ASSESSING THE IMPLEMENTATION OF PROJECT MANAGEMENT IN PUBLIC ADMINISTRATION: A PEST ANALYSIS APPROACH

Raushan Kambar *, Rymkul Ismailova **, Aigul Aitbayeva ***,
Sabit Mukhamejanuly ****, Yerzhan Zharov *****

* The Republican Educational and Methodological Center for Additional Education, the Ministry of Education of the Republic of Kazakhstan, Astana, Kazakhstan
** School of Digital Public Administration, Astana IT University, Astana, Kazakhstan
*** Astana IT University, Astana, Kazakhstan
**** Narxoz University, Almaty, Kazakhstan
***** *Corresponding author,* Academy of Public Administration under the President of the Republic of Kazakhstan, Kokshetau, Kazakhstan
Contact details: Academy of Public Administration under the President of the Republic of Kazakhstan,
87 Abaya Street, 020000, Kokshetau, Kazakhstan

Abstract

This paper examines the level of project management (PM) implementation in the public administration system of the Republic of Kazakhstan, identifying the key factors that influence its successful adoption. The study aims to explore how political, economic, social, and technological (PEST) factors shape the institutionalization of PM in government. A qualitative research methodology is used, combining PEST analysis with a review of legal frameworks and expert evaluations. The findings reveal that social and technological factors, such as insufficient human capital and underdeveloped digital infrastructure, exert the most significant influence on implementation outcomes. Political constraints, including bureaucratic rigidity, and economic limitations, such as inadequate funding, also present major barriers. The study concludes that comprehensive institutional reform — particularly in digitalization, capacity building, and regulatory improvement — is essential for the effective adoption of PM practices. This research contributes to the growing body of literature on public sector PM (Crawford & Helm, 2009; Heeks, 2006) and highlights the relevance of context-sensitive implementation strategies in developing countries. The study's relevance lies in its potential to guide Kazakhstan's public administration toward more efficient and accountable governance through the structured use of project-based methods.

Keywords: Project Management, Public Administration, PEST Analysis, Digital Transformation, Kazakhstan

Authors' individual contribution: Conceptualization — R.K., R.I., and A.A.; Methodology — R.K. and A.A.; Software — S.M.; Validation — R.I.; Formal Analysis — R.K. and A.A.; Investigation — R.K., R.I., and A.A.; Resources — R.I.; Writing — Original Draft — R.K. and A.A.; Writing — Review & Editing — R.K., R.I., A.A., and Y.Z.; Visualization — S.M.; Supervision — R.I.; Project Administration — A.A.

Declaration of conflicting interests: The Authors declare that there is no conflict of interest.

1. INTRODUCTION

Project management (PM) has emerged as an independent discipline over recent decades, encompassing processes that are of critical importance to academia, practitioners, and public policymakers alike. The adoption of PM methods in the public sector significantly contributes to the achievement of governmental strategic objectives and enhances managerial capacity (Arnaboldi et al., 2004; Locatelli et al., 2023).

International organizations such as the Organisation for Economic Co-operation and Development (OECD) and the World Bank stress the importance of implementing PM in the public sector in order to improve transparency, accountability, and overall performance (OECD, 2023; Beschel et al., 2018). Furthermore, research from the European Union demonstrates that a project-based approach to managing public initiatives leads to more efficient resource allocation and an increased level of trust among both citizens and businesses.

Despite these positive international experiences, the implementation of PM in Kazakhstan's public sector faces several challenges. Domestic studies indicate that PM in Kazakhstani governmental agencies is implemented in a fragmented manner and is hindered by political, economic, social, and technological (PEST) barriers (Issenova et al., 2024). Under the "Kazakhstan Development Strategy until 2050", the government executes numerous state projects annually; however, analysis reveals that approximately 70% of these projects are performed inefficiently, untimely, or fail to reach completion (Taizhanova, 2017).

Scientific research confirms that PM is a powerful tool for planning, organizing, and controlling, which enhances the operational effectiveness of public institutions. In an environment characterized by resource scarcity and the need for increased productivity, the public sector requires a systematic approach to applying PM methods (Abbasi & Al-Mharmah, 2000).

Despite the growing interest in this area, a significant literature gap remains regarding the comprehensive evaluation of PM implementation in the public sector of post-Soviet states, including Kazakhstan. Most existing studies focus on individual case studies or sectoral assessments, while broader frameworks analyzing systemic factors and future prospects remain limited.

Therefore, this study aims to fill this gap by addressing the following research questions:

RQ1: What is the current stage of project management development in the public sector of the Republic of Kazakhstan?

RQ2: Which factors exert the greatest influence on the evolution of project management within Kazakhstan's public administration system?

RQ3: How likely are changes in these influencing factors over the next 3–5 years?

The overall aim of this research is to evaluate the current state of PM implementation in Kazakhstan's public sector and to analyze the key factors that determine its successful application.

To achieve this aim, a mixed-methods approach was employed, including content analysis of legal and strategic documents, as well as expert interviews with a structured questionnaire targeting public officials and experts with relevant PM experience. A PEST analysis served as the conceptual and analytical framework for identifying and assessing key external factors influencing PM adoption.

The significance of this study lies in its practical and theoretical contributions. Practically, the findings offer evidence-based insights for policymakers to design and implement more effective project governance frameworks. Theoretically, it contributes to the evolving discourse on public sector modernization and project-based management in developing and transitional economies.

The structure of this paper is as follows. Section 2 presents the theoretical background and relevant literature on PM in the public sector. Section 3 describes the research methodology, including the design of the expert interviews and the PEST framework. Section 4 discusses the results of the empirical research and provides a detailed analysis of the identified factors. Section 5 offers a discussion of the implications, and Section 6 concludes the paper by summarizing key findings and providing recommendations for policy and further research.

2. LITERATURE REVIEW

The Project Management Institute (PMI) defines a project as a system of operations (or tasks) that is constrained by time and cost and aimed at achieving a set of predetermined outcomes or products that meet specified quality requirements and standards (PMI, 2017a). In addition, a project is regarded as a purposeful activity initiated by an individual, and it may be legitimately recognized as such by stakeholders if it encompasses a unique scope of work constrained by resources such as labor, materials, and time, as well as by budgetary limitations. Its primary objective is to create or modify a product or service to achieve significant transformations measurable both quantitatively and qualitatively (Cooke-Davies, 2001).

