

PROJECT MONITORING MODEL IN CENTRAL GOVERNMENTAL ADMINISTRATION

Tomasz JANKA

Faculty of Management, Warsaw University of Technology; tomasz.janka.dokt@pw.edu.pl,
ORCID: 0000-0001-9632-1180

Purpose: The aim of this article is to present the project monitoring model in the central government administration as a set of interrelated, complementary elements that influence the implementation of strategic projects on a nationwide scale and affect tens of millions of Polish citizens.

Design/methodology/approach: Based on a literature review and analysis of the existing system, prospective directions for the monitoring of strategic projects were selected. As a result of this work, a model was created that was assessed for significance and replicability. The most experienced group of experts and practitioners in this field took part in the CAWI survey.

Findings: The high level of significance of all areas of the model has been proven and its universal nature has been confirmed, thanks to the possibility of being used in other administrative units.

Research limitations/implications: Due to limitations resulting from security procedures for research conducted in central government administration units, only closed questions were used in the research. In the future, the study can be carried out on another, larger population, having previously prepared it appropriately.

Practical implications: The practical use of the model in administration units can contribute to increasing transparency, efficiency and automation of planning and implementation of projects.

Social implications: Increasing the quality of implemented projects in accordance with the presented model may have a large, positive impact on the final beneficiaries - society, in terms of effective use of public funds, shortened project implementation time, and obtaining project results consistent with expectations.

Originality/value: The article presents a new model of project monitoring in central government administration, which may be useful for scientists conducting research in the area of project monitoring and management in other countries. The article falls into the area of projectification of the public sector.

Keywords: project management, central government administration, Project Management Office (PMO), significance assessment, feasibility assessment.

Category of the paper: Research paper.

1. Introduction

Government strategic project's implement initiatives that affect the lives of entire nations, including urban development and facilitating communication between cities (Priyanta, Zulkarnain, 2023), preventing large-scale environmental destruction (Fedchenko et al., 2023), and even ensuring the supply of water essential for life and enabling food production (Ariyanti, 2023). In Norway, all government strategic projects whose value exceeds EUR 75 million are subject to a comprehensive governmental quality assurance (Jorgensen et al., 2023). On the other hand, insufficient commitment to following policies and procedures in government-sponsored projects ultimately affects the performance of these projects, just as it negatively affected government construction projects in Ghana, contributing to their failure (Dick-Sagoe et al., 2023). The approaches to project planning and execution vary, with the dominant ones being the waterfall approach and the agile approach. For example, the United States government utilizes elements of the agile approach in around 80% of government projects, despite the lack of regulation of this approach in the law (Aleinikova et al., 2020). Even though still many governments have problems with developing digital government services in an effective and efficient manner (Kupi, McBride, 2021).

In 2017, the Polish government adopted a strategy for the country's development, called the Strategy for Responsible Development. The strategy aimed to plan and implement state-scale investments and required the involvement of multiple administrative units, including all ministries. The government strategy, adopted by the Council of Ministers' resolution, envisioned the implementation of the strategy through project management. At that time, comprehensive implementation of project management in the Polish central administration did not exist. In response to the legal requirement, an organizational unit named the Project Management Department was established in the Ministry of Economic Development in 2017 (Kosieradzka, Janka, 2019). Within a short period, it was observed that the incomplete implementation of project management, limited to only one ministry, hindered the project-based execution of the strategy. As a consequence, between 2018 and 2019, organizational units called Project Management Offices (PMOs) were established in the Chancellery of the Prime Minister and the Ministries. In addition to the new structure, a Strategic Project Monitoring System was developed within the central PMO at the Chancellery of the Prime Minister (Project Management Institute, 2019). The system consisted of 6 areas:

- Procedures: project management and project monitoring.
- Decision-making body: Portfolio Committee.
- IT system: IT tools supporting project management and monitoring.
- Organization: units supporting project management and monitoring processes.
- Initial project portfolio.
- People: Community of individuals involved in project management and monitoring.

Up until that time, no research had been conducted on the system that is used for shaping and implementing projects worth billions of euros (SRD Resolution, 2017).

The aim of this article is to present the Project Monitoring Model in Central governmental Administration and its specific domains, including the approach to model creation, followed by an evaluation of its significance based on research within a defined study group. Additionally, it assesses the potential for replicating the model for application in other public administration units.

The article begins with an introduction indicating the importance of strategic projects in administration and presenting the history of the implementation of project management in the Polish central state administration. In the theoretical background chapter, the author presents an overview of key definitions related to this article and explains their selection. Then it presents examples of implementations from business and public areas. The next chapter presents the process and results of literature review, based on which important areas of development are outlined. Then, the Project Monitoring Model in Central governmental Administration was presented. The analysis of the literature with outlined areas of development and the presentation of the model resulted in the formulation of research hypotheses. Then, the research process, description of the population and research tools were described, and their selection was justified. Finally, the research results were presented, a discussion was held and the research was summarized.

1.1. Theoretical background

The significance term in general is often discussed in the literature on accounting and financial reporting. For example, the IIRC indicates that a significant matter is one that is sufficiently important in terms of its known or potential effect on value creation (IIRC, 2021). A slightly different definition is presented by the IAASB, which states that something is considered significant when it is taken into account in decision-making processes (IAASB, 2013). In other words, decision-making processes are based on significant matters. Researchers from Chile, Uruguay, and Malta have expanded the definition of significance by creating a significance matrix (Geldres-Weiss et al., 2021). For the purpose of this study, significant areas were defined as those that have a significant impact on supporting the implementation and monitoring of projects.

In the source literature, finding a single, coherent definition of a strategic project is challenging. Nevertheless, common characteristics indicated by the authors can be observed. These include, for instance, extended project duration (Maylor, 1996), significant environmental impact (Wankel, DeFillippi, 2005), high levels of innovation (Crawford, 2010), involvement of top-level decision-makers (Dinsmore, 1999), and limited distance to external clients (Arto, Dietrich, 2007). Leading international organizations emphasize the temporary nature of the undertaking and the uniqueness of its outcomes (Internacional Project

Management Association, 2015; Office Of Government Commerce, 2009; Project Management Institute, 2001).

