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Project performance factors in the domestic business support system in Kazakhstan: An empirical study

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Abstract

The relevance of the study is due to the importance of assessing projects implemented within the framework of the state business support system, in which entrepreneurs take an active part by submitting applications for various types of support, including investment subsidies, technical assistance in the implementation of quality management systems, export support, and educational programs. The study identified the main factors determining the successful implementation of projects aimed at supporting and stimulating business development. The research design of project implementation effectiveness factors in the business support system is a strategic approach that allows you to organize and structure the analysis of theoretical concepts, and also provides a basis for subsequent experimental research in a real practical project management environment. The research methodology includes the use of structural modeling, which is a validated technique for testing multiple parallel hypotheses about the existence of cause-and-effect relationships. The conducted survey of business entities in several regions of Kazakhstan and the subsequent data analysis confirmed the significance of the identified factors, as a result of which the identified analysis allows to better understand the processes occurring in the business support system and offer practical recommendations for its improvement, which can also serve as a basis for the development of more effective strategies and programs to support entrepreneurship in Kazakhstan.

Keywords: Business, Government support, Influencing factors, Project approach, Public administration, SmartPLS model.

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1. Introduction

The study of factors affecting the effectiveness of project implementation in the Kazakh business support system is of particular relevance in modern conditions. Projects play an important role in the field of entrepreneurship development and business support, both in Kazakhstan and around the world. They are a tool for implementing strategies, innovations, and development of the economy as a whole. However, not all projects achieve their planned goals, and the effectiveness of their implementation depends on variety of factors.

An empirical study of project effectiveness factors in the business support system will make it possible to understand which specific aspects, conditions, and actions contribute to the successful implementation of projects, and which, on the contrary, are obstacles. The results of such research may be valuable for developing and adjusting government support strategies for business, as well as for more efficient use of government resources. In addition, given the rapid pace of change in the global economy and technological development, it is important to have up-to-date data on what factors and approaches actually influence the success of projects. Such a study will help attract the attention of the expert community to the issues of efficiency and quality of government support for business, which contributes to the development of constructive dialogue and informed decision-making in this area.

The difficulty in examining the effectiveness of project implementation in the Kazakh business support system may stem from various factors, one of which could be the scarcity of available data for analysis. Some aspects of enterprise activities may not be well documented or assessed, making it difficult to analyze and identify factors influencing project performance, and available data may be incomplete or not up-to-date, which may be caused by insufficient enterprise reporting, errors in data collection or analysis, making it difficult to adequately assess project effectiveness.

Research on project effectiveness factors in the business support system should take into account the contextual features of the Kazakhstani business sector, such as political and economic conditions, the competitive environment, legislation, and other aspects affecting the results of the study. Addressing these challenges requires a comprehensive approach, including more rigorous data collection, application of robust research methodologies, and consideration of the specificities of the business environment in Kazakhstan. However, it is not always possible to unambiguously link changes in financial performance to participation in a particular project, given the impact of certain factors, that may affect the effectiveness of projects in the business support system.

2. Literature Review

A literature review examines the factors that contribute to the effectiveness of project implementation in Kazakh business support system, taking into account the following aspects.

- Determination of which aspects of the effectiveness of projects in the business support system have already been studied in previous works, what research methods were applied, and what results were obtained;
- Consideration of key concepts and theories related to assessing the effectiveness of projects, including project management models, theories of organizational behavior, etc.;
- Analysis of various factors that may influence the success of projects in the business support system, including organizational factors, economic conditions, political aspects, etc.;
- This paper provides an overview of various methods and tools used to evaluate the effectiveness of projects in the business support system, including qualitative and quantitative methods of data analysis
- Identification of the main problems and challenges faced by projects in the business support system in Kazakhstan, and discussion of possible ways to solve them;
- We are analyzing the current trends in business support in Kazakhstan and predicting potential opportunities for the future development of project support system.

The spread of the “new public administration” methodology in the world practice of state regulation stimulated a shift in emphasis to project management, along with the preservation of indirect regulation measures (special economic zones, investment loans, tax incentives, etc.). The methodology turned out to be extremely attractive, because it made it possible to reduce part of public spending while at the same time increasing its effectiveness. In developed countries, the introduction of project management has become an integral practice. The UK has created a government body that forms the portfolio of projects, and has developed one of the best project management standards in the world practice, with sufficient flexibility to adapt to projects from any field of activity [1]. Canada carefully designs its project to ensure monitoring and risk diversification [2]. Norway has established an efficient information system for managing government projects [3, 4].

The institutional framework for project management in the public sector was formed in Kazakhstan: in 2021, a regulatory legal act appeared that regulates the norms of project management in the activities of state bodies [5].

The introduction of the project approach as a method of managing public sector resources within the framework of business assistance measures allowed by the World Trade Organization (hereinafter referred to as WTO) is associated with the need to increase the efficiency and effectiveness of the work of government bodies. An assessment of changes in terms of the effectiveness of the actions of state bodies by the type of corporate governance is presented in [6-9]. The papers examine the efficiency factors of public administration projects, including participants in these projects from other sectors of the economy [10-13]. The systematization of the theoretical provisions used in evaluating project management in the public sector shows that the theory of "agents" and "stakeholders" is most often used in evaluating both results and management problems [14, 15].