The notion of a "temporary endeavor" implies that projects have a clear start and end point, unlike ongoing operations. They are distinct in that they aim to deliver a specific outcome within a limited time frame, often involving multiple tasks and stakeholders (PMI, 2021; Kerzner, 2022). These characteristics highlight the importance of planning and coordination in achieving results within the given constraints.

The Oxford Dictionary defines a project as "a planned piece of work that is designed to find information about something, to produce something new, or to improve something" (Oxford University Press, n.d.). Consequently, PM is seen as a temporary management approach used to implement changes within organizations, teams, or broader social systems. It requires the engagement of individuals at different organizational levels — ranging from assistants to senior managers (PMI, 2017b). PM incorporates a set of tools and techniques designed to coordinate and efficiently utilize human, material, and informational resources to accomplish a unique task under constraints of time, cost, and quality. Depending on the specific objective, the applied methods are tailored to fit the environment and lifecycle of the task — from initiation to closure (Atkinson, 1999; Turner & Müller, 2017).

Recent literature emphasizes PM as a strategic competency in the public sector. For example, Müller et al. (2019) argue that structured PM enhances

transparency, public accountability, and service effectiveness in government organizations.

Phillips (2004) further notes that PM is a process of coordinating and controlling team activities aimed at achieving defined objectives while adhering to established constraints. In recent years, there has been a growing interest in adapting PM practices within the public sector. For instance, Irfan et al. (2021) conducted a meta-analysis and survey-based research that revealed the significant impact of project planning and project manager competencies on the success of public sector projects. Their findings suggest that planning has a strong positive effect, while competency has a moderate effect, emphasizing the importance of structured capacity-building within government agencies.

Crawford and Helm (2009) argue that the implementation of PM methods in government agencies enhances transparency, accountability, and risk management. However, research indicates that the successful application of these methods largely depends on the maturity of PM practices, the development of competencies, and the ability to adapt to change (Aubry et al., 2009).

Zada et al. (2023) examined the role of public leadership and found that goal clarity and top management support were critical enablers of PM effectiveness in public organizations. Khan et al. (2023) extended this by identifying team-building as a mediating variable between leadership and project success, especially within hierarchical public-sector teams.

Stuckenbruck (1981) highlighted early on that PM methods could support the development of emerging economies by offering structured approaches to managing limited resources. More recently, OECD (2020) emphasized that digital transformation projects in public administration require adaptive methodologies and strong project governance.

A group of researchers investigating projects executed by the Italian Ministry of Finance using PM methodologies found that the proper application of PM concepts and techniques helps prevent project failures, ensures continuous communication, and establishes an effective control system (Olateju et al., 2011).

Contemporary practices, such as Agile PM, are increasingly used as alternatives to the traditional waterfall model, especially in information and communication technology (ICT) projects. Agile methodologies are iterative and flexible, promoting collaboration and adaptability to change (Beck et al., 2001; Rigby et al., 2018). Their application in the public sector is growing, but challenges remain — including the need to reform hierarchical organizational structures and improve staff competencies (Grebic, 2019; Misuraca & Viscusi, 2020).

Puron-Cid (2014), in his study of ICT project initiatives within the framework of open government, observes that economic, social, political, and technological factors all impact project implementation. To broaden the perspective on adopting PM in the public sector, Turner (2014) emphasizes that successful PM requires strategic alignment of policies and operational processes, as well as a flexible management structure.

Meredith and Mantel (2011) noted the importance of adapting traditional project tools to the specific needs of public institutions. Their view is shared by more recent scholars, for example, Kartov (2020), who argue that rigid bureaucratic systems and unclear accountability mechanisms reduce the efficiency of PM in the public sector.

An analysis of international practices has revealed that one of the key challenges in implementing PM in the public sector is the low level of integration of information systems and the complexity of service delivery algorithms. According to Heeks (2006), up to 85% of e-government projects are partially or completely unsuccessful due to the absence of a clear strategy, inadequate infrastructure, and regulatory gaps. Moreover, Sarantis et al. (2009) emphasize that traditional PM methods do not always consider the specific requirements of e-government, resulting in a disconnect between citizens' expectations and the actual provision of digital services. Key issues include a shortage of qualified personnel, bureaucratic hurdles, and the lack of effective coordination mechanisms among agencies.

Another important research direction concerns the adoption of Agile in public projects. Grebic (2019) maintains that implementing Agile in ICT projects within the public sector necessitates significant organizational restructuring, as traditional functional hierarchies are often incompatible with the iterative nature of Agile approaches. Furthermore, studies by Kerzner (2017) and Lock (2007) highlight the need for a systematic approach to PM to ensure successful project execution under resource constraints. These authors note that implementing PM in the public sector is a more complex challenge compared to the corporate sector, with issues such as the unsystematic implementation of government programs, the simultaneous pursuit of multiple initiatives, and insufficient levels of control. Additionally, the absence of accountability mechanisms for achieving target indicators leads to reduced management effectiveness and complicates policy coordination (Kartov, 2020). Bogdanova et al. (2020) also observe that the public sector, characterized by stringent regulations, high bureaucratic intensity, and hierarchical structures, poses significant obstacles to the application of flexible PM methodologies.

The implementation of PM in Kazakhstan's public sector has progressed through several stages, from the adoption of international standards to the institutionalization of project offices within government agencies. The need for PM in Kazakhstan's public administration was first mentioned in 1997 in the address of the first president of the Republic of Kazakhstan (Ministry of Justice of the Republic of Kazakhstan, 1997). In January 2020, President Kassym-Jomart Tokayev noted that countries such as Norway, New Zealand, and the United States are actively exploring the prospects of implementing Agile in public administration, thereby confirming the trend toward project-based management ("Speech by President Kassym-Jomart Tokayev at a meeting with participants of the presidential youth personnel reserve", 2020). At the first meeting of the Supreme Council for Reforms in October 2020, the Head of State also underscored the importance of adopting PM principles ("The head of state held the first meeting of the Supreme Council for Reforms", 2020).

Regarding the chronology of implementation, the first stage (1997–2016) was characterized by the accumulation of a critical mass of professionals, whereas the second stage, beginning in 2017, involved the practical adoption of PM within

the public administration system. In 2017, the Government adopted the State Planning System, which provides for the application of PM methods and approaches (Ministry of Justice of the Republic of Kazakhstan, 2017). In February 2021, an Executive Order by the Head of State approved the Concept for the Development of Public Administration until 2030, aiming to transition to a "people-centric" model ("People First") through the implementation of a project-based approach (Ministry of Justice of the Republic of Kazakhstan, 2021).