For the purposes of this study, the following definition of a project has been adopted: an organized endeavor segregated from ongoing activities, aimed at implementing a change by creating a unique product or service within a specified time and budget, meeting defined qualitative and quantitative requirements (Janka et al., 2020). This definition was developed and adopted within the Strategic Project Monitoring System operating within the Chancellery of the Prime Minister's Office. In the author assessment, this definition most comprehensively reflects the reality of project implementation in public administration in Poland.

A portfolio comprises a collection of projects, programs, and other endeavors to enable effective management in achieving strategic objectives (Office Of Government Commerce, 2011; Project Management Institute, 2008). The components of a portfolio need not be tightly interrelated (Internacional Project Management Association, 2015). Portfolio elements should be measurable, prioritized, and organized (Project Management Institute, 2013). For this study, the author have adopted the definition of a project portfolio as outlined in the Recommendations for Project Management prepared by the Chancellery of the Prime Minister's Office, which states: 'A portfolio is a collection of programs, projects, and other work selected based on specific criteria, grouped for effective and efficient management and control. A portfolio perspective allows for optimizing and coordinating changes occurring within an institution. The portfolio is a tool enabling the achievement of strategic goals for the entire organization' (Janka et al., 2020).

More than 51 million people worldwide are engaged in project management (Project Management Institute, 2014). Individuals or organizations involved in a project whose influence on the project's outcome can be either positive or negative are project stakeholders (Internacional Project Management Association, 2015; Office Of Government Commerce, 2009; Rose, 2013). This influence can be significant (Aaltonen, Kujala, 2015; Eskerod et al., 2015; Munns, Bjeirmi, 1996; Olander, Landin, 2005; Trocki, Grucza, 2004; Turner, Zolin, 2012; Vargas et al., 2023). Numerous attempts have been made to classify this group (Freeman et al., 2007; Heerkens, 2003; Pinto, 1998). However, for this study, the author have adopted the stakeholder definition presented in the Recommendations for Project Management by the Chancellery of the Prime Minister's Office, which states that stakeholders are individuals particularly interested in the results or progress of a program/project. They may influence the program/project or be affected by it (Janka et al., 2020).

The project management office is crucial for successful and efficient delivery of projects (Correia, Água, 2023; Lundqvist, 2017). The PMO definition proposed by PMI (Project Management Institute, 2008): 'An organizational body or entity assigned various responsibilities related to the centralized and coordinated management of those projects under its domain. The responsibilities of the PMO can range from providing project management support functions to actually being responsible for the direct management of a project'.

In accordance to Axelos (Axelos, 2013), there are three possible meaning of PMO: 1) Project Management Office: supporting individual projects; 2) Programme Management Office: coordinating, identifying dependencies of projects and supporting the transition of outputs to business as usual (BAU); 3) Portfolio Management Office: single point at corporate level where all the change initiatives within an organization are managed. The PMO definition could be extensive because at least 75 unique functions of PMO have been identified (Crawford, 2004).

For the purposes of this work, it was decided to use the PMO definition, tailored to the organization in which the research will be conducted (Janka et al., 2020). The PMO, in this case called the portfolio office, is an organizational unit created to build, prioritize and report the portfolio, support and monitor the implementation of programs and projects, pre-process the collected information, including transmitting it to authorized entities, as well as spreading the project culture. The portfolio office performs the functions of a project monitoring office within the meaning of the strategic project monitoring process.

1.2. Prospective directions of development

Governments in developed countries are modernizing their public management approaches towards project management (Bertot et al., 2016; Blasco et al., 2016; Kosieradzka, Janka, 2019; Vento, 2023). Implementing project management in public administration increases flexibility and leads to more effective goal achievement (Donovan, 2013; Greve et al., 2020). Acquiring collaboration skills in a project environment and reducing errors can improve project management in public administration (Bianchi et al., 2021; Marocco et al., 2023). Resistance to change from traditional working practices often arises due to a lack of in-house skilled professionals and knowledge of the required processes and workflows (Elmualim, Gilder, 2014). There is also an informational function that involves the preparation and management of information in the personnel decision-making process. It includes tasks such as planning, analyzing, supervision, evaluation, control, and decision-making regarding the HR aspects of the controlled activities (Bukłaha, Trzeciak, 2023). According to Ika (Ika, 2012; Ika, Hodgson, 2014), there are four traps in implementing project management in public administration: the trap of applying universal business solutions, the trap of expecting quick results, the trap of insufficient managerial competencies, and the cultural trap. Adopting a flexible approach to project management implementation is recommended, taking into account the specific context of the implementation area.

Another area identified as requiring development is the use of tools to support project monitoring and control (CMMI, 2010; Radvanský et al., 2022; Wanapaisan et al., 2013). The Texas Department of Transportation recognized the need to build and develop tools to support project management and monitoring, and these tools have had positive effects on project implementation (Khwaja et al., 2018).

The selection of projects for implementation in terms of their significance involves the creation of a project portfolio (Gutiérrez, Magnusson, 2014; Jonas, 2010; Killen, Hunt, 2010). It is widely recognized worldwide that project management should be approached as a holistic portfolio rather than individual projects (Lechler, Thomas, 2015; Martinsuo, 2013).

In addition to the concepts of projects and project portfolios, the concept of a program exists (Arto et al., 2009; Geraldi, Lechter, 2012; Lycett et al., 2004; Martinsuo, Hoverfält, 2018; Maylor, 1996; Pellegrinelli, 2011). Researchers from various fields emphasize the importance of program management (Heldal et al., 1997; Ko, Paek, 2008), including ensuring a coherent vision (Meyers et al., 2017) and providing adequate resources (Martinsuo, Ahola, 2022).

