that consider the particularities of the institutional, social, geographical, and political environment. According to researchers Williams et al. (2020), the lack of methodologies means that managers must resort to traditional practices, which are often insufficient given the complexity and dynamics of public projects. As a result, problems such as failure to deliver, conflicts related to the expectations of different stakeholders, and budget deviations become frequent. This increases the vulnerability of public sector projects and reduces the likelihood of success, diminishing sustainability and environmental management (Kolaventi et al., 2021).

Finally, it is important to highlight that although some project managers use generalized methodologies, there is no evidence of a methodological approach adapted to the context of each project, which directly affects the formulation of clear and measurable objectives, which in turn minimizes the expected social impact. These are fundamental aspects according to Fareed and Su (2022), who reinforce the importance of the perception of success and credibility in government entities. The research conducted by Fukuzawa et al. (2022) agrees with that expressed by Sheng et al. (2020) and Salman, A. (2025), who point out that without specific methodologies, it is difficult for project managers to design adequate performance indicators and evaluate the real impact generated. A common trend can be observed with the arguments of Fukuzawa et al. (2022), who maintain that the absence of monitoring and evaluation mechanisms generates a limited view of the scope of the project, impacting its sustainability, as argued by Villac, M et al. (2024) on its sustainability, making it difficult to identify errors and implement corrective actions in a timely manner, thereby reducing the social profitability of projects.

Despite approaches that reinforce the impact of project management on achieving positive results, gaps remain that limit understanding of the implementation of

methodologies appropriate to the public sector. Almost all research on the subject has failed to describe how the adoption of specific methodologies or practices modifies the performance, risk management, or social sustainability of projects in the long term. Investigating the relationship between variables such as changes in the economy over time and the changing needs of communities based on the implementation of methodologies adapted to contexts could open up new perspectives that expand knowledge about the conditions that lead to the success or failure of public projects over time.

The limitations associated with deficiencies in technical planning and administrative management are among the most significant constraints to the successful management of public investment projects. According to Nilsson Vestola et al. (2021), these limitations directly impact the development and completion of projects, causing a cascade effect that affects compliance with the implementation schedule, as well as the quality of the final results to be achieved.

A review of the literature reveals that irregularities in the identification and formulation stages prevent the necessary resources for project implementation from being properly identified, leading to cost overruns, delays, and legal problems. This, coupled with poor coordination between the different actors involved, further exacerbates the problem, creating a significant constraint on the success of public projects. As Zaytsev (2020) states, the use of agile or adaptive methodologies could close the gap of delayed procedures and bureaucracy in the public sector.

In this regard, Sheng et al. (2020) and Setiawan (2021) also confirm that deficiencies in technical planning, mainly the lack of adequate preliminary studies, risk identification and assessment, resource identification, and the formulation of expected objectives, lead to public projects being geared toward singular benefits rather than the expected overall social impact. In general terms, and as stated by Cheng et al. (2021) and Fan et al. (2024), it is evident that the early identification of risks and the development of management plans contextualized to the reality of the project favor timely decision-making and could reduce the possibility of facing unexpected situations. Thus, planning methodologies with the active participation of the people involved could be strategies that contribute to a better alignment of available resources and the formulation of proposed goals (Faria et al., 2023).

Recent studies such as that by Sian et al. (2020) show how poor administrative management also limits effective oversight, affecting cost control and the quality of works. The lack of adequate mechanisms for auditing and verifying progress, coupled with the use of traditional (Blaskovics et al., 2023) and uninnovative (Akhorshaideh et al., 2024) contractual practices, prevents the timely detection of possible deviations in the project. As Zaytsev (2020) states, in order to address these limitations, it is necessary to incorporate modern management approaches, such as results-based management, control schemes, and the application of digital technologies that promote more transparent and efficient supervision.

It is important to highlight that there is a significant gap in the literature review, since although public sector projects share similar characteristics, they depend on specific regulations in each country, making it difficult to conduct a realistic analysis of the limitations in a specific environment. This opens up the possibility for future research that focuses on relating administrative planning and management to the legal regulations

of a specific context in order to verify whether there are strategies for improvement in these areas.

Finally, according to Napolskikh (2021), the complexity of institutional contexts and the lack of experience with innovative management approaches reinforce the need to increase the capacities of project managers and promote a management culture based on evidence and good practices. One factor that has a significant impact on the successful completion of public projects is the lack of technical and administrative skills among the professionals who lead them.

Studies such as that by Blaskovics et al. (2023) have revealed that specialized training and experience in public procurement are vitally important for managing projects in the public sector. Resistance to change (Yapicioglu, 2023) among some managers, a lack of skills in public procurement, and an aversion to adopting new methodologies hinder proper planning, management, and control. According to Moradi et al. (2024), these perceptions, often rooted in the culture or environment in which the project manager operates, directly influence the quality of results, reducing the effective use of resources. This is consistent with the research of Karaeva and Magaril (2023), who mention that these perceptions create a cycle in which decisions made by project managers generate delays that are evidenced by insufficient training, a lack of updates on digital tools, and a lack of knowledge of the project management methodology. (2023), who mention that these perceptions generate a cycle in which the decisions made by project managers cause delays that are evidenced by insufficient training, poor updating of digital tools, and low openness to change, which are notable problems for facing today's emerging circular economy.