A comprehensive study by Yessengeldina et al. (2024) assessed the maturity of PM offices across several government agencies using the portfolio, programme, and project management maturity model (P3M3) framework. The research showed that most Project Management Offices (PMOs) in Kazakhstan were operating at low maturity levels, characterized by limited integration into strategic processes, underdeveloped monitoring tools, and a lack of training standards.

Battalov et al. (2023) analyzed the implementation of PM reforms in the Almaty city administration following the 2021 presidential directive. The study found that while new structures (such as PMOs and cross-departmental project teams) were created, resistance to change, lack of inter-agency coordination, and insufficient legal anchoring constrained the full realization of project-based governance.

Moreover, the OECD (2025) public governance scan of Kazakhstan validated ongoing reform efforts in PM by highlighting institutional improvements in governance, human resources, and digitalization. The report identified strategic planning and staff training as two of the most underdeveloped areas, but praised the shift towards performance-based budgeting and key performance indicators (KPI) monitoring as key enablers of future project success.

Rekunenko et al. (2025) further underline the significance of digital transformation in public governance, emphasizing that strategic investment in digital infrastructure and skills is key to sustaining project-based reforms. Their econometric findings show that the success of technology-driven initiatives depends not only on innovation but also on leadership and integration into existing processes.

Amirova et al. (2025) focus specifically on Kazakhstan, highlighting how recent reforms are influenced by global innovation trends and the Industry 5.0 paradigm. Their study demonstrates that flexible management tools and project-based models can enhance performance but also pose governance risks if not institutionally anchored.

Supriyono et al. (2025) provide a bibliometric analysis of local government reforms, showing that performance management in the public sector is closely linked to citizen trust and service quality. Their findings reinforce the idea that PM tools can serve as levers for enhancing accountability and long-term impact in administrative systems.

Collectively, these recent contributions align with the classical theories of PM while expanding them to account for public-sector-specific challenges such as political volatility, limited managerial autonomy, and complex stakeholder environments. The literature suggests that for PM to succeed in the public sector, especially in transition economies like Kazakhstan, it must be supported by legislative frameworks, leadership commitment, digital tools, and continuous professional development.

3. RESEARCH METHODS

In this study, qualitative analytical methods were utilized. Specifically, we conducted a content analysis of legal and strategic documents related to public administration and PM in the Republic of Kazakhstan, along with a review of the theoretical and conceptual foundations underpinning the implementation of PM in the public sector. Additionally, expert interviews were carried out to assess the impact of various factors on the development of PM in Kazakhstan's public sector.

For the expert interviews, public officials who met the following criteria were invited:
• a university degree (preferably in public administration, economics, management, law, information technology (IT), or another related field);
• a minimum of five years of experience in public administration;
• practical experience in the development, implementation, and execution of at least three projects in the public sector;
• knowledge of key PM principles, tools, and methodologies;
• the ability to analyze current trends and propose improvements in PM practices;
• possession of PM certifications (e.g., project management professional (PMP), PRINCE2, International Project Management Association (IPMA), Agile) or documented successful completion of specialized PM courses.

The PMP certification, offered by the PMI, is a globally recognized credential that validates an individual's competence in leading and directing projects using predictive (waterfall), Agile, or hybrid approaches (PMI, 2021).

PRINCE2 is a structured PM method developed by the United Kingdom government that provides a process-based approach to managing projects, emphasizing clearly defined roles, product-based planning, and controlled stages (Axelos, 2017).

The IPMA certification system assesses project managers on a competence-based model that includes technical, behavioral, and contextual competencies. It offers four certification levels (A–D) to reflect different levels of responsibility and experience (IPMA, 2015).

Agile is a set of principles for PM emphasizing flexibility, iterative development, stakeholder collaboration, and the ability to respond to change. Agile approaches are especially useful in dynamic and complex project environments (Highsmith, 2009; PMI, 2017b).

A total of 13 experts participated in the study. These experts were selected based on their qualifications and experience in public administration and PM. The selection of interviewees and respondents followed clear and stringent criteria to ensure the reliability and depth of the data collected.

The demographic and professional characteristics of the 13 experts are summarized in Table 1.

Table 1. Socio-demographic characteristics of experts

Variable	Categories	Numbers
Gender	Male	9
	Female	4
Age	30–39 years old	4
	40–49 years old	6
	50+ years old	3
Yeas in public administration	5–9 years	5
	10–14 years	4
	15+ years	4
Project management certification	Yes	11
	No	2
Number of public sector projects	3–5	5
	6–10	4
	More than 10	4
Sector	Central government ministries	6
	Regional/local government agencies	5
	State-owned enterprises/ public corporations	2

The use of expert interviews and content analysis of legal documents is justified by the need for an in-depth examination of the existing legal framework and practical implementation experiences of PM (Jain, 2021). Content analysis helped identify key trends in the regulation of PM (White & Marsh, 2006), while expert interviews provided valuable insights from professionals directly involved in project implementation in the public sector. Additionally, data from a preliminary pilot study were employed to refine the list of factors under analysis.

The primary analytical tool for processing the collected data was the PEST analysis methodology. PEST analysis is a strategic framework used to evaluate external macro-environmental factors — PEST — that can affect an organization, project, or policy. It is commonly applied in public administration to anticipate changes, mitigate risks, and align reform initiatives with evolving external conditions. This approach was selected for its ability to assess the external factors influencing the implementation of PM in Kazakhstan's public administration (Alanzi, 2018). Previous research has confirmed the effectiveness of this method, enabling a systematic evaluation of the PEST dimensions that play crucial roles in the successful implementation of PM (Mohd Noor et al., 2024). In public administration research, PEST analysis is commonly used as a tool for strategic planning and forecasting of administrative processes (Kosherbayeva et al., 2024).

Alternative research methods that could have been considered include quantitative survey methods with a broader sampling strategy or comparative case study analysis. A quantitative approach involving regression analysis could be used to statistically measure the strength of the relationship between identified factors and PM outcomes. Additionally, a comparative case study approach examining the implementation of PM in other post-Soviet or developing countries would have allowed for benchmarking and cross-country insights. However, due to the exploratory nature of this research and the limited availability of standardized indicators and comparative datasets in Kazakhstan's public sector, a mixed qualitative approach was deemed most appropriate for capturing contextual and expert-driven insights.

Data analysis was conducted in several stages: Identification of PEST factors: In the first phase, we analyzed legal acts, strategic documents, scholarly literature, and international reports to identify key external factors. This process involved brainstorming sessions with experts to refine the significant factor categories.