The important areas of broadly understood project management indicated in the literature and presented above are not included in the strategic project monitoring system (Project Management Institute, 2019).

1.3. Successful PMO implementations – model solutions

The PMO area is a key area that is subject to research and described in this study. Observing successful PMO implementations and their characteristic features can influence the definition of areas in a new model. It is difficult to find examples of successful project and program management office (PMO) implementations in scientific literature. The analyzed literature mainly focuses on general principles that should guide individuals involved in creating or improving project and program management offices. They lack specific implementation examples and their analysis. Broda (Tauron in the forefront of the competition for the best project management office - Press Center, no date) presents the role of PMO in Tauron as the coordinator of the entire project management process, starting from the creation of an investment strategy to supervising project implementation and reporting on its progress. Palarczyk (BiznesAlert, 2020) emphasizes the importance of having an interdisciplinary team in the PMO, which, in addition to expert competencies, also possesses communication skills and collaborates well with other units in the organization. The implementation of the project and program management office in Tauron S.A. was recognized by the PMO Global Alliance, which assessed Tauron's PMO as one of the two best PMOs in Europe and eighth globally.

Another example can be found in Fujitsu-Siemens (Fujitsu, 2020), a company that implements projects in the broad field of IT, from consulting to the deployment of hardware solutions that support businesses. The organization provides training and ensures that all its employees who provide project management advisory services achieve PMP certification from the Project Management Institute. Additionally, it has developed an internal training program and an internal certification process in project management for its employees. The organization has internally established a PMO and also provides services for creating project and program management offices in three areas: PMO establishment, PMO assessment, and PMO operations. The first area supports the creation of a PMO tailored to the organization's structure and needs, defining key roles and responsibilities in the project process and providing a launch

plan. The second area assesses and confirms the size and competency of the resources needed for the PMO service delivery process within the organization. It also verifies current plans for PMO creation and maintenance, primarily in terms of schedule and risk mitigation. The third area assumes responsibility for the PMO from an external entity, thereby eliminating the risk of insufficient competencies within the organization or enhancing their implementation capabilities.

A relatively young project and program management office is the Government Project Monitoring Office in the Chancellery of the Prime Minister (Kosieradzka, Janka, 2019). It is an organizational unit built on the competencies of the Project Management Department at the Ministry of Development. The Government Project Monitoring Office carries out tasks related to: implementing a unified methodology for monitoring programs and projects and promoting a program and project management culture in public administration, monitoring selected programs and projects implemented based on program and project management methodology, and coordinating the management of selected programs and projects implemented based on program and project management methodology. The office initiated and coordinated the process of creating project and program management offices in each ministry, operating in the project monitoring area in a consistent manner. The unification in the project monitoring area allowed for the creation and launch of a common analytical and reporting environment, providing a source of managerial information for decision-makers.

Ericsson operates globally in many countries across multiple continents. By implementing a standardized project methodology, it monitors the utilization of project resources simultaneously in projects carried out in different countries and is able to allocate resources effectively. It also monitors the implementation of individual project products, which may be prerequisites for projects implemented in other countries. Ericsson examines project maturity within its organization in various countries, which varies at different levels. The project methodology created by Ericsson and administered by the PMO is called PROPS and is currently used throughout the global organization (Mulder, 1997).

1.4. Project monitoring model in central governmental administration

Currently, the most recognized portfolio management standards worldwide are PMI and OGC. The Project Management Institute (PMI) developed the first version of the 'Standard for Portfolio Management' in 2008 (Project Management Institute, 2013), while the Office of Government Commerce (now Axelos) published 'Management of Portfolios (MoP)' in 2011 (Office Of Government Commerce, 2011). Despite a small time difference in the development of the models and their respective areas of application, these standards, composed of dozens of artifacts, have only two common artifacts: 'Portfolio' and 'Portfolio Roadmap' (Lima et al., 2018). This may indicate the need for a completely different perspective on organizing similar temporary initiatives. The environmental context of model utilization can be a determining factor. The PMI standard model was developed in the USA, while the OGC standard model

originated in the UK. Considering the above, it seems reasonable to create a standard model that meets the specific needs of the local environment, in this case, the central government administration area in Poland.

The previously mentioned Strategic Project Monitoring System, developed between 2018 and 2019 within the PMO unit at the Chancellery of the Prime Minister's Office (CPMO) in Poland, depending on PMI principles and adapted to CPMO conditions, was the foundation for creating the model (Figure 1).

