


“The impact of organizational support on project efficiency: evidence from Kazakhstan”

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THE IMPACT OF ORGANIZATIONAL SUPPORT ON PROJECT EFFICIENCY: EVIDENCE FROM KAZAKHSTAN

Abstract

Project managers from different areas struggle to find universal set of factors to achieve high project efficiency. However, the project efficiency assessment varies across industries, making it difficult to apply general concepts and guidelines in the specific project environment. The study's main purpose is to assess the impact of organizational support on project efficiency in different areas and identify critical processes that increase it. The paper presents quantitative research results by using data from 261 project managers in the Republic of Kazakhstan during 2018–2019. The research sample consists of commercialization projects, scientific projects, social projects, and projects from the service industry. The research findings show the different quality levels of top management support and its high correlation with project efficiency. Furthermore, the study reveals the specific processes for each investigated type of project that highly correlate with project efficiency dimensions. Commercialization projects that intensively use the organizational support processes were the most efficient projects by showing the best result in cost overrun (15%) and the second resulted in schedule overrun (17%). These findings have theoretical and practical implications, supporting project managers in increasing their project efficiency by choosing the critical, proper project management tools and techniques.

Keywords

project management, organizational support processes,
project efficiency, commercialization projects, social
projects

JEL Classification

M10, M19, O22

INTRODUCTION

Organizational support is often considered as one of the project success factors that enhance project performance (Ambekar & Hudnurkar, 2017; Eskerod et al., 2017). The more top management processes are practiced in organizations, the higher the level of project success is (Zwikaël, 2008). However, no defined list of support processes applies to all projects (Dvir et al., 2006). Project type greatly influences project management manner and its outcomes (Zwikaël & Globerson, 2004). For example, many authors claim that commercialization projects often implemented in project-based organizations that have skills and best practice of using top management support (Venkataraman, 2004; Cui et al., 2016), and this practice positively contributes to commercialization project efficiency (Besner & Hobbs, 2008; Johnson et al., 2001; McManus, 2004; Kozhakhmetova et al., 2019a; Popova et al., 2019). Commercialization projects result from the successful integration of science and business (Xie et al., 2018). They state that commercialization projects are often run by intensive top management support. Others did not find any evidence of the correlation between social projects' efficiency and the extent of use of organizational support processes (Mayes et al., 2017; Sturges et al., 2010). Moreover, as a

practice shows, most of the social projects are implemented without using project management tools (Aleksieienko et al., 2020), including those developed on social entrepreneurship principles (Bilan et al., 2017). Besides, the studies on the quantitative assessment of the relationship between top management support and project efficiency in different areas remain unexplored. Therefore, this study aims to research the impact of organizational support on project efficiency in different areas and identify critical processes that increase it.

The study results will help project managers from investigated industries identify the critical organizational support processes that significantly contribute to the project efficiency. Project managers who know the list of critical organizational support processes for their projects will get an opportunity to spend their time and resources effectively.

1. LITERATURE REVIEW AND HYPOTHESES

Organizational support is the most cited critical success factor in project management literature (Fortune & White, 2006). It includes processes that the organization should offer to support project processes properly (Zwikael, 2004). Project Management Institute (2017) identifies organizational support as a practice that focuses on project managers and their teams' support during project implementation.

Many authors highlight the role of organizational support during project execution (Drouin et al., 2010; Chih & Zwikael, 2015; Ambekar & Hudnurkar, 2017; Zhidebekkyzy et al., 2019). Others consider organizational support a contributor to project efficiency and project success (Johnson et al., 2001; McManus, 2004; Besner & Hobbs, 2008; Zwikael, 2008). For example, Zwikael (2008) is one of the authors who deeply investigate the organizational support practices for projects. His research findings consist of a list of organizational support processes that significantly affect software project success. However, his study is limited to narrow types of projects, and he assumes that the level of organizational support may vary among industries. Williams et al. (2019) support his idea and claim that the literature related to the organizational support of project execution should be expanded by comparing several types of projects.