There is a tradition of considering project management as one of the methods of internal management, and, in parallel, there is a tradition of considering project management in the context of external, transaction costs, which is very important for projects in the field of public administration [16].

Many works in this area are devoted to the assessment of changes in the management of state bodies, organizational transformations and the ability to adapt to them, in particular, studies by Clegg [17]. They are held in the field of organizational change, and, for example, Turner [18] emphasizes that it is still not clear how project management affects decision-making from the standpoint of organizational psychology. These papers emphasize that project management by a public authority can ensure high commitment of all project participants, minimize conflicts between them, and increase the KPI (Key Performance Indicator) of the project. In the work of Derakhshan, et al. [10] it is specified that the strategic decisions made at the organizational level, influence the approach to external stakeholders at the project level. But the readiness of all interested parties to achieve the final result is of fundamental importance.

A separate direction is to consider the project as an interorganizational network that has taken shape for a specific project or has become a sustainable entity by the time the it starts [19, 20]. Projects based on a stable relationship of trust between participants can achieve better results if the interaction is properly organized, the responsibilities and roles of each are defined. Digital technologies provide new opportunities for this, including for managing and controlling the flow of events and project results [21].

The methodology for researching projects with the participation of stakeholders is most often based on the qualitative characteristics of the process (roles, responsibilities, relationships), while a number of researchers, such as Steen J. et al., [22], propose to consider projects using graph theory, which allows within the framework of one structure, consider both subjects, and resource flows and problem solving in direct mode.

The complexities of project management in the system of state regulation are studied by Kartov [23]; Oynarov, et al. [24]; Maslov, et al. [25] and Vasiliev and Prokofiev [26] from the point of view of ways to combine process management (characteristic of routine, repetitive activities), and project management is characterized by the achievement of separately recorded results and clearly defined deadlines that can be distinguished from a wide stream of business processes. These works compare the general and the specific aspects of process and project management in public administration, which indicating the initial early stages of their introduction into state regulation practice. The purpose of the study was to evaluate the state system of support for domestic business and the projects implemented within its framework by business entities.

3. Methodology

The research methodology includes the following stages:

- Identification of the main factors influencing the success of projects in the business support system in Kazakhstan;
- Review of existing studies, articles, reports, and publications on the research topic, providing an opportunity to understand the current status, problems, and identify gaps in knowledge;
- Use of research methods: analysis of statistical data, conducting surveys, interviewing key stakeholders;
- Collection of necessary data in accordance with the selected research methods, including surveys among business and government representatives, analysis of project reports, etc.
- Processing and analysis of collected data using appropriate statistical and analytical methods.
- Identifying factors influencing the effectiveness of projects in the business support system in Kazakhstan and developing practical recommendations for improving this system.

4. Materials and Methods

In this study, SmartPLS structural modeling, Partial Least Squares Structural Equation Modeling (hereinafter referred to as PLS-SEM), was used to discover or build predictive models. Structural equation modeling (hereinafter referred to as SEM) is a statistical method used to analyze complex relationships between variables, allowing researchers to estimate models that include observables, such as latent variables, as well as multiple direct and indirect relationships between them. The SEM process begins with the construction of a hypothesized model assuming a relationship between variables. We then collect data through surveys, questionnaires, or other methods, and use the resulting data to test the hypotheses and evaluate the model. As part of this study, a survey was conducted in seven regions of Kazakhstan among business entities. The application of the structural modeling method using SmartPLS software allowed the researchers to analyze the complex relationships between various factors affecting the effectiveness of project implementation in the business support system.

The advantage of the SEM method is its ability to account for multiple relationships between variables and to estimate both direct and indirect effects, making it a powerful tool for analyzing complex systems and allowing researchers to gain a deep understanding of the relationships between different aspects of the phenomenon under study.

The approach using SmartPLS software to study the factors determining the effectiveness of project implementation within Kazakhstan's business support system has distinctive features compared to the previous approach:

- SmartPLS facilitates structural modeling, a powerful method for examining complex relationships between variables, which allows us to assess not only the direct but also the indirect impact of various factors on outcomes.

- SmartPLS relies on partial least squares, providing greater robustness to multicollinearity and relaxing stringent data distribution requirements, allowing more flexibility in analyzing complex models than traditional methods such as ordinary least squares (OLS).
- SmartPLS allows for mediation and moderation analysis, allowing us to assess which variables may mediate or moderate relationships between other variables.
- SmartPLS provides the ability to visually present the results of the analysis, improving interpretation through a graphical representation that is more intuitive and easy to understand.

As a result, using the SmartPLS allows for more flexible and efficient analysis of complex relationships between project performances factors in a business support system, making this method more appealing to researchers and managers.

To identify factors, we have undertaken a survey of 524 business entities in seven regions of Kazakhstan: Akmola, Karaganda, Pavlodar, West Kazakhstan, Almaty regions, as well as in the cities of Astana and Almaty. To analyze the results of the survey, a structural modeling method was applied and an econometric model was built in the SmartPLS program, which made it possible to formulate and test a number of hypotheses.

The content of structural modeling or modeling by structural equations (structural equation modeling) can be briefly defined as a set of multivariate analysis methods that allow studying the relationship between the observed by the researcher and unobservable (latent) phenomena (variables) [27].