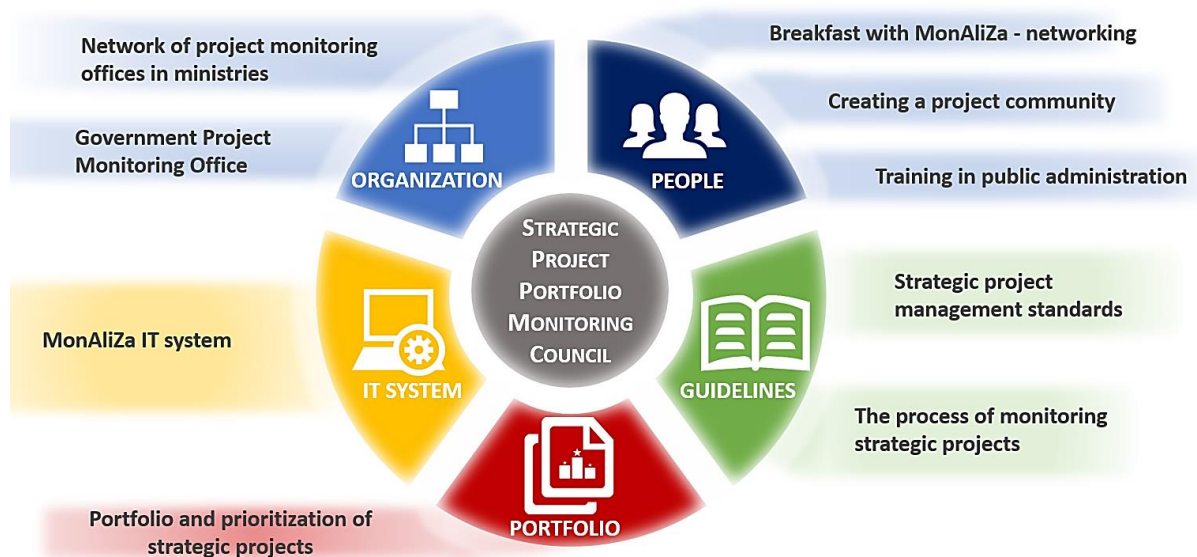


Figure 1. Strategic Project Monitoring System – own study based on the article (Project Management Institute, 2019).

1.5. Hypothesis

Taking into account the results of the literature review, the four development areas outlined, as well as the current areas of the Strategic Project Monitoring System, the following hypothesis can be formulated:

H1: The project monitoring system in the central government administration requires development.

The new model created in this way could be of a general nature and could be replicated in other administrative units, which leads to the formulation of the second hypothesis:

H2: The areas of the project monitoring system are universal and can be used in other administration units.

2. Methods

2.1. Research process

The following research process was proposed:

1. Determination of potential directions for the development of monitoring and project management systems in public administration based on a critical analysis of subject literature, excluding areas of the existing strategic project monitoring system in the central state administration in Poland.
2. Formulation of hypotheses regarding the significance of including potential developmental areas in the system.
3. Formulation of hypotheses regarding the feasibility of implementing potential, new, and existing areas of the strategic project monitoring system in other public administration units.
4. Determination of the research sample.
5. Selection and construction of research tools.
6. Planning and conducting the study.
7. Interpretation of results and substantiation or refutation of the hypotheses.

2.2. Research Population

The study was conducted between September and November 2022 in the central government administration of Poland, which consisted of 18 units of central administration. This includes the Chancellery of the Prime Minister and 17 ministries, each led by a constitutional minister overseeing 37 administrative parts (The Act on Government Administration Parts - Dz.U.2022.2512, 2022). Depending on the specific nature, size, diversity, complexity, and number of projects in the ministries, these units took the form of separate organizational departments, divisions, or autonomous positions. In the case of autonomous positions, they were most commonly created within the office of the minister or the office of the director-general. The number of personnel employed for PMO functions in individual units of the central government administration ranged from 1 to 5 individuals, with a total of 47 personnel. These PMO employees and managers work on a daily basis in the areas of monitoring, support, and sometimes project management, to the fullest extent. Their work is based on the utilization of a strategic project monitoring system. They possess the greatest experience and broadest knowledge in this area within the central government administration. Two other major actor groups in the process, project managers and sponsors, utilize certain elements of the system in their daily work but do not have complete knowledge of its functioning. Additionally, individuals serving as sponsors and project managers also have other duties stemming from their positions. In their case, functional hierarchy takes precedence over the hierarchy resulting from the project monitoring processes, introduced as an internal

regulation of the administrative unit. The situation is different for individuals in the PMO role, where functional hierarchy aligns with the scope of responsibilities related to project monitoring and support processes.

Due to their full-time involvement in project monitoring and support processes, individuals serving as PMOs in the central government administration were chosen as the research population, as they possess the most extensive experience in the area of project monitoring and support among all potential employee groups in the central government administration.

Considering the relatively small population size ($n = 47$) and the experiences of other researchers (du Toit, 2016; Ma et al., 2023), it was decided to conduct the study using a full sample.

2.3. Research Tools

There are various research methods and tools (Raikou, Konstantopoulou, 2021) that could be utilized to examine the significance and potential replication of the areas. Due to the geographic diversification of the research group and the possibility of conducting the study concurrently, a survey method was chosen using a computer-assisted web interviewing (CAWI) questionnaire. Additionally, this type of study ensured anonymity for the respondents, which should increase the likelihood of receiving honest responses (Babbie, 2010). Questions regarding the age and gender of the participants were not included to prevent the identification of the respondents in the small population. Before conducting the study, the research tool selection and the tool itself had to be approved by decision-makers in the Chancellery of the Prime Minister. Ultimately, the questionnaire (Table 2 in appendix) consisted of 26 closed-ended questions, including 15 Likert scale questions ranging from 1 to 7 (Sukma et al., 2022) for questions Q5-Q8 and Q10-Q20, as well as two Likert scale questions ranging from 1 to 5 (Lakanmaa et al., 2015) for questions Q25-Q26. The questionnaire consisted of four parts: demographic information, assessment of the significance of proposed model areas, assessment of the feasibility of implementing specific model areas, and self-assessment of knowledge in the areas of project monitoring. Responses to questions regarding significance assessment and feasibility assessment were given on a Likert scale from 1 to 7, while responses to self-assessment questions were given on a Likert scale from 1 to 5. There are multiple interpretations of Likert scale response ranges. A common approach is to divide the scale into three groups, assigning them values of low, medium, and high (García-Gutiérrez et al., 2023; Haut et al., 2023; Villalobos et al., 2022), or negative, neutral, and positive (De Chastelain Finnigan et al., 2022; Hosseinzadeh, Rafiei, 2019; Joslin et al., 2020; Kaye et al., 2022). The significance assessment and feasibility assessment questions were grouped as follows:

- Responses 1-3: Negative.
- Responses 4-5: Neutral.
- Responses 6-7: Positive.

The self-assessment questions were grouped as follows:

- Responses 1-2: Low self-assessment.
- Response 3: Medium self-assessment.
- Responses 4-5: High self-assessment.