Data collection: In the second phase, data were gathered from various sources, including international and national reports (e.g., from the World Bank, OECD, and World Economic Forum), scholarly research and publications in specialized journals, legal and regulatory documents governing public sector PM, survey responses from public officials and project managers, and statistical information on economic conditions and digitalization levels.

Assessment of impact levels: Experts evaluated the impact of each factor using a three-point scale (1 — minimal impact, 2 — moderate impact, 3 — critical impact). Each factor was assigned an average score based on questionnaires completed by the experts.

Experts then estimated the probability of change for each factor over the next 3–5 years using a five-point scale (1 — extremely low probability, to 5 — very high probability). The average score for each factor was calculated.

Comparison of impact and likelihood of change: To assess the overall effect of each factor, we used the following formula:

$$W_i = \frac{Impact\ level_i}{Sum\ of\ average\ impact\ scores\ for\ all\ factors} * Average\ likelihood\ of\ change_i \qquad (1)$$

where, W_i represents the weighted impact index of factor i, *impact level$_i$* is the average score on the three-point scale, and the *average likelihood of change$_i$* is the mean value on the five-point scale.

Formation of the final matrix: In the final stage, the results were presented as a matrix, with factors ranked according to their priority. Recommendations were provided for each factor to either minimize risks or leverage opportunities.

The PEST analysis enabled us to identify the most significant external factors influencing the development of PM in Kazakhstan's public administration. This analysis not only facilitated an evaluation of the current state of these factors but also allowed us to forecast potential changes — an essential aspect of strategic planning for reforms in this field.

Thus, the combination of PEST analysis, content analysis, and expert interviews provides a comprehensive approach to studying the implementation of PM in Kazakhstan's public administration system, offering a holistic assessment of key factors and the obstacles encountered.

4. RESULTS

Currently, the reform of the public administration system in the Republic of Kazakhstan is one of the most pressing directions in economic policy. This is due to the global challenges of transformation and the globalization of socio-economic processes, which significantly affect the implementation of state programs and projects. Within the framework of the "Kazakhstan–2050

Strategy", the President of the Republic of Kazakhstan emphasized the importance of enhancing managerial resources through the implementation of modern management institutions and the principles of corporate governance in the public sector (Kupzhanov, 2022).

During the study, an assessment of the level of PM implementation in Kazakhstan's public administration system was conducted. The study participants characterized the overall level of PM implementation as moderate, indicating a substantial need for further development and refinement of PM approaches.

Figure 1. The level of implementation of project management in Kazakhstan (%)
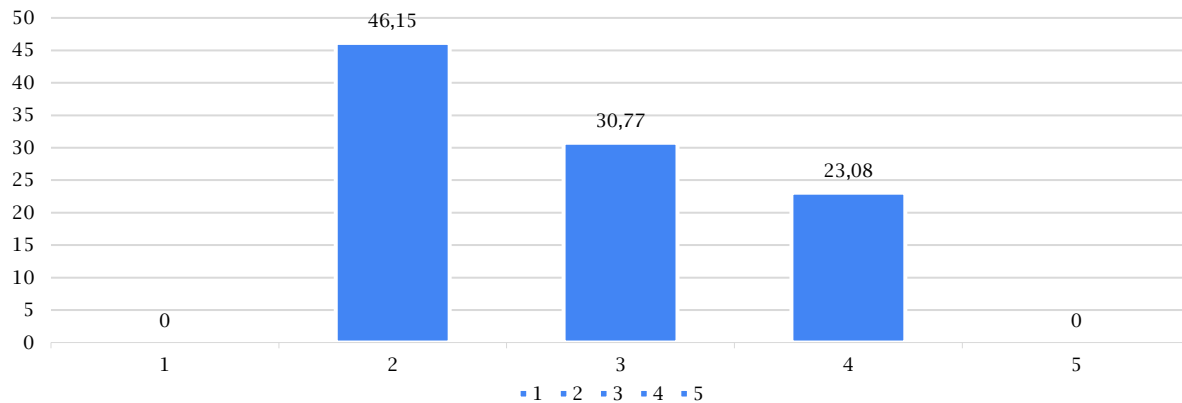
Note: Authors' elaboration.

Based on the data collected by the authors, 40 factors were developed and evaluated to determine the influence on the implementation of PM in the public sector. These factors were categorized into four key groups: political, economic, social, and technological. The application of the PEST analysis framework provided a comprehensive evaluation of the external conditions influencing the development of PM, as supported by previous studies. The results revealed that all groups of factors exert a significant influence; however, the political and economic aspects are the most critical.

The factors influencing the development of PM were evaluated in four groups:

Table 2. Factors influencing the development of project management in the public sector by PEST categories

Description of the factor	Weight	Description of the factor	Weight
Political factors		*Economic factors*	
Legislative framework for PM in the public sector	2,30	Availability and level of training of PM specialists	2,30
Level of bureaucracy and administrative barriers	2,30	Efficiency of state resource allocation	2,0
State policy on digitalization and innovation development	2,15	Cost of training and certification in PM for public servants	1,92
State anti-corruption policy	2,15	Level of funding for state programs and reforms	1,84
Interaction between different levels of government (central and local)	2,15	Development of public-private partnerships (PPP) in PM	1,84
Political will of leadership to implement PM	2,15	Financial incentives for public servants in adopting the project approach	1,84
Influence of lobbying groups and various agency interests	2,07	Economic stability and gross domestic product (GDP) growth	1,76
Availability of funding for state programs through the national budget and international grants	2,0	Macroeconomic factors affecting budget expenditures	1,69
Political stability and continuity of reforms	1,92	Availability and effective use of external investments and grants	1,61
Support from international organizations (e.g., World Bank, OECD)	1,76	Impact of inflation and the exchange rate on project implementation	1,61
Social factors		*Technological factors*	
Culture of management and decision-making in public agencies	2,38	Development of digital platforms for managing state projects	2,38
Development of an innovative mindset in the public sector	2,38	Level of automation in public administration processes	2,30
Readiness of personnel to adapt to new management methods	2,30	Integration of IT solutions into the monitoring and evaluation system for state programs	2,30
Transparency of state processes	2,30	Implementation of electronic document management and digital signatures	2,30
Level of development of educational programs in PM at universities	2,30	Standardization of technologies in the field of PM at the state level	2,30
Citizens' expectations regarding the quality and speed of state services	2,15	Cybersecurity and data protection within digital governance	2,15
Influence of public opinion and civil society on management processes	2,0	Use of artificial intelligence (AI) and machine learning in decision-making	2,15
Demographic structure of public sector personnel (age, qualification level)	1,92	Development of telecommunications infrastructure for remote PM	2,15
Social mobility and opportunities for career growth for PM specialists	1,92	Availability of technologies for Big Data analysis in public administration	2,07
Level of public trust in state institutions	1,76	Impact of technological trends (e.g., blockchain, Internet of Things (IoT)) on PM in the public sector	2,0

Transitioning to a categorical analysis of the results, the following observations can be made.