Structural modeling is carried out using the methods of mathematical, simulation, and statistical modeling to create a prototype of a real or virtual object in order to obtain explanations about the relationships between directly observable and hidden or unobservable variables [28].

The complexity of the object in our case arises from the creation ofvirtual image of the model, which we define as a model of state support for domestic suppliers to intensify the process of forming a cluster structure of the Kazakh economy and increase its competitiveness in the world economy.

The advantage of the method is the complex multidimensionality of the model, the ability to visualize complex systems of relationships that allow you to test many hypotheses within a single design, previously tested for adequacy using statistical verification methods built into the modeling algorithm [29, 30].

5. Results

A structural model representing 4 latent or dependent variables (Yn) and 8 independent or observed variables (Xm) is presented as a system of equations (formula 1) and in Table 1.

Y1 (0.340) = - 0.039X2 + 0.062X6 + 0.553X8.
Y2 (0.269) = - 0.239X5 + 0.402X6 - 0.336X8 (1).
Y3 (0.273) = - 0.358X1 - 0.209X2 + 0.228X7.
Y4 (0.399) = + 0.076X1- 0.040X3 - 0.418X4+ 0.027X5+0.203X7-0.069X8+ 0.373Y3.

Table 1.
Observed and latent variables in the PLS-PM model.

№	Indicators	Designation	Blocks	Indicator (5point scale)
1	2	3	4	5
1	Efficiency, effectiveness of the company after participation in the project / Program	Y1	Y13efficiency Y14efficiency Y15efficiency	Efficiency Functionality (Purpose of the project) Labor productivity
2	The company's ability to work with the simultaneous participation of specialists in the project	Y2	Y10abilwork Y11abilwork Y12abilwork	Changing business processes Changing process management Impact on employee motivation
3	Indirect losses from participation in state / Projects	Y3	Y7consloss Y8consloss Y9consloss	Loss of time Loss of profit Other financial losses
4	Cost of production as a criterion of its competitiveness (Vector of changes)	Y4	Y1costs Y2costs Y3costs Y4costs Y5costs Y6costs	Costs of raw materials and energy, Labor costs Equipment and technology costs Logistics costs Administrative costs Total cost price
5	Long-term costs (Investments)	X1	X19longinv X20longinv X21longinv	Investing in new technologies Investing in new products Investing in ISO standards
6	Additional public services	X2	X16addgserv X17addgserv X18addgserv	Public investment services/Investment subsidies Technopark services Scientific and technical services in the form of grants from the state
7	Availability of information services	X3	X4infserv	Participation in projects/Programs

№	Indicators	Designation	Blocks	Indicator (5point scale)
			X5infserv X6infserv	Participation in seminars/Trainings Participation in exhibitions
8	Availability of training for staff	X4	X7trainacc X8trainacc X9trainacc	Employee personnel services Services for line managers Services for top managers
9	Availability of other services	X5	X10otheracc X11otheracc X12otheracc	Credits Tax incentives
10	Time spent on participation in the project/Program	X6	X13montime X14sixtime X15moretime	up to 3 months 4-6 months More than 6 months
11	Benefits of participation in state / Projects	X7	X1benpart X2benpart X3benpart	Profit Improving technology Improvement of management
12	Characteristics: Experience in financial and administrative management	X8	X22dir X23mng X24fmng	Director Admin manager Finance manager

For independent variables in the program, a rectangular shape is adopted, for dependent variables, a circle is used.
Model testing.
The resulting model's evaluation process is divided into two steps:
1) Validation of the measurement model.
2) Testing the structural model.

The first stage is carried out using confirmatory factor analysis and the second is implemented through path (Path) analysis.

Stage 1. Validity evaluation of the coefficients of the model indicators shows acceptable indicators of the quality of the model fit, since most of them have values above 0.7. This confirms the correlation between indicators of independent and dependent variables.

The results of the calculations of the correlation coefficients presented in Table 2 characterize the strength of the factor load for the indicator. As part of this stage, the sufficiency of the number and consistency of indicators with each other for measuring independent and dependent variables are also checked. We can say that the confirmatory analysis quantifies the quality of the information data loaded into the model. According to the calculations, the factor load on the indicators in the overwhelming majority is above 0.7.

The fact that a number of indicators have a factor loading value of less than 0.7can be explained as follows:

- X15moretime (0.406) - reflects the fact that the majority of respondents participated in short-term projects (up to five months), or vice versa in projects for more than a year, and the option from 0.5 to 1 year is almost never found in the answers.
- X18addgserv (0.312) - reflects the fact that only 2% of respondents note the effect on their businesses of state-funded scientific and technical research in the form of grants. That is, the overwhelming majority of answers confirm that there is no noticeable effect from state funding of the scientific and technical direction of research.
- X23-24fmng (0.410; 0.144) - reflects the fact that if almost all directors of companies participated in the survey, then only in some companies other administrators took part, and financial managers participated in surveys only in 15% of companies.
- Y9trainacc (0.277) - almost all companies noted no financial losses from the measures taken by the state or from participation in state projects.
- Y3-4, 6 infserv (0.326; 0.376; 0.463) - characterizes the diversity in the movement vectors (structural growth or decrease) of certain types of costs, which corresponds to the diversified structure of survey participants by types of activity.