The dependent variable in this study was defined as the measure of the significance of proposed model areas not included in the system (Development of key stakeholders' competencies, Development of tools supporting project monitoring and management processes, Conscious building and management of project portfolios, and Ensuring a consistent vision and resources in program management). The second dependent variable was the assessment of the feasibility of implementing the eleven model areas in other administrative units. For these variables, a 7-point Likert scale was used, where 1 indicated strong disagreement, and 7 indicated strong agreement.

The questionnaire also included independent variables that can be grouped as follows:

- Job nature (current relevance to PMO, current role, frequency of working with the current system).
- Experience (total professional experience, professional experience in administration, experience with the current system, certification, education).

The questionnaire included one question regarding the need to introduce a new area into the current system, which had not been previously defined.

2.4. Data Collection

The questionnaire survey was conducted over a period of two months in three rounds of reminders. The questionnaire was distributed to PMO employees in 18 central government administration units, including the Chancellery of the Prime Minister and 17 ministries. A total of 17 fully completed questionnaires were obtained.

3. Results

All respondents had at least 5 years of professional experience, with over 88% having more than 10 years of experience. Over 88% of the respondents had been working in public administration for over 5 years, and 76% for over 10 years. 94% of the respondents declared having a certification confirming their project management skills. All respondents rated their skills in both project management and project monitoring at least 3 points on a 5-point Likert scale, with 1 being a beginner and 5 being an expert. The dominant rating in both self-assessment areas was 4. 88% of the respondents had been using the current system for at least a year and 41% for over 3 years. Over 70% of the respondents stated that they used elements of the system multiple times every month in their work.

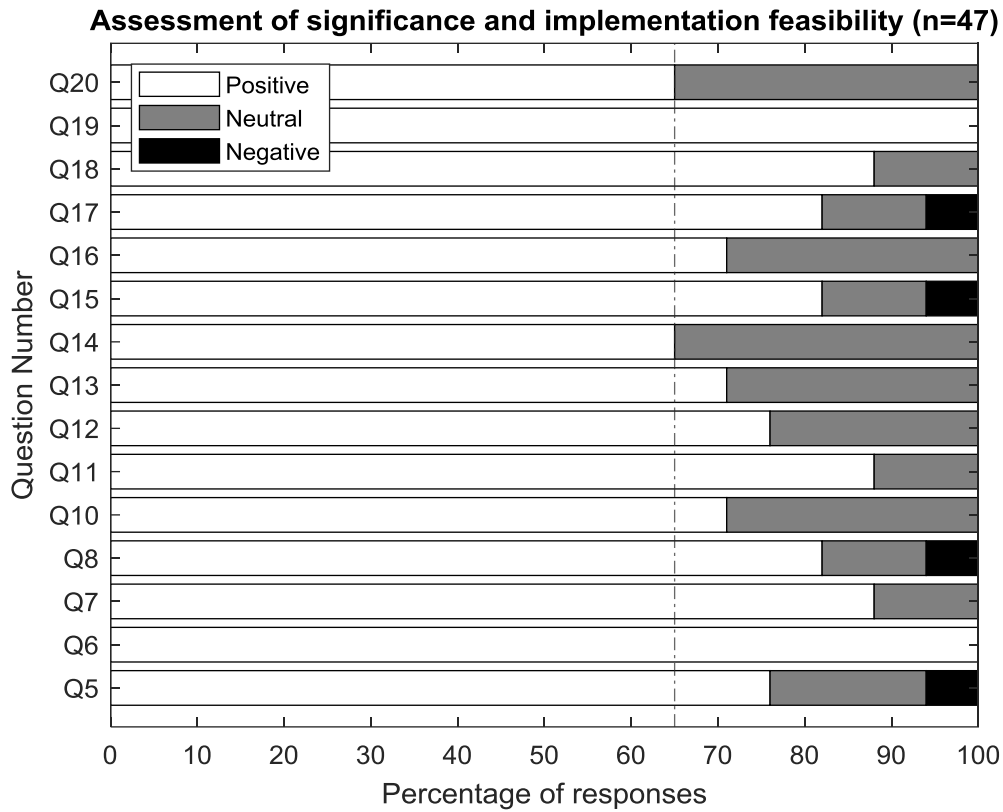


Figure 3. Survey results Q5-Q8 and Q10-Q20.

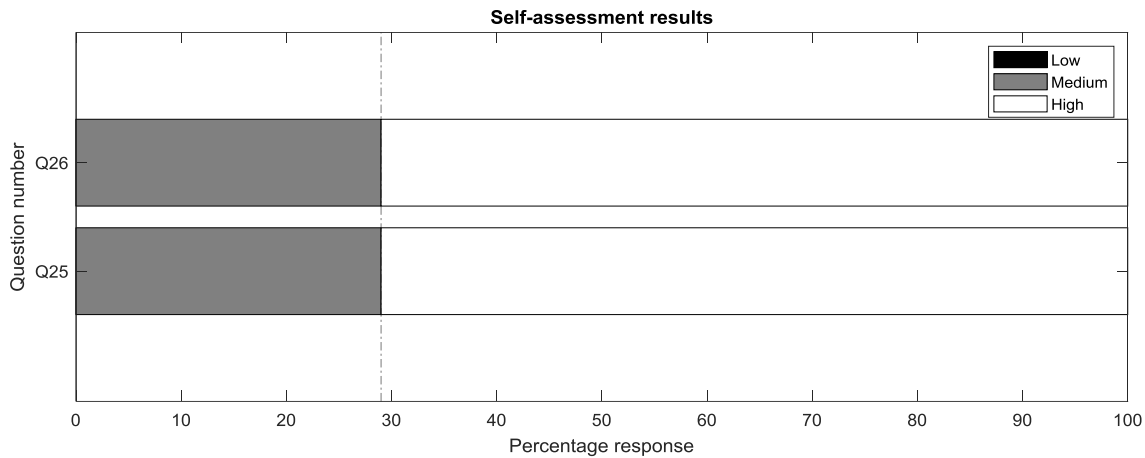


Figure 4. Self-assessment results.