Another group of authors tries to clarify specific organizational support practices, such as leadership and physical resources (Berssaneti & Carvalho, 2015; Amoako-Gyampah et al., 2018), gateway

process during project execution (OGC, 2004; Sapountzis et al., 2008), sponsorship and coaching (Sturges et al., 2010), benefits and compensations practices in human resources management (Bilan et al., 2020) that affect project efficiency. However, they did not suggest any ways of measuring organizational support quality. Moreover, there is an absence of quantitative assessment of the mentioned authors' factors as critical for project efficiency. Despite this, the study found quantitative research dedicated to the investigation of the correlation between project efficiency and other factors like human resources (Hendriks et al., 1999), specific knowledge areas development within the organizations (Mukhtarova et al., 2019), quality of stakeholder engagement (Beringer et al., 2012) and public-private partnership involvement (Hang, 2019), project management maturity (Martinsuo & Lehtonen, 2007). Most of these studies identify project efficiency due to careful time and cost management (Swink et al., 2006; Klietnik et al., 2020).

Literature analysis found several models that evaluate organizational support's maturity level regarding project implementation (Paulk et al., 1995). They are the Capability Maturity Model and Organizational Project Management Maturity Model (PMI, 2003). Zwikael (2019) modifies these models and builds up an approach for evaluating top management support quality. As Swink et al. (2006) state, top management support quality directly influences a project's efficiency. They conduct qualitative research and consider additional factors like explicit project goals, competitiveness, and a collaborative work environment affecting project budget and schedule. Shenhar and Dvir (2007) support this idea and suggest

the five dimensions of project success. They highlight project efficiency as one major contributor to success. As they note, project efficiency is meeting schedule goals and budget goals. According to Kostiukevych et al. (2020) and Pauceanu and Dempere (2018), the industrial environment's institutional maturity has a significant impact on project efficiency.

Prior research provided some evidence that academics are divided regarding attitudes to the impact of the organizational support practices on the project efficiency dimensions. Based on the above literature review, the first research hypothesis is proposed:

H_1 : *Projects from different areas have different efficiency levels due to organizational support quality.*

Considering the preliminary research, the authors were interested in finding out whether any differences exist between different project types depending on the impact of the organizational support on the efficiency. To answer this question, the second hypothesis is proposed:

H_2 : *Commercialization projects have higher efficiency than social projects.*

2. DATA AND METHODOLOGY

2.1. Research design

The research design is developed to evaluate the relationship between organizational support processes and commercialization projects' efficiency. The independent variable is organizational support processes originally used in Zwikael and Globerson's (2004) model. The dependent variable is project efficiency. The research model is shown in Figure 1.

As Figure 1 shows, organizational support is measured by 17 processes supporting project management activities. Project efficiency is measured by cost and schedule overruns.

Statistical test Cronbach's alpha, the coefficient of which ranges from 0 to 1, is used for checking the reliability of the model. The result, which is not far from 1, shows a high reliability level (Cronbach, 1950). The formula for this test is as follows:

$$\alpha = \frac{N \cdot \bar{r}}{1 + (N - \bar{r}) \cdot \bar{r}}, \quad (1)$$

where N – questions number, \bar{r} – correlation score of investigated variables.

As calculations show $N = 261$, $\bar{r} = 0.4$ for time and scope dimensions, the Cronbach's Alpha for this model is as follows:

$$\alpha = \frac{261 \cdot 0.4}{1 + (261 - 0.4) \cdot 0.4} = 0.99. \quad (2)$$

Thus, it helps to prove the statement that the model is reliable and valid.

2.2. Sample and data collection

The data were collected from the survey conducted among 261 project managers of scientific institutes, research organizations, and Republic of Kazakhstan's enterprises during 2018–2019. Additionally, project managers from other industries were invited to the survey to compare commercialization projects with other types of projects. Figure 2 shows the types of organizations engaged in the survey.

As Figure 2 shows, the data were collected from scientific institutes, research laboratories, and organizations.

The survey design was developed by Zwikael and Globerson (2004). Their questionnaire is modi-