Political factors: Expert assessment indicates that the effectiveness in this area is primarily determined by the legislative framework and the level of bureaucracy. In countries with strong presidential authority, typical of post-Soviet spaces, political will and steady support are critical for advancing reforms. This is particularly relevant for Kazakhstan, where the sustainable implementation of PM requires policy consistency despite frequent leadership changes. In 2009, the first normative acts regulating PM were adopted, and in January 2021, a "Project management" article was included in the Administrative-Processual Code of the Republic of Kazakhstan, which enshrines the use of this approach for achieving the goals of strategic and program documents (Ministry of Justice of the Republic of Kazakhstan, 2020). At the same time, the anti-corruption issues also play an essential role (Bokayev et al., 2023).

Economic factors: The study's findings reveal that the availability of qualified specialists and the efficient distribution of state resources are key economic elements for the successful implementation of PM. In May 2017, the establishment of the Center for the Development of Project Management under the Academy of Public Administration was a significant step in this area. However, a shortage of specialists and hidden resistance to change within the state apparatus continue to slow down the development of PM.

Social factors: Factors such as the management culture, the readiness of personnel to adopt new methods, and the transparency of state processes also play a significant role. Despite the creation of a National Project Office, many public servants remain insufficiently familiar with the principles of PM. This is evidenced by survey data and comparative analyses, which highlight the need for active development of educational programs in PM and improvements in informational transparency.

Technological factors: The transition to digital platforms and the adoption of modern IT solutions have a significant impact on management efficiency. The use of systems like "Easy Project" until February 2024 and "1C-Bitrix24" from February 2024 has markedly improved project monitoring. Additionally, the development of methods to assess the maturity of project offices and the conduct of the National "Qazaqstan PM Awards" contest indicate a growth in project culture. However, further integration of digital tools with administrative processes remains an ongoing challenge.

Overall, the study clearly demonstrates that the development of PM in Kazakhstan's public administration depends on a combination of PEST factors. The PEST analysis indicates that the most significant obstacles are related to administrative barriers and insufficient personnel training, which necessitate comprehensive measures to improve the legal framework, educational programs, and digital infrastructure.

5. DISCUSSION

Project management has proven to be an effective approach that enhances the managerial potential of developing countries and contributes to the successful execution of projects, as evidenced by early studies such as Abbasi and Al-Mharmah (2000) and Cooke-Davies (2001). Abbasi and Al-Mharmah (2000) demonstrated that a structured application of the project approach can optimize processes even when resources are limited, while Cooke-Davies (2001) identified key success factors — including clear objectives and appropriate resource allocation — as critical for project outcomes.

In the Republic of Kazakhstan, PM is predominantly applied within state programs. When establishing project offices, the emphasis was placed on achieving target indicators by both central and local authorities and on clearly assigning responsibility for task execution. Early studies, such as Kupzhanov (2022), indicate that the systematic organization of business processes and the analysis of external factors remain underdeveloped in public institutions. Our study confirms these observations by identifying several external factors that influence the adoption of PM.

Experts have stressed that one of the key drivers for successful implementation is the establishment of a robust legislative framework for PM in the public sector. Early research shows that high levels of bureaucracy and administrative barriers significantly hinder the adoption of modern management methods — a trend particularly evident in post-Soviet countries (Cooke-Davies, 2001). In Kazakhstan, maintaining political stability and continuity in reforms is crucial; for instance, in January 2021, a "Project Management" article was incorporated into the Administrative-Processual Code of the Republic of Kazakhstan, thereby formalizing the use of this approach for achieving strategic and programmatic objectives (Ministry of Justice of the Republic of Kazakhstan, 2021).

Economic factors also play a significant role in advancing PM. The establishment of the Center for the Development of Project Management at the Academy of Public Administration in May 2017 marked an important step toward enhancing public administration efficiency. Early studies (Cooke-Davies, 2001; Aubry & Brunet, 2014) highlight that the presence of qualified professionals and sufficient funding are critical for the successful implementation of the project approach; nevertheless, challenges such as a shortage of skilled personnel and limited financial resources persist, and covert resistance within the state apparatus further decelerates modernization efforts.

Social factors, including the prevailing management culture, the readiness of personnel to adopt new methods, and the transparency of state processes, are equally important. Early research by White and Marsh (2006) indicates that a lack of thorough understanding of PM principles among public servants constitutes a significant barrier to adopting innovative practices. Although the establishment of a National Project Office and the move towards modern management technologies indicate a commitment to improvement, the insufficient integration of these principles into the educational system remains a major challenge.

Technological factors are becoming increasingly influential in the development of PM. The shift to digital platforms and the integration of IT solutions for monitoring and evaluating state programs have significantly enhanced management efficiency. Studies by Heeks (2006) and Sarantis et al. (2009) have shown that digitalization can greatly optimize processes; however, its successful implementation necessitates substantial efforts in training personnel and integrating new systems with existing administrative frameworks.

Moreover, the findings reinforce the argument made by Turner and Müller (2017) that public sector

PM requires a dynamic balance between flexibility and control. In Kazakhstan, while the formal structures for project governance have been established, the rigidity of bureaucratic norms often limits the effective adaptation of tools like Agile and hybrid models. Grebic (2019) and Misuraca and Viscusi (2020) suggest that cultural transformation within public institutions is a prerequisite for scalable innovation — an assertion supported by our data, which indicates low readiness among civil servants to shift from hierarchical to iterative planning models.

In addition, our results highlight the need for enhanced strategic alignment between national development priorities and operational planning. This finding echoes the position of Puron-Cid (2014), who emphasized that without the synchronization of project objectives with national policy goals, PM risks becoming a technical exercise with limited strategic impact. In Kazakhstan's case, the gap between political declarations and on-the-ground implementation continues to pose challenges. As observed by Battalov and Kangalakova (2023), while city administrations have adopted structural reforms, they are often constrained by weak interagency coordination and vague legal mechanisms.