The main survey results are presented in Figures 3 and 4, and the statistics for the Likert scale responses are presented in Table 1. For the first group of questions regarding the significance of new areas (Q5-Q8) on a 1-7 Likert scale, the obtained results ranged from a mean of 6.06 to 6.76, with standard deviations ranging from 0.44 to 1.52. For the second group of questions regarding the feasibility of implementing model areas in other administrative units (Q10-Q20) on the same scale, the obtained results ranged from a mean of 5.94 to 6.65, with standard deviations ranging from 0.49 to 1.14. In the first group, the percentage of positive ratings (ratings 6 and 7) ranged from 76.5% to 100%, and in the second group, from 64.7% to 100%, with average values of 86.8% and 78.1% respectively. Positive ratings were observed from the 38th percentile for all questions in both groups. The Shapiro-Wilk test resulted in

a p-value < 0.05 for 12 out of 15 questions, indicating that using techniques assuming the normality of data on this dataset would be inappropriate.

Table 1.

Descriptive statistics (Q25-26 Likert scale 1-5)*

Question no.	SD	Mean	Median	Min	Max	% answers 6 and 7	38th percentile
Q5	1,52	6,06	7	1	7	76,5%	6.000
Q6	0,44	6,76	7	6	7	100,0%	7.000
Q7	0,71	6,59	7	5	7	88,2%	7.000
Q8	1,27	6,12	6	2	7	82,4%	6.000
Q10	0,97	6,06	6	4	7	70,6%	6.000
Q11	0,70	6,35	6	5	7	88,2%	6.000
Q12	1,14	6,06	6	4	7	76,5%	6.000
Q13	1,03	6,24	7	4	7	70,6%	6.080
Q14	1,09	5,94	6	4	7	64,7%	6.000
Q15	1,10	6,29	7	3	7	82,4%	6.080
Q16	1,01	6,18	7	4	7	70,6%	6.000
Q17	1,14	6,06	6	3	7	82,4%	6.000
Q18	0,72	6,47	7	5	7	88,2%	6.080
Q19	0,49	6,65	7	6	7	100,0%	7.000
Q20	1,00	6,00	6	4	7	64,7%	6.000
Q25	0,75	3,94	4	3	5	70,6%*	
Q26	0,79	4,00	4	3	5	70,6%*	

Source: own work based on research results.

4. Discussion

Due to the small population size, the limited options for research methods do not allow for a comprehensive examination of the significance of the areas mentioned in the literature and their potential implementation in other administrative units. Nevertheless, considering the characteristics of the population of individuals working in the PMO field in central government administration, including their professional and overall administrative experience, experience with the current system, and confirmed expertise, the obtained results can be used as input data for further research.

Hypothesis H1: ‘The project monitoring system in the central government administration requires development.’ can be confirmed by obtaining positive ratings in the corresponding questions at an average level of 86.8%. Similarly, in the case of hypothesis H2: ‘The areas of the project monitoring system are universal and can be used in other administration units’, positive ratings were obtained at an average level of 78.1%, which could confirm the hypothesis H2. An interesting finding confirming the emerging perspective for further research in this area is the affirmative response of 65% of the respondents regarding the need to supplement the system with an area not previously indicated.

Limitations in central administrative units, which prevented the inclusion of open-ended questions in the survey, made it impossible to identify the areas the respondents had in mind. The next stage of research can be conducted on a representative sample of project managers and project sponsors. However, at the time of conducting the current study, representatives of these groups did not have sufficient knowledge about all the areas of the current Strategic Project Monitoring System to be able to respond to the questionnaire. Therefore, these studies should be preceded by a cycle of training for both proposed groups. This is undoubtedly an interesting area for further research exploration.

The Project Monitoring Model in Central governmental Administration should support critical decision-making and data-driven management. It is a perspective on management that has been rapidly developing in recent times (Wirtz, Müller, 2019; Young et al., 2019). The utilization of artificial intelligence in decision-making support processes may be another area of scientific exploration within the model. However, as research by other scholars has shown (Mergel et al., 2023), the implementation and study of AI require addressing the knowledge gap among public management managers. It has been observed that despite numerous research studies and scientific publications in the e-administration field, the implementation of new models and systems only took place during the COVID-19 pandemic, when the provision of services in the traditional way was not possible. Building awareness regarding risks and mitigation strategies among public management managers can contribute to accelerating the implementation of new technologies in administration. Such an approach is consistent with the People in Project Monitoring Model in Central governmental Administration area group.

Based on the results of analysis, four new areas not included in the Strategic Project Monitoring System share similarities with the system's elements. It was observed that the 'Processes' area could encompass project monitoring and management procedures, as well as defining, monitoring, and managing portfolios and programs, thus creating a new group. In the context of the 'Organization' area, besides defining the roles of units supporting project management and monitoring, the role of a decision-making body in the portfolio of programs and projects can also be defined. Furthermore, processes executed within their area of operations can be specified for this group. Grouping the areas related to the creation and maintenance of IT systems, along with their development, would allow the consolidation of all IT-related activities in one group. Lastly, integrating the areas of building a community of individuals involved in project monitoring and management processes, along with their development through training, would enable the creation of a distinct group focused on human resource management.

The model would encompass the scopes of the six previously defined areas and four new areas, which could be grouped as follows:

- Processes: defining, monitoring, and managing portfolios, programs, and projects.
- Organization: roles and processes of PMOs and the Strategic Project Portfolio Board.

- Tools: creating, maintaining, and evolving IT systems that support the processes.
- People: building and developing the collective competence of individuals in portfolio, program, and project monitoring and management.