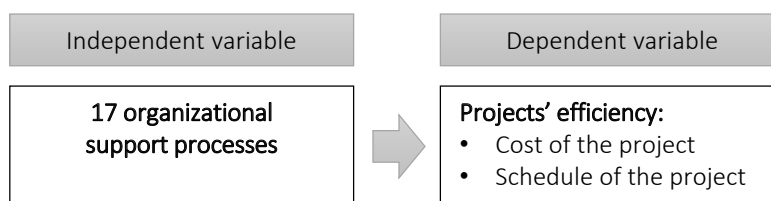


Figure 1. Research design

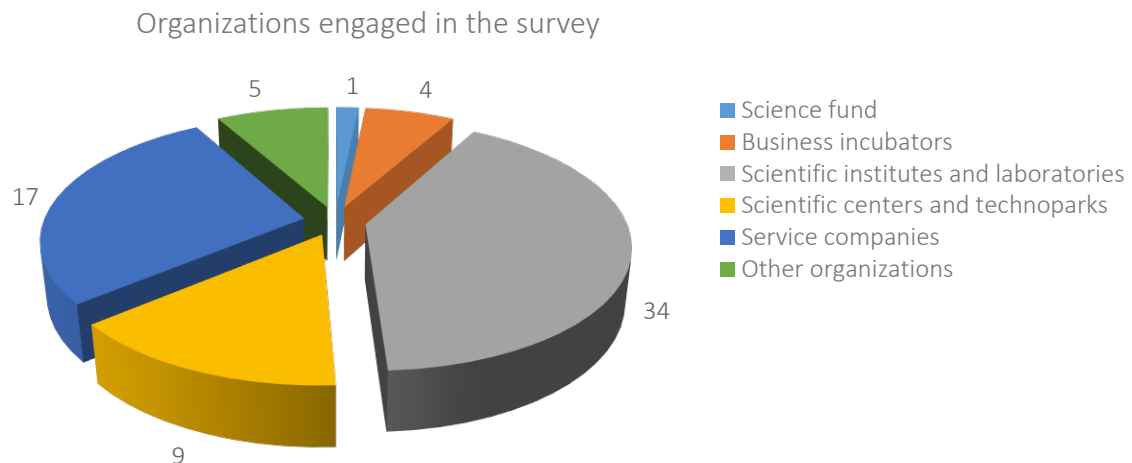


Figure 2. Organizations that participated in the survey

Table 1. The research sample

Indicator	Commercialization projects	Scientific projects	Social projects	Service projects
Valid questionnaires	53	72	65	71
Share of valid questionnaires, %	20.3	27.5	24.9	27.2

fied for the model of the current study. The survey includes two parts. First, project managers were asked about the use intensity of 17 organizational support processes. The intensity of these processes usage was measured using a 1 to 5 Likert scale. Second, project managers evaluated the project efficiency dimensions as schedule and cost overrun. Namely, the project manager was asked to evaluate how much the actual cost and schedule differ from the planned cost and schedule. Both dimensions are estimated in percentages. The research sample includes the following types of projects (Table 1).

As Table 1 shows, commercialization projects were compared with scientific, social, and service projects for data analysis. The average share of valid questionnaires is 24.5%. Thus, the data collected from this research sample are valid.

3. RESULTS AND DISCUSSION

First, the intensity of the organizational support processes and project efficiency in different industries were compared (Table 2).

As Table 2 shows, each type of project has a different level of organizational support impacted by a variety of processes performed by project managers. Commercialization projects exceed others by

12 points. It becomes evident that project managers who run commercialization projects use organizational support processes more intensively. The most used organizational support processes by commercialization projects are the “extent of supportive project organizational structure,” “the existence of project-based organization,” “project manager assignment.” These indicators are high because project-oriented organizations often implement the commercialization projects. Such organizations have proper structure for project execution and qualified human resources who will manage these projects.

Another finding shows that the less used processes for commercialization projects are organizational projects risk management, using new tools and techniques, data warehouse. These findings are the results of an immature project management system. Moreover, social projects have the lowest use intensity of organizational support processes than other projects.

According to Table 2, the managers of scientific projects more concentrates on using the project’s procedures and conducting project success measurements. Also, this kind of project is often implemented by project-based organizations. Therefore, project managers and interested organizations’ commitment to measure project success shows

Table 2. Organizational support quality

No.	Organizational support processes	Commercialization projects	Scientific projects	Social projects	Service projects
1	Extent of use of standard project management software	2.4	2.3	1.7	2.0
2	Communication between the project manager and the organization during the planning phase	4.0	3.9	3.4	3.6
3	Extent of use of new project tools and techniques	2.3	2.9	2.7	2.9
4	Existence of interactive inter-departmental project planning groups	2.9	2.5	1.9	2.4
5	Project manager assignment	3.8	2.7	2.5	2.6
6	Project office involvement	3.3	2.1	2.1	2.2
7	Extent of use of organizational projects data warehouse	2.5	2.6	1.9	2.9
8	Extent of supportive project organizational structure	3.8	2.7	1.6	2.6
9	Quality management	2.9	2.2	2.0	2.4
10	Extent of the existence of the project procedures	3.7	3.5	3.3	3.3
11	Involvement of the project manager during the initiation stage	3.7	3.0	1.8	3.1
12	Regular project management training programs	2.8	2.3	1.5	3.3
13	Extent of refreshing project procedures	3.0	2.8	1.9	2.9
14	Organizational projects risk management	2.2	2.3	1.7	2.1
15	Organizational projects resource planning	3.5	2.8	2.1	2.8
16	Existence of project success measurement	3.6	3.9	2.7	3.4
17	Project-based organization	3.8	3.4	1.5	1.8