X1, X3 ben part (0.315; 0.567) - the distribution of responses for these positions is strongly polarized. In other words, the respondents' answers roughly split evenly between the minimum and maximum point values, with almost no average marks.

Stage 2. Next, the internal consistency of the test questions is checked, and the impact of each question on the latent variable is measured. The evaluation is based on the Alpha Cronbach's statistical coefficient and some others (Table 2).

Table 2.
Coefficients of reliability and validity.

№	Indicators	Cronbach's alpha	rho_A	Composite reliability (CR)	Average variance extracted (AVE)
Y1	Efficiency, effectiveness of the company after participation in the project / Program	0.765	0.794	0.826	0.687
Y2	The company's ability to work with the simultaneous participation of specialists in the project	0.676	0.714	0.861	0.583
Y3	Indirect losses from participation in government projects	0.943	0.958	0.968	0.856
Y4	Cost of production as a criterion of its competitiveness (Vector of changes)	0.381	0.389	0.715	0.603
X1	Long-term costs (Investments)	0.878	0.919	0.976	0.848
X2	Additional public services	0.862	0.717	0.971	0.724
X3	Availability of information services	0.982	0.901	1.000	0.834
X4	Availability of training for staff	0.981	0.656	0.749	0.504
X5	Availability of other services	0.617	0.270	0.607	0.504
X6	Time spent on participation in the project/Program	0.568	0.642	0.651	0.494
X7	Benefits of participation in government projects	0.452	0.721	0.801	0.468
X8	Characteristics: Experience in financial and administrative management	0.661	0.645	0.652	0.501

The results obtained confirm the adequacy and acceptability of the model used to analyze the effectiveness of project implementation. Using confirmatory factor analysis, we validate the measurement model and found high indicators of its goodness of fit, indicating a significant correlation between the independent and dependent variables. Analysis of factor loadings on indicators confirms the sufficiency and consistency of the selected indicators to measure their impact on independent and dependent variables. This means that the analysis gives us a way to test the structural model further and see how different factors affect how well projects are carried out in the Kazakhs business support system.

Cronbach's Alpha coefficient serves as a measure of homogeneity (internal consistency) of indicators. Coefficient scale:

- 0.5 - low value.
- 0.6 - satisfactory value.
- 0.7 is a good value.
- 0.8 is a very good value.
- 0.9 - high.

The value of the Cronbach's Alpha characterizes the elements of the test as sufficiently internally consistent. The exceptions are the factors: “time spent on participating in the project or program,” “individual characteristics of respondents: representatives of financial and administrative management (FAM),”“Product cost as a criterion of its competitiveness (vector of changes)”, which is explained by excessive polarization of values and, on the contrary, their excessive similarity. The polarization of values is manifested in the assessment of the benefits of participation in the project and in the assessment of the significance of individual cost components for the company's competitiveness. Excessive similarity of answers takes place when estimating the time spent participating in the project.

In general, most of the values of the Cronbach's Alpha show sufficiently high values, and the program gives a positive answer for further actions to test the model.

The Average Variance Extraction Factor (AVE) measures the indicator elements variance. The AVE value must be 0.5 or greater, but less than the cumulative reliability (CR). That is, the variance explained by the design must be greater than the measurement error and greater than the cross-loadings. Because the AVE and associated confidence factors are based on factor loadings, their values vary depending on the factor model. The AVE for the independent variable (X factors) or dependent variable (Y) must also be higher than its squared correlation with any other factor or latent variable.

CR stands for Composite Reliability, which determines the overall reliability of the structure. The coefficient is calculated using the square of the sum of standardized factor loadings and the sum of the error variance. The value of CR is in the range of0 to 1. A factor of 1 corresponds to absolute reliability. CR thresholds: 0.6 is good for exploratory studies, 0.7 for confirmatory studies, and0.8 or higher is good reliability for confirmatory studies. The CR factor must exceed the AVE factor’s value.

In general, for this model, the condition is met, and only three values of CR are in the range of 0.6 to 0.7. These are the variables “time spent on participation in the project or program”, “individual characteristics of respondents: representatives of financial and administrative management (FAM)”, “other services from the state (taxes, loans, free economic zones).

5.1. Collinearity is Checked

A linear relationship between the two factors - will reveal collinearity. When diagnosing collinearity, we derive the factors from the model by violating the condition of independence between the explanatory variables. Remains in the

model are the factors that, with a sufficiently close connection to the result, have the least tightness of connection with other independent variables.

Analysis of Cronbach's alpha values indicates the internal consistency of the test items, with the exception of several factors, such as "time spent participating in the project or program," "individual characteristics of respondents: representatives of financial and administrative management (FAM)," and "cost of production as a criterion of its competitiveness (vector of change)."These exceptions are explained by excessive polarization of values and similarity of responses. However, most Cronbach's alpha values still show high values, indicating good internal consistency of the test items.

We use Average variance extraction (AVE) to estimate the variance of indicator items. The AVE value should be at least 0.5, but it should be less than the cumulative reliability (CR). This means that the model should explain more of the variance than measurement error and cross-loadings. Based on the provided data, the AVE values and corresponding confidence coefficients suggest that the model demonstrates adequate explanatory power and suitability for further testing. Table 3 shows the resulting collinearity statistics. We use collinearity statistics (CS)to detect multicollinearity. The maximum allowable value of this indicator is 5, and the minimum threshold is 0.2.