The graphic interpretation of the project monitoring model in central governmental administration is presented in Figure 2. The layered model illustrates relationships between dimensions within the model's domains. Model elements are situated at the intersections of these dimensions. The model comprises 22 elements grouped into 4 categories. Additionally, each element is assigned to one or two domains. For instance, in the first quadrant, one may find the program management process, portfolio definition process, or project monitoring process. In the fourth quadrant, examples may encompass PMO process organization or the Strategic Project Portfolio Council's role organization. It is noteworthy that basic roles such as project manager or program manager are absent in the fourth quadrant deliberately. Within the central governmental administration in Poland, individuals in these roles occupy positions within the administrative hierarchy. In other words, the roles of project and program managers complement the duties of specific positions and do not require separate job descriptions or distinct operational processes. Conversely, this differs for PMOs and the Strategic Project Portfolio Council. Individuals in PMO roles undertake comprehensive responsibilities, necessitating separate regulations, job descriptions, and process descriptions. The Strategic Project Portfolio Council operates under the Prime Minister's regulation, imposing the obligation for Ministers to participate in the decision-making body. This also demands separate regulations and the definition of operational processes. In the third quadrant, an example could be the development of supporting tools, while in the second quadrant, it might involve establishing a project community or enhancing the competencies of portfolio managers.

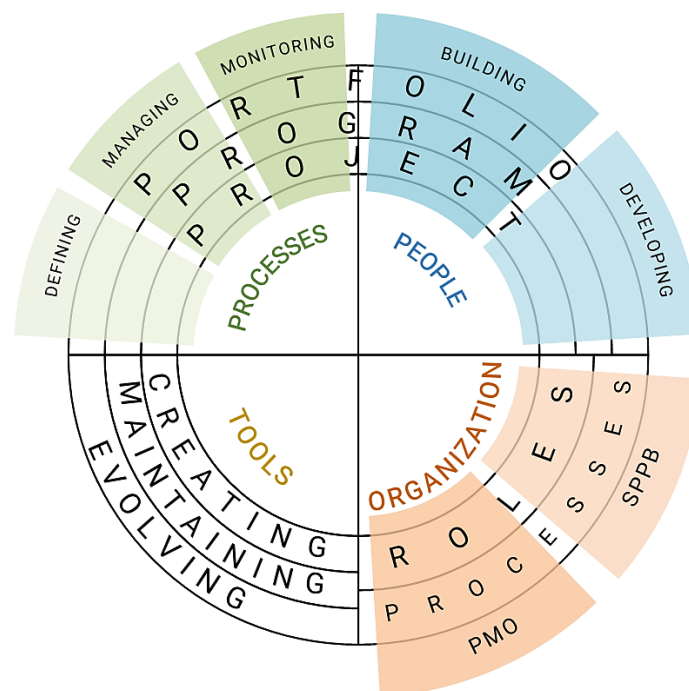


Figure 2. Project Monitoring Model in Central governmental Administration.

The proposed groups of areas are not independent entities. The influence of each group on the others has been observed. For example, building the portfolio definition procedure involves dividing the activities among various actors, including defining the actions of the Strategic Project Portfolio Board, which, among other things, is responsible for accepting the adopted portfolio. Another example of a relationship can be seen in the definition of PMO processes, which will utilize IT systems to carry out these processes. Additionally, defined programs and projects may require the development or enhancement of specific competencies among individuals responsible for their implementation and monitoring.

5. Summary

The results of a literature review in the examined area continue to indicate a significant disparity in the quantity of research on project monitoring in public administration compared to the business world. Subsequent stages of literature research have helped identify predominant clusters of interest areas. Recent research shows that project monitoring is one of the key competencies of project managers (Wyskwariski, 2022). Another scientist indicates that the next directions in the development of the project monitoring area may include, among others, the use of modern IT tools to monitor work progress in real time, the implementation of cloud-based project management systems enabling easy monitoring of tasks and schedules, or the use of Agile methodologies in project monitoring, which allows for flexible response to changes and quick adaptation to new conditions (Wolniak, 2022). The significance of individual domains within the Project Monitoring Model in Central governmental Administration, as well as the feasibility of implementing the model in other administrative units, has been confirmed through research. The presented study was limited to closed questions due to objective premises, which consequently did not lead to the articulation of areas of the model that were not quantified by the author. In other words, expanding the research with in-depth interviews could identify additional new areas, domains or elements that could be included in the model. Referring to hypothesis H1 'The project monitoring system in the central government administration requires development' in other countries, public administration project monitoring models have shown varying levels of effectiveness, with advancements in digitalization and predictive analytics improving the quality of decision-making support. However, challenges persist, including data acquisition from non-standardized devices, transforming raw data into useful indicators, and providing robust and intuitive interfaces. Ukrainian scientists underlined that modernization of public administration in Ukraine has expanded methods of analysis and evaluation, but the system still lacks openness, customer focus, and proactivity (Lyudmila, Anzhela, 2022). The Brazilian Public Administration reforms have introduced corporate governance and accountability concepts, but the monitoring system's

appropriateness is still under examination (Montenegro, Celente, 2016). Other Brazilian researchers claim that the implementation of monitoring and evaluation systems can improve government results, but challenges include data acquisition, data transformation, and interface design. Moreover the data is often acquired from thousands of non-standardized devices scattered across the country, sometimes with limited internet connectivity (Trois et al., 2017). Other Polish scientists underlined the importance of risk management in public project monitoring. Institutions implementing projects are obliged to carry out management control. It is necessary for project managers and unit managers to understand the importance of risk for achieving the objectives of the organization's projects and the potential benefits that can be obtained after its effective implementation (Kuczyńska, Nepelski, 2021).