Another important insight is the correlation between international best practices and domestic institutional maturity. The OECD (2025) report and the studies of Zada et al. (2023) and Khan et al. (2023) stress the importance of leadership support and goal clarity in fostering a results-oriented project culture. In Kazakhstan, the introduction of performance-based budgeting and KPIs is a promising step, yet the actual integration of these tools into daily management practices remains uneven. The development of a national competency framework for public project managers, modeled on international standards like IPMA or PMI, could help close this gap.

Finally, the evolving nature of technological disruptions — such as the use of AI, blockchain, and predictive analytics — demands not only the modernization of digital infrastructure but also the establishment of regulatory sandboxes to test new approaches. According to OECD (2020), such environments are vital for managing uncertainty in digital transformation. Kazakhstan's current efforts, while encouraging, lack a systemic policy for innovation governance within public projects. Institutionalizing adaptive learning processes through pilot projects and feedback loops could significantly enhance the state's agility and responsiveness.

Overall, the findings indicate that the implementation of the PM approach in Kazakhstan's public administration is still in its early stages. Early research — including studies by Abbasi and Al-Mharmah (2000), Cooke-Davies (2001), Heeks (2006), and Sarantis et al. (2009) — suggests that the successful adoption of this technology requires comprehensive support from legislative, economic, social, and technological institutions. Our study corroborates the conclusion that PM can be regarded as a universal technology for effective change management, which, through continuous monitoring, plan adjustments, and outcome improvements, contributes to enhanced public administration efficiency.

6. CONCLUSION

The study, based on a PEST analysis, demonstrated that despite significant progress in establishing the legal and institutional foundations for PM in Kazakhstan's public sector, substantial challenges remain. While political support and regulatory standards provide a robust foundation, issues such as bureaucratic rigidity, insufficient training, and resistance to change continue to impede progress — findings that echo early research (Cooke-Davies, 2001), highlighting the impact of institutional barriers and inadequate qualifications on reform failures. Moreover, our results confirm that the prevailing administrative culture and limited adaptability (Abbasi & Al-Mharmah, 2000) significantly undermine the effectiveness of the project approach in developing countries. Addressing these challenges requires a comprehensive strategy that includes enhanced training programs, increased transparency, and more effective integration of technological solutions.

Furthermore, the study indicates that to achieve the ambitious goals set forth in the "Kazakhstan–2050" strategy, the country must continue modernizing its public administration by further embedding PM principles. This involves not only refining existing policies but also ensuring that public servants are properly trained and motivated to apply these practices in daily operations. As White and Marsh (2006) have stressed, successful implementation depends on both formal policies and active support at the execution level.

The introduction of Agile methodologies in 2024 points to a positive trend towards the adoption of advanced global management practices. Nevertheless, ensuring the sustainability of these reforms will require ongoing efforts to cultivate a PM culture, strengthen institutional capacity, and maintain long-term political backing. Early studies on digital transformation in the public sector (Heeks, 2006; Sarantis et al., 2009) emphasize that technological solutions yield results only when harmonized with internal processes and strategic planning.

Additionally, the findings of this study contribute to the emerging body of knowledge on public sector innovation in post-Soviet states by empirically validating the applicability of PEST analysis in diagnosing reform barriers. The integrated approach adopted here offers a replicable framework for future researchers seeking to evaluate PM implementation in similar transitional contexts.

From a theoretical perspective, the study extends the classical PM literature by situating it within a politically centralized and administratively complex environment, highlighting the necessity of adapting international best practices to local institutional realities. This contextualization is crucial for future comparative studies.

In practical terms, the results have implications for policymakers, civil service training institutes, and donor organizations. Specifically, they suggest that capacity-building programs should be designed not only around technical PM tools but also around soft skills such as change management, cross-agency coordination, and leadership development. These competencies are often overlooked yet vital for overcoming institutional inertia.

Limitations of the current study include its focus on Kazakhstan as a single-country case, which may limit the generalizability of the findings. Additionally, while the PEST framework provided structured insight into external factors, future research should consider complementing this with stakeholder or network analysis to better capture

the internal dynamics of project implementation. Longitudinal studies would also help assess the sustainability of the observed reforms over time.

In conclusion, while PM holds great potential for enhancing public sector performance in Kazakhstan, its successful implementation hinges on overcoming administrative, economic, social, and technological challenges through coordinated, long-term efforts. This paper aims to inform future research and practice by offering both an evaluative lens and a strategic roadmap for embedding PM into the fabric of public administration.

REFERENCES

Abbasi, G. Y., & Al-Mharmah, H. (2000). Project management practice by the public sector in a developing country. *International Journal of Project Management, 18*(2), 105–109. https://doi.org/10.1016/S0263-7863(98)00074-X

Alanzi, S. (2018, September). *PESTLE analysis.* https://surl.li/crwqus

Amirova, A., Aitbayeva, A., Yessentemirova, A., Zakirova, M., & Torebekova, Z. (2025). Reforming the state governance: A perspective of project management innovations and contract service expertise. *Corporate Law & Governance Review, 7*(1), 100–110. https://doi.org/10.22495/clgrv7i1p9

Arnaboldi, M., Azzone, G., & Savoldelli, A. (2004). Managing a public sector project: The case of the Italian Treasury Ministry. *International Journal of Project Management, 22*(3), 213–223. https://doi.org/10.1016/S0263-7863(03)00067-X

Atkinson, R. (1999). Project management: Cost, time and quality, two best guesses and the phenomenon, it's time to access other success criteria. *International Journal of Project Management, 17*(6), 337–342. https://doi.org/10.1016/S0263-7863(98)00069-6

Aubry, M., & Brunet, M. (2014). *Organizational design in public administration: Typology of project management offices* [Paper presentation]. Project Management Institute Research and Education Conference. Project Management Institute. https://www.pmi.org/learning/library/organizational-design-public-administration-8941

Aubry, M., Hobbs, B., & Thuillier, D. (2009). The contribution of the project management office to organisational performance. *International Journal of Managing Projects in Business, 2*(1), 141–148. https://doi.org/10.1108/17538370910930563

Axelos. (2017). *Managing successful projects with PRINCE2* (6th ed.). Stationery Office.