Table 3.
Collinearity statistics (CS).

Coefficients	Indicators	Efficiency, effectiveness	The ability of the company to work	Casualties	Cost of production
AND1	Efficiency, effectiveness of the company after participation in the project / Program	-	-	-	1.979
Y2	The company's ability to work with the simultaneous participation of specialists in the project	-	-	-	-
AND3	Indirect losses from participation in government projects	-	-	-	2.486
AND4	Cost of production as a criterion of its competitiveness (Vector of changes)	1.212	-	1.312	1.830
X1	Long-term costs (Investments)	-	-	-	1.639
X2	Additional public services	-	-	-	1.704
X3	Availability of information services	-	1.195	-	1.002
X4	Availability of training for staff	1.641	1.051	-	-
X5	Availability of other services	-	-	-	1.623
X6	Time spent on participation in the project/Program	-	-	1.285	1.837
X7	Benefits of participation in government projects	-	-	-	-
X8	Characteristics: Experience in financial and administrative management	1.716	1.683	1.941	1.832

The data in Table 3 is in the acceptable range of values, indicating that there is no multicollinearity between the variables.

5.2. Determination Coefficient

The model under study (the independent variables) accounts for a proportion of the dependent variable's variance, known as the square of multiple correlations. R-square is in the range of0 to 1. Dependence between dependent and independent variables increases as the coefficient approaches unity. Regression models interpret this as the models' fit to the data.

R Square Adjusted is the adjusted determination coefficient. We use it to compare models with varying numbers of factors, ensuring that the number of factors does not impact the R-squared statistic.

The correlation coefficient obtained in the model for the variable "cost of products as a criterion of its competitiveness (vector of changes)" is 0.389, that is, about 40% of the variance of this design is explained by this model (Table 4).

Table 4.
Coefficients of determination.

Coefficients	Dependent indicators	R square	R square adjusted
AND1	Efficiency, effectiveness of the company after participation in the project / Program	0.341	0.369
Y2	The company's ability to work with the simultaneous participation of specialists in the project	0.269	0.279
AND3	Indirect losses from participation in government projects	0.273	0.284
AND4	Cost of production as a criterion of its competitiveness (Vector of changes)	0.389	0.402

Based on the presented data, the general conclusion is as follows:

Multiple correlations squared (R-square) is an important indicator that reflects the explanatory power of a model. In this study, R-square has a value of approximately 0.389 for the variable “Product cost as a criterion of its competitiveness (vector of change).” This means that about 40% of the variance in this construct is explained by the model under study.

R Squared Adjusted (adjusted coefficient of determination) takes into account the number of factors in the model, allowing you to compare models with different numbers of variables. This indicator avoids underestimating or overestimating the significance of the model due to the number of factors included.

The overall R Square and R Square Adjusted values for the entire model should be interpreted as the model's fit to the data and its explanatory power. These indicators are key to assessing the effectiveness of the model and its suitability for further use in forecasting or decision making. Thus, the results of the study indicate the significance of the model for explaining the cost of production as a criterion of its competitiveness in the context of the Kazakh business support system.

At the second stage, bootstrapping testing is carried out, which is a means of checking the results of PLS analysis in the Smart PLS program. The verification algorithm consists of carrying out several iterations, which gradually "step by step" check the significance of the Cronbach's Alpha coefficients, R-squared, and make a conclusion about the correctness of the hypotheses. The second stage of testing the model yielded results that either accepted or rejected the following hypotheses about the nature of the relationship between the variables Y and X. (Table 5).

Table 5.
Path coefficients.

№	Indicators	Original sample (O)	T statistics	P values	Hypothesis status
Efficiency, effectiveness of the company after participation in the project / Program (Y1)					
1	Time spent on participation in the project/Program (X6) = > (Y1)	0.072	0.623	0.051	Rejected
2	Additional public services (X2) = > (Y1)	- 0.129	0.608	0.592	Rejected
3	Characteristics: Experience in financial and administrative management (X8) = > (Y1)	0.263	2.581	0.019	Adopted
The company's ability to work with the simultaneous participation of specialists in the project (Y2)					
4	Time spent on participation in the project/Program (X6) = > (Y2)	0.412	2.574	0.031	Adopted
5	Characteristics: Experience in financial and administrative management (X8) = > (Y2)	-0.135	0.784	0.673	Rejected
6	Availability of other services (X5) = > (Y2)	- 0.219	2.174	0.281	Rejected
Consequential losses from participation in public projects (Y3)					
7	Long-term costs (Investments) (X1) => Indirect losses (Y3)	-0.312	1.352	0.047	Adopted
8	Additional public services (X2) => Indirect losses (Y3)	-0.461	2.174	0.126	Rejected
9	Benefits from participation in public projects (X7) => Indirect losses from participation in state / Projects (Y3)	0.305	1.104	0.027	Adopted
Cost of production as a criterion of its competitiveness (Vector of changes) (Y4)					
10	Benefits from participation in government projects (X7) = > (Y4)	0.303	0.671	0.004	Adopted
11	Availability of training for staff (X4) -> (Y4)	-0.109	1.103	0.021	Adopted
12	Consequential losses (Y 3) -> (Y4)	0.291	2.195	0.029	Adopted
13	Availability of information services (X3) -> (Y4)	-0.098	0.971	0.527	Rejected
14	Availability of other services (X5) => (Y4)	0.136	0.348	0.795	Rejected
16	Long-term costs (Investments) (X1) = > (Y4)	0.156	2.261	0.136	Rejected
17	Characteristics: Experience in financial and administrative management (X8) = > (Y2)	-0.065	0.467	0.640	Rejected