their high interest in achieving project efficiency. The evaluation results of project efficiency allow clarifying its dependence on organizational support quality (Figure 3).

As Figure 3 shows, social projects have the highest cost and schedule overrun (43% and 21%, respectively). It is the worst result because, as was explained before, projects that significantly exceed planned cost and schedule lost efficiency. These results show the loss of money and time. One of the major reasons for this is low organizational support quality (Table 2). Other reasons are the

low level of supportive funding in such kinds of projects. Moreover, this results from rarely using or ignoring PM practice during project implementation or lack of experience and practice of project management in this industry.

Despite the difficulties of managing the commercialization of scientific developments, commercialization projects show the best result in cost overrun (15%) and the second result in schedule overrun (11%). The high quality of organizational support explains this interesting finding because the main bodies engaged in the implementation of

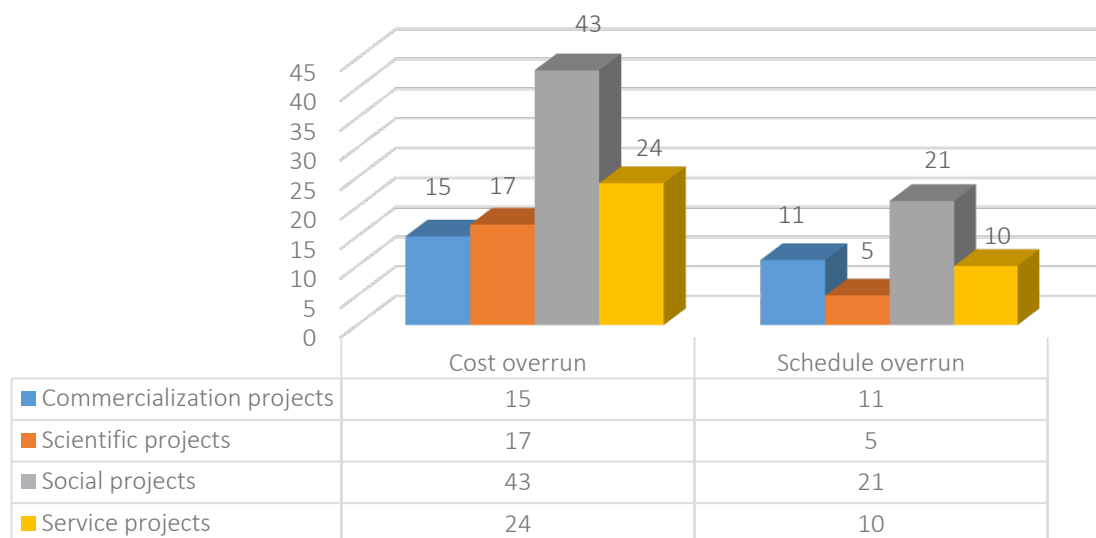
**Figure 3.** Project efficiency indicators

Table 3. Critical organizational support processes for commercialization projects

No.	Organizational support processes	Commercialization projects	p-value
1	Extent of supportive project organizational structure	3.8	0.001**
2	Communication between the project manager and the organization during the planning phase	4.0	0.001**
3	Project office involvement	3.3	0.001**
4	Existence of interactive inter-departmental project planning groups	2.9	0.009*
5	Project manager assignment	3.8	0.011*
6	Quality management	2.9	0.012*
7	Extent of use of organizational projects data warehouse	2.5	0.025*

Note: * $p \leq 0.05$, ** $p \leq 0.001$ show high significance.

commercialization projects are scientific organizations, research institutes, project-based organizations, and business representatives that are not far from project management practice. Moreover, most of the listed above organizations are project-oriented. The results approved this statement of scientific projects show a good score similar to commercialization projects (cost overrun – 17%, schedule overrun – 5%). Social projects show good organizational support quality. Because their score is achieved by a great extent of use of organizational support processes. These findings prove the first hypothesis that states: projects from different areas have different efficiency levels due to organizational support quality.