Battalov, N., & Kangalakova, D. (2023). The adoption of project management practices by a local government in Kazakhstan: Barriers and solutions. *Public Policy and Administration, 22*(4), 548–564. https://doi.org/10.13165/VPA-23-22-4-12

Beck, K., Beedle, M., van Bennekum, A., Cockburn, A., Cunningham, W., Fowler, M., Grenning, J., Highsmith, J., Hunt, A., Jeffries, R., Kern, J., Marick, B., Martin, R. C., Mellor, S., Schwaber, K., Sutherland, J., & Thomas, D. (2001). *Manifesto for Agile Software Development.* https://agilemanifesto.org/

Beschel, R. P., Jr, Cameron, B. J., Kunicova, J., & Myers, C. B. (2018). *Improving public sector performance: Through innovation and inter-agency coordination* (Working Paper No. 131020). World Bank Group. http://documents.worldbank.org/curated/en/833041539871513644/Improving-Public-Sector-Performance-Through-Innovation-and-Inter-Agency-Coordination

Bogdanova, M., Parashkevova, E., & Stoyanova, M. (2020). Agile project management in public sector — Methodological aspects. *Journal of European Economy, 19*(2), 283–298. https://surl.li/sdjjpu

Bokayev, B., Nauryzbek, M., Davletbayeva, Z., Dussipov, Y., Rysbekova, Z., & Torebekova, Z. (2023). Factors driving individual perceptions of quotidian corruption: Evidence from Kazakhstan. *Public Integrity, 25*(4), 380–398. https://doi.org/10.1080/10999922.2022.2054569

Cooke-Davies, T. J. (2001). The "real" success factors on projects. *International Journal of Project Management, 20*(3), 185–190. https://doi.org/10.1016/S0263-7863(01)00067-9

Crawford, L. H., & Helm, J. (2009). Government and governance: The value of project management in the public sector. *Project Management Journal, 40*(1), 73–87. https://doi.org/10.1002/pmj.20107

Döringer, S. (2021). The problem-centred expert interview: Combining qualitative interviewing approaches for investigating implicit expert knowledge. *International Journal of Social Research Methodology, 24*(3), 265–278. https://doi.org/10.1080/13645579.2020.1766777

Grebic, B. (2019). Traditional vs agile project management in the service sector. *European Project Management Journal, 9*(2), 55–63. https://doi.org/10.18485/epmj.2019.9.2.6

Heeks, R. (2006). *Implementing and managing eGovernment: An international text.* SAGE Publications. https://doi.org/10.4135/9781446220191

Highsmith, J. (2009). *Agile project management: Creating innovative products* (2nd ed.). Addison-Wesley Professional.

International Project Management Association (IPMA). (2015). *Individual competence baseline for project, programme and portfolio management. Version 4.0.* IPMA. https://surl.lt/obpvcc

Irfan, M., Khan, S. Z., Hassan, N., Hassan, M., Habib, M., Khan, S., & Khan, H. H. (2021). Role of project planning and project manager competencies on public sector project success. *Sustainability, 13*(3), Article 1421. https://doi.org/10.3390/su13031421

Issenova, G., Bokayev, B., Nauryzbek, M., Torebekova, Z., Kosherbayeva, A., & Amirova, A. (2024). An examination of civil servants' assessment of the new civil service reforms in Kazakhstan. *Central European Journal of Public Policy, 18*(2), 2–16. https://doi.org/10.2478/cejpp-2024-0006

Jain, N. (2021). Survey versus interviews: Comparing data collection tools for exploratory research. *The Qualitative Report, 26*(2), 541–554. https://doi.org/10.46743/2160-3715/2021.4492

Kartov, A. (2020). Prospects for the application of project management in the public sector of Kazakhstan. *Economy: Strategy and Practice, 15*(4), 195–206. https://doi.org/10.51176/JESP/issue_4_T16

Kerzner, H. (2017). *Project management: A systems approach to planning, scheduling, and controlling* (12th ed.). Wiley.

Kerzner, H. (2022). *Project management: A systems approach to planning, scheduling, and controlling* (13th ed.). Wiley.

Khan, N. U., Zhongyi, P., Han, H., & Ariza-Montes, A. (2023). Linking public leadership and public project success: The mediating role of team building. *Humanities and Social Sciences Communications, 10*, Article 286. https://doi.org/10.1057/s41599-023-01791-y

Kosherbayeva, A., Bokayev, B., Torebekova, Z., & Amirova, A. (2024). Factors determining the development of the civil service of the Republic of Kazakhstan. *NISPAcee Journal of Public Administration and Policy, 17*(2), 27–50. https://doi.org/10.2478/nispa-2024-0012

Kupzhanov, A. U. (2022). Implementation of project management in the system of state bodies of the Republic of Kazakhstan. *Young Scientist, 11*(406), 173–174. https://moluch.ru/archive/406/89440/

Locatelli, G., Ika, L., Drouin, N., Müller, R., Huemann, M., Söderlund, J., Geraldi, J., & Clegg, S. (2023). A manifesto for project management research. *European Management Review, 20*(1), 3–17. https://doi.org/10.1111/emre.12568

Lock, D. (2007). *Project management* (9th ed.). Ashgate Pub Co.

Memleket basşısı Qasım-Jomart Toqaevtıñ Prezïdenttik jastar kadr rezervine ötken azamattarmen kezdeswde söylegen sözi [Speech by President Kassym-Jomart Tokayev at a meeting with participants of the presidential youth personnel reserve]. (2020, January 15). Akorda. https://surl.li/rduiqa

Memleket basşısı Reformalar jönindegi joğarı keñestiñ birinşi otırsın ötkizdi [The head of state held the first meeting of the Supreme Council for Reforms]. (2020, October 21). Akorda. https://www.akorda.kz/kz /events/akorda_news/meetings_and_sittings/memleket-basshysy-reformalar-zhonindegi-zhogary-kenestin-birinshi-otyrysyn-otkizdi

Meredith, J. R., & Mantel, S. J., Jr. (2011). *Project management: A managerial approach.* John Wiley & Sons.