In the context of hypothesis H2 'The areas of the project monitoring system are universal and can be used in other administration units', other researchers indicate many challenges related to the implementation of project monitoring models, including, for example, despite reforms, some public administrations, such as the Italian Public Administration, remain linked to a bureaucratic model, indicating the need for careful adaptation of project management models to the specific context of public administration (Tomo, 2018). Support for unblocking replication possibilities may be the collaboration between the public and private sectors can be improved through the use of project management, and a shift from traditional organizational setups to project-based operations can improve the quality of social services (Avny, 2022). Finally, the implementation of project monitoring tools can support public administration reforms, but the success of these reforms can be influenced by factors such as the duration of the relevant parliamentary term (Drahošová, Čajková, 2022). The model presented in this article should be subject to further research to confirm its relevance for use in central government administration. The research could be extended to identify further areas of development or redefinition of the model. The results could be achieved by conducting in-depth interviews with representatives of key system stakeholders. Consequently, the model presented in this article can evolve into a comprehensive system supporting broad project management in public administration. These are the pioneering studies in this field in Poland, representing the initial endeavor to create an integrated project management system within the entire Polish administration. Nevertheless, experienced public administration professionals highlight the ongoing, unmet need for developing the model in further yet unarticulated areas. Therefore, the next stage of research may be extended interviews with representatives of key stakeholder groups, e.g. a representative of the PMO, a representative of project managers and a representative of decision-making bodies. This represents a continuous improvement process, requiring adaptation to evolving legal, social, and economic requirements.

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Declaration of interest statement

The author reports there are no competing interests to declare.

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Appendix

Table 2.
Questionnaire

No	Question	Possible answers
Q1	Have you participated in the management and/or monitoring of projects in the past 4 years?	yes / no
Q2	Have you utilized the Strategic Project Monitoring System, such as the MonAliZa system, MonAliZa Breakfasts, Strategic Project Monitoring Council meetings, periodic project reporting, project portfolio construction and management, or project management as?	Project manager / PMO employee / Project sponsor / Other role
Q3	How long have you been using the Strategic Project Monitoring System, such as the IT system MonAliZa, MonAliZa Breakfasts, Strategic Project Monitoring Council meetings, periodic project reporting, project portfolio construction and management, or project management?	Less than 1 year / 1-2 years / 2-3 years / more than 3 years
Q4	How frequently do you use the Strategic Project Monitoring System, such as the IT system MonAliZa, MonAliZa Breakfasts, Strategic Project Monitoring Council meetings, periodic project reporting, project portfolio construction and management, or project management?	once a year / once a quarter / once a month / many times during month
Q5	Please assess the following areas in terms of their usefulness and potential for enhancing the existing system by indicating the extent to which you agree with the statements below: The development of tools supporting project monitoring and management is crucial for enhancing the existing system, including the adaptation and advancement of the IT system MonAliZa to meet user and stakeholder expectations.	Likert scale 1-7 1 - strongly disagree 7 - strongly agree
Q6	The development of key stakeholder competencies is crucial for enhancing the existing system, including the provision of dedicated training for Project Leaders, individuals in PMO roles, and other stakeholders.	Likert scale 1-7 1 - strongly disagree 7 - strongly agree
Q7	The conscious construction and management of project portfolios is crucial for enhancing the existing system, particularly in the process of building project portfolios in the next budget perspective.	Likert scale 1-7 1 - strongly disagree 7 - strongly agree
Q8	Ensuring a cohesive vision and resources in program management is crucial for enhancing the existing system, such as defining program managers, establishing program structures, providing resources for projects within the program, and clearly communicating the purpose of the program's existence.	Likert scale 1-7 1 - strongly disagree 7 - strongly agree
Q9	In your opinion, should the strategic project monitoring system be supplemented with other areas not mentioned in the above question?	yes / no
Q10	Please assess the indicated areas below in terms of their potential for implementation in other administrative units where these areas have not been implemented yet, by indicating the extent to which you agree with the statements below: Project management procedures can be implemented.	Likert scale 1-7 1 - strongly disagree 7 - strongly agree
Q11	Project monitoring procedures can be implemented.	Likert scale 1-7 1 - strongly disagree 7 - strongly agree
Q12	A project monitoring council, as a decision-making body, can be established.	Likert scale 1-7 1 - strongly disagree 7 - strongly agree
Q13	IT tools supporting project management and monitoring, such as the MonAliZa system, can be implemented.	Likert scale 1-7 1 - strongly disagree 7 - strongly agree
Q14	Organizational units supporting project management and monitoring processes can be created.	Likert scale 1-7 1 - strongly disagree 7 - strongly agree

Q15	A project list for implementation, i.e., project portfolio creation, can be developed.	Likert scale 1-7 1 - strongly disagree 7 - strongly agree
Q16	Procedures for creating and managing project portfolios can be implemented.	Likert scale 1-7 1 - strongly disagree 7 - strongly agree
Q17	Procedures for program management can be implemented.	Likert scale 1-7 1 - strongly disagree 7 - strongly agree
Q18	A training cycle for individuals involved in project management and monitoring processes can be implemented.	Likert scale 1-7 1 - strongly disagree 7 - strongly agree
Q19	A community of individuals involved in project management and monitoring processes can be established.	Likert scale 1-7 1 - strongly disagree 7 - strongly agree
Q20	Tailor-made IT tools supporting project management and monitoring, potentially involving external firms, can be developed and implemented.	Likert scale 1-7 1 - strongly disagree 7 - strongly agree
Q21	Your education	primary / vocational / secondary / higher
Q22	Do you have professional experience in administration?	Less than 1 year / 1-2 years / 3-5 years / 5-10 years / more than 10 years
Q23	Do you have overall professional experience?	Less than 1 year / 1-2 years / 3-5 years / 5-10 years / more than 10 years
Q24	Do you hold a certification/s in project management?	yes / no
Q25	Please rate your level of knowledge in project management on a scale of 1 to 5, where 1 is a beginner and 5 is an expert.	Likert scale 1-5 1 - beginner 5 - expert
Q26	Please rate your level of knowledge in project monitoring on a scale of 1 to 5, where 1 is a beginner and 5 is an expert.	Likert scale 1-5 1 - beginner 5 - expert