Besides, a high level of organizational support quality and project efficiency of commercialization projects compared to social projects lets prove the second hypothesis.

Table 3 shows the critical organizational support processes for commercialization projects' efficiency.

As Table 3 shows, there are seven critical organizational support processes for commercialization projects that integrate science and business. Their high p -value shows a sufficient impact on the efficiency dimensions. Thus, the extent of supportive project organizational structure (score – 3.8), assignment of a project manager (score – 3.9), close relations of organization with a project manager, and project office (score – 3.2) highly affect the project efficiency. Each of these processes should be supported by using specific project management tools and techniques. For example, project quality management has its methodology explained in a Guide Project Management Body of Knowledge (2017). It presents the basic algorithm for providing a quality of projects through organizational support. For example, inputs presented there show the list of actions that should be performed in the beginning stage. Further, some tools and methods should be used for achieving the outputs of the project. Moreover, project managers may use an additional project quality management tool like Pareto and control charts, the cause and effect diagram, selective control, scatter diagrams, etc.

CONCLUSION

This study contributes to a better understanding of the impact of organizational support on project efficiency. Research results show that managers from different industries run similar projects with different quality of organizational support and efficiency levels. Moreover, the study reveals a significant positive relationship between the extent of using organizational support processes and project efficiency. Particularly, the comparison between commercialization projects and social projects supported this statement.

The study results show that project managers who run commercialization projects should pay attention to revealed critical organizational support processes and use the appropriate tools of project management during project implementation.

The research findings help project managers run their projects from investigated industries properly by using the specific organizational support processes that highly affect project efficiency. Project managers may use the evaluated critical processes for increasing their projects' efficiency.

Thus, further studies may be dedicated to investigating these critical PM tools and techniques in detail. The research limitation that occurs due to using data from only one country may attract other researchers to investigate additional industries or countries.

AUTHOR CONTRIBUTIONS

Conceptualization: Orazaly Sabden, Aknur Zhidebekkyzy, Assel Kozhakhmetova.

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APPENDIX A

TOP MANAGEMENT SUPPORT ASSESSMENT QUESTIONNAIRE*

*ORIGINALLY IN KAZAKH AND RUSSIAN

Please indicate the most suitable answer for each organizational support process regarding the projects you are currently involved in, according to the following scale:

- 5 – The process is always implemented.
- 4 – The process is quite frequently implemented.
- 3 – The process is frequently implemented.
- 2 – The process is seldom implemented.
- 1 – The process is hardly ever implemented.
- A – The process is irrelevant to the projects I am currently involved in.
- B – I do not know whether the process is implemented.

No.	Organizational support processes	Never	Seldom	Frequently	Quite frequently	Always	Irrelevant	Do not know
1	Extent of use of standard project management software	1	2	3	4	5	A	B
2	Communication between the project manager and the organization during the planning phase	1	2	3	4	5	A	B
3	Extent of use of new project tools and techniques	1	2	3	4	5	A	B
4	Existence of interactive inter-departmental project planning groups	1	2	3	4	5	A	B
5	Project manager assignment	1	2	3	4	5	A	B
6	Project office involvement	1	2	3	4	5	A	B
7	Extent of use of organizational projects data warehouse	1	2	3	4	5	A	B
8	Extent of supportive project organizational structure	1	2	3	4	5	A	B
9	Quality management	1	2	3	4	5	A	B
10	Extent of existence of project's procedures	1	2	3	4	5	A	B
11	Involvement of the project manager during the initiation stage	1	2	3	4	5	A	B
12	Regular project management training programs	1	2	3	4	5	A	B
13	Extent of refreshing project procedures	1	2	3	4	5	A	B
14	Organizational projects risk management	1	2	3	4	5	A	B
15	Organizational projects resource planning	1	2	3	4	5	A	B
16	Existence of project success measurement	1	2	3	4	5	A	B
17	Project-based organization							

Please indicate the most suitable answer for each measurement according to exceeding percent from planned index of listed below measures

No.	Efficiency measure	%
1	Cost overrun	
2	Schedule overrun	

Note: Please indicate in this table how different are the actual and planned project measures in a percentage.