1) Y1 – Efficiency of the company after participation in the project. For this variable, we refuted two hypotheses and confirmed one. Evaluation of the project's effectiveness (growth of the company's efficiency after participating in the project) depends on the experience and level of professional training of the manager who participates in the project and answers interview questions (0.553X8). As the company's financial and administrative manager (FAM) gains more experience in the project, his evaluation of the project's effectiveness rises, a direct correlation to his actions within the project. he more experienced the financial and administrative manager (FAM) was involved in the project on the part of the company, the higher his assessment of the effectiveness of participation in the project, which is obviously related to his actions in the project.

The duration of participation in the project (X6), according to some survey participants, is positively related to performance with a coefficient of 0.062, but this opinion is not dominant. Additional public services (X2) have a negative relationship with performance -0.049. In the comments there are references to the requirements for the return of investment subsidies previously made by the state, but this assessment also does not dominate. We have refuted both of these hypotheses.

2) Y2 – the ability of the company to work with the simultaneous participation of specialists in the project.

The hypothesis of a positive relationship between the time spent on participation in the X6 and Y2 projects was confirmed, which suggests that in practice, participation in the project does not prevent specialists from working, but rather helps, because many processes, which begin to be considered differently in the course of participation, are corrected in time, which ultimately leads to a positive result.

There are some discrepancies on this issue, i.e. the influence of X8 (individual characteristics of the respondents) has a negative sign of -0.336, but the relationship is recognized as insignificant. The influence of X5 (systemic services from the state) has a negative impact (-0.269), but this hypothesis has not crossed the threshold of significance.

3) Y3 - Indirect losses from participation in the state project.

Benefits from participation in the state project X7 (improvement of production technology, improvement of management in terms of lean production, obtaining some profit) cover possible indirect losses (time and finances) from participation in the project. The hypothesis was confirmed, because coefficient P Values = 0.027.

As for long-term costs (investments) X1, they increase indirect losses from participation in programs and projects due to the growth of risks over significant periods of time, but the value is almost at the limit of reliability, because coefficient P Values = 0.037.

Additional public services X2 (investment subsidies, grants, technology park services) also, according to a number of respondents, increase indirect losses, but this hypothesis did not pass the test for reliability.

4) Y4 - Production cost as a criterion of its competitiveness (vector of changes).

Respondents positively assess the relationship between participation in government projects and lower production costs, i.e., one of the benefits of participation. They consider changes in technology and management, which are likely to have a positive impact or have already affected the cost of production. The coefficient P value is0.04 and the hypothesis is confirmed.

At the same time, respondents note the inaccessibility of mass qualitative retraining of personnel to work with new technologies and in new conditions. The relationship between variables X4 and Y4 is negative and significant – 0.41. The coefficient for this hypothesis is P value is0.21 and the hypothesis is accepted.

Respondents believe that cost reduction in the future will be significantly affected by a decrease in indirect losses from participation in programs and projects. The relationship between the variables Y3 -> Y4 is positive and significant, P Values = 0.029.

At the same time, neither information nor accessibility about programs and projects implemented by the state, nor SEZ services and loans, nor even long-term investments, as separate factors, demonstrated a significant impact on the vector of cost changes.

6. Discussion

The results of our study are consistent with the conclusions presented in the works of Derakhshan, et al. [10]; Hallioui, et al. [11] and Gao, et al. [12] which are based on the theory of "stakeholders," because, on the one hand, specific assistance projects have more significant positive consequences for agents than system-wide support.

On the other hand, as shown in the work of Derakhshan, et al. [10] a significant factor in the effectiveness of participation in the project is the subjective characteristics of the leading managers of the business entity that participates in the project on behalf of the company. And his ability to communicate the need for organizational change to his company is critical.

Despite the short time period for the introduction of project management in the public sector of Kazakhstan and its regulatory framework, the complexity of the process of organizational changes in government bodies is already fully understood [23].

7. Conclusion

The study of the factors influencing the effectiveness of state support in the assessments of actors who had experience participating in projects allows us to draw the following conclusions with a fairly high probability.

A successful result for the company from participation in the project largely depends on the qualifications and experience of the manager who, on behalf of the company, participates in the project. Despite the fact that some specialists are distracted from routine production processes, in practice, participation in the project does not prevent them from

working but rather helps because many processes, which begin to be considered differently in the course of participation, are corrected in time, which ultimately leads to a positive result. The benefits of participation in the project include improving production technology, improving management in terms of lean production, and making some profit to cover possible indirect losses (time and finances) from participating in the project. Respondents positively assess the relationship between participation in government projects and lower production costs, i.e., one of the benefits of participation. They consider changes in technology and management that are likely to have a positive impact or have already affected the cost of production.