In view of this problem, the implementation of new tools such as digital software for document management, risk analysis, and contract management is proposed. However, this adaptation requires advanced and up-to-date technical knowledge that in many cases is not present in the teams responsible for the projects. This situation is reinforced by the findings presented by Blaskovics et al. (2023), who highlight that public project management is limited to traditional practices that are not very adaptable to social environments. According to Kolaventi et al. (2021), this limits the capacity for innovation and continuous improvement, affecting the achievement of desirable results and the sustainability and environmental management of the investments made.

On the other hand, according to researchers Yapicioglu (2023) and Akhorshaideh et al. (2024), resistance to change, rooted in rigid bureaucratic structures and the organizational culture of public entities, hinders the incorporation of innovations and good practices that, if adopted, could significantly reduce management failures. As Napolskikh (2021) and Khalfan et al. (2022) point out, the implementation of continuous training and specific professional development programs in project management and public procurement are essential strategies for enhancing staff capabilities and fostering a culture of continuous improvement.

Research conducted by Blaskovics et al. (2023) found that continuously updating methodologies, tools, and practices that are successful in the private sector allows project managers in the public sector to more effectively address the challenges inherent in this sector, where environments are dynamic and changing, and project management is permeated by financial, political, economic, and social problems (Vasyutynska et al., 2025).

The above coincides with the findings of Mossalam (2020), who points out that enhancing human resource capabilities in project management and moving towards a culture of innovation and learning is an important way to overcome these limitations and make significant progress in improving the quality of public investment performance. Likewise, as Starchenko (2022) reinforces, it is necessary to have a group of versatile professionals in public project management, from experts with significant experience and expertise to young professionals who are up to date in terms of innovation and digital tools and who can add value to the work team.

Considering the complexities involved in project management in the public sector, emerging research should study the design and evaluation of management practices that highlight training and awareness in the use of adaptive methodologies by public managers, which are influenced by political and social factors and the specific characteristics of each environment. The use of participatory approaches that improve the relationship with the actors involved enhances social appropriation, monitoring, evaluation, and the identification of problems from the outset of the project. The integration of other demographic variables such as level of education, degree of experience, or even perception of institutional management could contribute to the analysis of the importance of the project manager's role in decision-making. Emphasis is placed on the need to combine factors such as experience with innovation as a fundamental axis in the training of project managers for the public sector.

Proposal for the implementation of management practices

The literature highlights the importance of implementing good practices in project management. These practices draw on the skills of project managers to find better programming guidelines, implement information and communication technologies, and improve the participation of all stakeholders throughout the project life cycle. In addition, Bigwanto et al. (2024) mention that it is necessary to promote technical, organizational, and communication skills, which, as Kolaventi et al. (2021) indicate, involves collaborative contract management to improve results. Good management practices are the basis for improving the effectiveness, transparency, and sustainability of projects.

Adedokun et al. (2025) point out that adaptive project planning can combine agile and traditional methods that are tailored to the specific context and seek to involve all key stakeholders, which represents a significant change for improving institutional and social well-being. Similarly, Volden and Welde (2022) point out the importance of continuously evaluating results, not only at the end of the project but throughout its duration, which leads to greater efficiency in the expected results. They also emphasize the need for a change in decision-making by project managers, integrating their experience and technical knowledge with the possibility of innovation and continuous change. Finally, Blaskovics et al. (2023) highlight that the objective formulation stage is the main practice that needs to be strengthened, as this activity determines the identification of resources, stakeholders, and activities that will be part of the project.

CONCLUSIONS

The results of the literature review have shown that the optimal management of public investment projects has structural limitations arising from technical planning and administrative management, compounded by the application of methodologies that are not adapted to their context. These limitations tend to make it difficult to identify the

real problems in the target population's environment, which hinders the planning of objectives that impact society. In addition, there is evidence of late identification of risks, deficiencies in resource allocation, and, consequently, a negative impact on the effectiveness, sustainability, and social legitimacy of the projects.

It is claimed that the use of methodologies that are both participatory and adaptive is a very important factor in coordinating the management of the different actors involved in public sector projects, enhancing the capacity to respond to changes that may arise in different environments, facilitating social ownership of projects, improving control and evaluation management, promoting transparency, and generating more socially relevant results.

The results highlight the importance of promoting the technical and administrative skills of public managers. In addition to overcoming cultural and organizational barriers that improve resistance to change. Continuous training in project management, public procurement, and the use of advanced technological tools is presented as a fundamental pillar for increasing efficiency and reducing budget and schedule deviations.

This systematic review of the literature determines that a balanced use of innovation practices and adaptability with experience is key to transforming the management of public investment projects into a more resilient and results-oriented process. Future research could address, from an empirical perspective, how the use of management methodologies anchored in the social issues of the environment, which take into account political, economic, and social problems in the specific context of the project from the planning stage onwards, can be applied.

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