Ministry of Justice of the Republic of Kazakhstan. (1997, October 11). *Qazaqstan — 2030 Barlıq Qazaqstandıqtardıñ ösip-örkendewi, qawipsizdigi jäne äl-awqatınıñ artwı* [Message of the president of the country to the people of Kazakhstan 1997: Kazakhstan — 2030. Prosperity, security and improvement of welfare of all Kazakhtanis]. Adilet. https://adilet.zan.kz/rus/docs/K970002030_/history

Ministry of Justice of the Republic of Kazakhstan. (2017, November 29). *Qazaqstan Respwblïkasındağı memlekettik josparlaw jüyesin bekitw twralı. Qazaqstan Respwblïkası Ükimetiniñ 2017 jılğı 29 qaraşadağı No. 790 qawlısı* [On approval of the state planning system in the Republic of Kazakhstan. Resolution of the Government of the Republic of Kazakhstan No. 790 of November 29, 2017]. Adilet. https://adilet.zan.kz /rus/docs/P1700000790

Ministry of Justice of the Republic of Kazakhstan. (2020, June 29). *Qazaqstan Respwblïkasiniñ Äkimşilik räsimdik-procestik kodeksi* [Administrative procedural and process-related code of the Republic of Kazakhstan]. Adilet. https://adilet.zan.kz/eng/docs/K2000000350

Ministry of Justice of the Republic of Kazakhstan. (2021, February 26). *Qazaqstan Respwblïkasında memlekettik basqarwdı damıtwdıñ 2030 jılğa deyingi tujırımdamasın bekitw twralı. Qazaqstan Respwblïkası Prezïdentiniñ 2021 jılğı 26 aqpandağı No. 522 Jarlığı.* [On approval of the concept of development of public administration in the Republic of Kazakhstan until 2030. Decree of the President of the Republic of Kazakhstan No. 522 of February 26, 2021]. Adilet. https://adilet.zan.kz/kaz/docs/U2100000522

Misuraca, G., & Viscusi, G. (2020). AI-enabled innovation in the public sector: A framework for digital governance and resilience. In G. Viale Pereira, M. Janssen, H. Lee, I. Lindgren, M. P. Rodríguez Bolívar, H. J. Scholl, & A. Zuiderwijk (Eds.), *Lecture notes in computer science:* Vol. 12219. *Electronic government* (pp. 110–120). Springer. https://doi.org/10.1007/978-3-030-57599-1_9

Mohd Noor, M. I., Abd Karim, S. B., & Mohd Rahim, F. A. (2024). A review on PDM decision-making for public sector construction projects using PESTEL analysis framework. *Journal of Project Management Practice, 4*(2), 1–22. https://doi.org/10.22452/jpmp.vol4no2.1

Müller, R., Drouin, N., & Sankaran, S. (2019). *Organizational project management: Theory and implementation.* Edward Elgar Publishing. https://doi.org/10.4337/9781788110976

Olateju, O. I., Abdul-Azeez, I. A., & Alamutu, S. A. (2011). Project management practice in Nigerian public sector — An empirical study. *Australian Journal of Business and Management Research, 1*(8), 1–7. https://www.ajbmr.com/articlepdf/AJBMR_17_26i1n8a1.pdf

Organisation for Economic Co-operation and Development (OECD). (2020, October 7). *The OECD digital government policy framework: Six dimensions of a digital government* (OECD Public Governance Policy Papers No. 02). OECD Publishing. https://doi.org/10.1787/f64fed2a-en

Organisation for Economic Co-operation and Development (OECD). (2023, May 15). *Global trends in government innovation 2023.* OECD Publishing. https://surl.li/vzrucq

Organisation for Economic Co-operation and Development (OECD). (2025, May 28). *OECD public governance scan of Kazakhstan: Toward a more agile, responsive and effective public administration.* OECD Publishing. https://surli.cc/ziitpt

Oxford University Press. (n.d.). Project. In *Oxford learner's dictionaries.* https://www.oxfordlearnersdictionaries.com /definition/english/project_1

Phillips, J. (2004). *PMP project management professional study guide.* McGraw-Hill Osborne.

Project Management Institute (PMI). (2017a). *A guide to the project management body of knowledge (PMBOK guide)* (6th ed.). Project Management Institute.

Project Management Institute (PMI). (2017b). *Agile practice guide.* Project Management Institute.

Project Management Institute (PMI). (2021). *A guide to the project management body of knowledge (PMBOK guide)* (7th ed.). Project Management Institute.

Puron-Cid, G. (2014). Measuring e-government efficiency from the perspective of implementers: The case of e-budgeting in Mexico. In M. Rodríguez-Bolívar (Ed.), *Public administration and information technology: Vol. 5. Measuring e-government efficiency* (pp. 111–134). Springer. https://doi.org/10.1007/978-1-4614-9982-4_7

Rekunenko, I., Koldovskyi, A., Hordiienko, V., Yurynets, O., Abu Khalaf, B., & Ktit, M. (2025). Technology adoption in government management: Public sector transformation analysis. *Journal of Governance & Regulation, 14*(1), 150–160. https://doi.org/10.22495/jgrv14i1art14

Rigby, D., Sutherland, J., & Noble, A. (2018). *Agile at scale.* Harvard Business Review. https://hbr.org/2018/05/agile-at-scale

Sarantis, D., Askounis, D., & Smithson, S. (2009). Critical appraisal on project management approaches in e-government. In *2009 7th International Conference on ICT and Knowledge Engineering* (pp. 44–49). Institute of Electrical and Electronics Engineers (IEEE). https://doi.org/10.1109/ICTKE.2009.5397335

Stuckenbruck, L. C. (1981). *The implementation of project management: The professional's handbook.* Addison-Wesley.

Supriyono, B., Said, M., Winoto, S., Cahyasari, E., & Widodo, N. (2025). The effectiveness of performance management for local government: A bibliometric study. *Corporate Law & Governance Review, 7*(2), 84–93. https://doi.org/10.22495/clgrv7i2p9

Taizhanova, Z. (2017). On implementing of project management in public administration. *Public Administration and Civil Service, 4*(63), 47–52. https://journal.apa.kz/index.php/path/article/view/152

Turner, J. R. (2014). *Handbook of project-based management: Leading strategic change in organizations* (4th ed.). McGraw-Hill.

Turner, R., & Müller, R. (2017). The governance of organizational project management. In S. Sankaran, R. Müller, & N. Drouin (Eds.), *Cambridge handbook of organizational project management* (pp. 75–91). Cambridge University Press. https://doi.org/10.1017/9781316662243.010

White, M. D., & Marsh, E. E. (2006). Content analysis: A flexible methodology. *Library Trends, 55*(1), 22–45. https://doi.org/10.1353/lib.2006.0053

Yessengeldina, A., Baibusinova, Z., & Khalbayev, E. (2024). Features of the application of the methodology for assessing the maturity of project offices in government agencies. *State Audit, 65*(4), 6–14. https://doi.org/10.55871/2072-9847-2024-65-4-6-14

Zada, M., Khan, J., Saeed, I., Zada, S., & Jun, Z. Y. (2023). Linking public leadership with project management effectiveness: Mediating role of goal clarity and moderating role of top management support. *Heliyon, 9*(5), Article e15543. https://doi.org/10.1016/j.heliyon.2023.e15543