The factors of information accessibility about programs and projects implemented by the state, neither SEZ services and loans, nor long-term investments, as separate factors, demonstrated a significant impact on the vector of cost changes (the latter due to high risks of long-term investments).

Research will continue in terms of organizing business processes within government projects to identify risks and methods for their prevention.

The results of this study may be useful for both policymakers and practitioners in various fields. Here are some examples of the usefulness of the results.

7.1. For Politicians

- Will help determine the effectiveness of current business support programs and identify areas requiring improvement;
- Will provide information on factors influencing the success of projects within the business support system, which will optimize the use of public resources;
- Will serve as the basis for the development and implementation of new policies and programs aimed at improving the conditions for entrepreneurship and business development in the country.

7.2. For Practitioners

- This will enable you to gain a deeper understanding of the factors that influence project success, and you can utilize this information to enhance the management and planning of your business processes.
- Serve as the basis for developing strategies for participation in government business support programs and effective use of the resources provided;
- Help entrepreneurs and managers make more informed decisions about which projects are worthwhileand what resources to allocate for their implementation.

Thus, the results of this study have practical implications for both the development of public policy and the daily activities of the business community. They can help create more effective business support tools adapted to real needs and create a more favorable environment for entrepreneurial activity.

For further future research, it is necessary to systematize the findings of the study, identify opportunities for further in-depth analysis, and suggest specific directions for future research.

7.3. Consequences

Improving the effectiveness of government business support programs has the following consequences:

- Improved conditions for the development of entrepreneurship in the country, as effective support programs promote business growth and create a favorable environment for entrepreneurial activity;

- Increased competitiveness of the business sector as a result of improved working conditions and business development, which contribute to attracting customers and competition in the market;

- Increased investment in the economy as a result of improved business environments and opportunities for entrepreneurs, which creates more attractive conditions for investors;

- Reducing the level of risk for investors and entrepreneurs, as effective support programs help mitigate financial and operational risks, increasing confidence in successful business development and investment.

7.4. Restrictions

Limitations of the study include:

- Limited data available and limited sample size, may limit generalization of results to the general population or make conclusions less reliable due to limited sample representativeness;

- Limited time and resources to conduct the study may result in insufficient depth of analysis or limit the ability to collect additional data, which may limit the scope of the study;

- Lack of familiarity with some aspects of the business may limit the understanding of the context and environment in which the business operates and consequently reduce the accuracy of the study;

- Unaccounted for factors or variables that may affect the effectiveness of project implementation may distort the results of the study or lead to incomplete conclusions if all relevant variables or influencing factors are not considered.

7.5. Suggestions for Future Research

- Conducting larger studies with a larger sample size and taking into account more factors;
- Inclusion of additional variables such as economic growth, political stability, and other macroeconomic indicators;
- Expanding the geographic scope of the study to cover a wider range of business sectors;

- Examining the long-term effects of participation in government business support programs;
- Analyzing the impact of different strategies and approaches to project implementation on their success;
- Study of mechanisms and tools that contribute to increasing the effectiveness of government business support;
- Consideration of the impact of external factors, such as changes in legislation, tax policy, and the global economic environment, on the effectiveness of project implementation.

The author's contribution to this study is to conduct a comprehensive analysis of the factors affecting project implementation efficiency in Kazakhstan's business support system. The authors collected and analyzed data, developed the research methodology, conducted statistical analysis, formulated conclusions and recommendations based on the results obtained. In addition, the authors contributed to the literature review, discussion of the results, formulation of conclusions, and practical implications of the study.

References

[1] Official Resource of IPA Annual Report on Major Projects (2017-2018), "Annual report on major projects 2017-18," Retrieved: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/721978/IPA_Annual_Report_2018__2_.pdf. 2023.

[2] M. Brunet, "Governance-as-practice for major public infrastructure projects: A case of multilevel project governing," *International Journal of Project Management*, vol. 37, no. 2, pp. 283-297, 2019. https://doi.org/10.1016/j.ijproman.2018.02.007

[3] J. B. Esteve, B. Goldsmith, and J. Turner, "Speed and efficiency of the vote counting process." Washington, DC: International Foundation for Electoral Systems, 2012, p. 182.

[4] T. Christensen, "The Norwegian front-end governance regime of major public projects: A theoretically based analysis," Concept Rapport No.23. Trondheim, Norway: Concept-Programmet, 2009.

[5] Decree of the Government of the Republic of Kazakhstan, "On approval of the rules for the implementation of project management, 2021," Retrieved: https://adilet.zan.kz/rus/docs/P2100000358. 2021.

[6] L. H. Crawford and J. Helm, "Government and governance: The value of project management in the public sector," *Project Management Journal*, vol. 40, no. 1, pp. 73-87, 2009. https://doi.org/10.1002/pmj.20107

[7] O. James, "Business models and the transfer of businesslike centralgovernment agencies," *Governance*, vol. 14, no. 2, pp. 233-252, 2001. https://doi.org/10.1111/1468-0491.00159

[8] D. Coen, A. Katsaitis, and M. Vannoni, *Business lobbying in the European union*. Oxford: Oxford University Press, 2021.

[9] Y. Kim and N. Darnall, "Business as a collaborative partner: Understanding firms' sociopolitical support for policy formation," *Public Administration Review*, vol. 76, no. 2, pp. 326-337, 2016. https://doi.org/10.1111/puar.12463

[10] R. Derakhshan, R. Turner, and M. Mancini, "Project governance and stakeholders: A literature review," *International Journal of Project Management*, vol. 37, no. 1, pp. 98-116, 2019. https://doi.org/10.1016/j.ijproman.2018.10.007

[11] A. Hallioui, B. Herrou, R. S. Santos, P. F. Katina, and O. Egbue, "Systems-based approach to contemporary business management: An enabler of business sustainability in a context of industry 4.0, circular economy, competitiveness and diverse stakeholders," *Journal of Cleaner Production*, vol. 373, p. 133819, 2022. https://doi.org/10.1016/j.jclepro.2022.133819

[12] X. Gao, S. Zeng, R. Zeng, J. J. Shi, and R. Song, "Multiple-stakeholders' game and decision-making behaviors in green management of megaprojects," *Computers & Industrial Engineering*, vol. 171, p. 108392, 2022. https://doi.org/10.1016/j.cie.2022.108392

[13] J. Song, L. Song, H. Liu, Z. Feng, and R. Müller, "Rethinking project governance: Incorporating contextual and practice-based views," *International Journal of Project Management*, vol. 40, no. 4, pp. 332-346, 2022. https://doi.org/10.1016/j.ijproman.2022.04.004

[14] C. Biesenthal and R. Wilden, "Multi-level project governance: Trends and opportunities," *International Journal of Project Management*, vol. 32, no. 8, pp. 1291-1308, 2014. https://doi.org/10.1016/j.ijproman.2014.06.005

[15] Z. W. Oberfield, "Accounting for time: Comparing temporal and atemporal analyses of the business case for diversity management," *Public Administration Review*, vol. 74, no. 6, pp. 777-789, 2014. https://doi.org/10.1111/puar.12278

[16] T. Ahola, I. Ruuska, K. Artto, and J. Kujala, "What is project governance and what are its origins?," *International Journal of Project Management*, vol. 32, no. 8, pp. 1321-1332, 2014. https://doi.org/10.1016/j.ijproman.2013.09.005

[17] S. Clegg, "Governmentality," *Project Management Journal*, vol. 50, no. 3, pp. 266-270, 2019. https://doi.org/10.1177/8756972819841260

[18] R. Turner, "How does governance influence decision making on projects and in project-based organizations?," *Project Management Journal*, vol. 51, no. 6, pp. 670-684, 2020. https://doi.org/10.1177/8756972820939769

[19] R. DeFillippi and J. Sydow, "Project networks: Governance choices and paradoxical tensions," *Project Management Journal*, vol. 47, no. 5, pp. 6-17, 2016. https://doi.org/10.1177/875697281604700502

[20] V. S. Adami and J. R. Verschoore, "Implications of network relations for the governance of complex projects," *Project Management Journal*, vol. 49, no. 2, pp. 71-88, 2018. https://doi.org/10.1177/875697281804900205

[21] S. Kim, K. N. Andersen, and J. Lee, "Platform government in the era of smart technology," *Public Administration Review*, vol. 82, no. 2, pp. 362-368, 2022. https://doi.org/10.1111/puar.13422

[22] J. Steen, R. DeFillippi, J. Sydow, S. Pryke, and I. Michelfelder, "Projects and networks: Understanding resource flows and governance of temporary organizations with quantitative and qualitative research methods," *Project Management Journal*, vol. 49, no. 2, pp. 3-17, 2018. https://doi.org/10.1177/8756972818049002O1

[23] A. Kartov, "Prospects for the application of project management in the public sector of Kazakhstan," *Economics: Strategy and Practice*, vol. 15, no. 4, pp. 181-192, 2020. https://doi.org/10.51176/jesp/issue_4_t16

[24] A. R. Oynarov, D. S. Dushabaev, and A. E. Kartov, "Implementation of the project management system in the public sector." London: LAP Lambert Academic Publishing, 2018, p. 118.

[25] D. V. Maslov, M. E. Dmitriev, and Z. S. Ayvazyan, *Selected aspects of public administration transformation: processes and quality analytical review*. Moscow: RANEPA, 2018.

[26] A. Vasiliev and S. Prokofiev, "Organization of project management in public authorities," *Managerial Sciences,* no. 4, pp. 44-52, 2016.
[27] T. Y. Danelyan, "Structural modeling," *Economics, Statistics and Computer Science,* no. 6, pp. 166-169, 2014.
[28] P. M. Bentler and C.-P. Chou, "Practical issues in structural modeling," *Sociological Methods & Research,* vol. 16, no. 1, pp. 78-117, 1987. https://doi.org/10.1177%2F0049124187016001004
[29] B. Weijters, E. Davidov, and H. Baumgartner, "Analyzing factorial survey data with structural equation models," *Sociological Methods & Research,* vol. 52, no. 4, pp. 2050-2082, 2023. https://doi.org/10.1177/00491241211043139
[30] K. Gana and G. Broc, *Structural eqappenuation modeling with lavaan*. John Wiley and Sons. https://doi.org/10.1002/9781119579038, 2018.