

MATURITY LEVEL OF SUSTAINABLE PROJECT MANAGEMENT IN RUSSIAN ENTERPRISES

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Abstract: *The aim of the paper is to develop and test a new methodology for assessing the level of maturity of sustainable (green) project management at Russian enterprises, as well as establish the existing level of maturity and justify ways to improve it. The research was carried out using a methodology based on the developments of the international association for green project management Global organization “Green Project Management”. Given methodology is characterized by the addition of the institutional module of sustainability and indicators of motivational readiness for the implementation of sustainability. The methodology was tested at 81 enterprises in 12 regions of Russia using the method of online questioning of experts.*

An average level of green project management maturity at enterprises was recorded by means of quantitative evaluation of the integral indicator and its constituents generalizing indicators according to four criteria - social, institutional, economic, and environmental. The motives for introducing green project management are identified.

Keywords: *Sustainability, Project management, Sustainability criteria.*

1. INTRODUCTION

When conducting research and developing proposals for implementing sustainable project management, it is important to take into account the world's achievements in the field of sustainability while developing and enriching the science and practice of sustainability. In particular, we believe that the idea of sustainable development and sustainable management has now been thoroughly scientifically substantiated. However, in practice these things are still poorly adapted to project management. There are no answers to questions about how to use sustainability criteria in project management, how to assess the manifestation of sustainability criteria in project management, how to form this green project management system in enterprises, and what is the motivation of enterprises to implement green project management. Our research provided answers to these questions.

2. CHALLENGES OF SCIENCE AND PRACTICE EVALUATING GREEN PROJECT MANAGEMENT

Our research is based on the development of Green Project Management Global an International organization that develops standards in the field of green project management. From the perspective of this organization: „green project management includes tools and management methods which allow achieving a certain balance between limited resources and social and environmental responsibility” (Carboni et al, 2013, p. 8). At the same time, the concept of sustain-

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ability in project management seeks to harmonize economic, social and environmental interests both the long and short terms (Silvius 2017).

The formation of sustainable project management is associated with certain difficulties. Let's look at the challenges posed by the concepts of sustainable development and green project management.

The first challenge is to measure and evaluate sustainable management.

A methodological challenge lies in the construction of indicators that would make it possible to reliably assess environmental and social trends, but at the same time understandable for the target audience (Hák et al, 2007; Schropfer, Tah, Kurul, 2017). There are currently no generally accepted methods for measuring stability (Gibson, 2017; Cohen et al, 2015). Today in practice and in science there are many examples when indicators are developed for a specific project / case / organization / industry (Gareis et al, 2014; Dos Santos et al, 2019). The development of universal methods for assessing sustainability would make it easier to measure sustainability for many organizations (Cohen et al, 2015; Pislaru, Herghiligi, Robu, 2019).

The second challenge is to achieve a balance between the principles of sustainable development (economic, social, environmental and institutional) in the management of an organization or project. Achieving balance is directly related to the problem of choosing between these principles when making managerial decisions (Gareis et al, 2014; Marcon, de Medeiros, Ribeiro, 2017).

The third challenge is to integrate sustainability strategies into people's minds, processes, and policies. In order to integrate the sustainability strategy into the organization's culture we need to learn more about the values and benefits that sustainability management creates, as well as the motives and factors that will actually work (Cohen et al, 2015).

These challenges have become the basis for methodology and methods of assessing sustainable project management in enterprises.

3. DESCRIPTION OF A NEW METHODOLOGY FOR ASSESSING SUSTAINABLE PROJECT MANAGEMENT PROPOSED BY THE AUTHORS

The idea of our methodology is to assess and improve the level of maturity of sustainable project management of enterprises, as well as the level of motivational readiness for this management, based on achieving at all stages of the project management life cycle a balance of four sustainability criteria (economic, social, environmental and institutional).

Within this methodology, sustainable (green) project management is understood as a management system that contributes to achieving a long-term balance of economic, social, and environmental criteria based on an institutional criterion at all stages of the project management life cycle and in all functional areas of the project management system.

The methodology is a questionnaire that experts are asked to fill out. The questionnaire is divided into three modules. The first module is the institutional issues module on sustainable project management in the organization (compiled from sources Gareis et al, 2014; Maltzman, Shirley,

2010; Silvius, 2017). The second module is a module of special questions on the three main areas of sustainability – economic, social and environmental (compiled from sources Carboni et al, 2013, Cohen et al, 2015; Gareis et al, 2014; Maltzman, Shirley, 2010). The third module was proposed for the first time-an assessment of the company’s motivational readiness to implement sustainable project management.

4. RESEARCH METHODOLOGIES TO TEST THE PROPOSED NEW METHODOLOGY FOR ASSESSING THE MATURITY OF SUSTAINABLE PROJECT MANAGEMENT PROPOSED BY THE AUTHORS

The purpose of our study is to test the developed methodology for assessing the maturity of sustainable (green) project management at Russian enterprises, as well as to establish the existing level of maturity and justify ways to increase it. That is, the main result was the proof of the operability of the methodology. The accompanying result was the identification of the level of maturity of green project management and directions for increasing this level.

As noted earlier, the methodology is a questionnaire filled out by experts. The questionnaire consists of modules including questions for assessing particular indicators of economic, environmental, social and institutional sustainability of project management. The analysis of answers involves evaluating the scores first by private indicators, then by generalizing indicators and, finally, by the integral indicator of the maturity level of green project management.

Research questions include:

- Does our methodology allow us to establish the maturity level of green project management? How do experts understand the technique? How universal is it?
- What is the level of maturity of green project management at Russian enterprises? How balanced are the economic, environmental and social components of sustainability? To what extent does the institutional component affect maturity?
- What is the motivation for introducing sustainable green project management and how does it determine the direction of development of this management?

The study was conducted in the period from September 2018 to November 2019 at 81 enterprises in 12 regions of Russia using an online survey of experts. The study was conducted in the following cities: Arkhangelsk, Yekaterinburg, Kazan, Krasnoyarsk, Kyzyl, Moscow, Novosibirsk, Omsk, Saint Petersburg, Tyumen, Ulan-Ude, Chelyabinsk.

All selected experts agreed to participate in the study. The criterion for selecting companies was experience in using the principles of sustainability. The small number of enterprises is explained by the fact that sustainable project management is still not widespread in Russia. According to an expert survey, most companies proclaim a policy of sustainability, but do not implement it in the daily practice of project management. The sample includes companies that have experience in sustainable project management. For the purpose of testing the method, this number of enterprises was sufficient. The reliability of the data was ensured by careful selection of experts and their survey using a detailed methodology. The experts who answered the questionnaire were project managers, program and portfolio managers, and project management specialists with at least 3 years of experience in this field.

The studied organizations implement their projects in various sectors of the economy; among them there are industrial organizations, including chemical and petrochemical production, engineering, as well as companies working in the service sector, including IT companies, banks, etc. size of enterprises: 34 organizations are large; 13 organizations are medium-sized; 17 organizations can be classified as small; and 14 micro organizations.

5. RESEARCH RESULTS

Let's turn to a quantitative assessment of the level of maturity of project management in enterprises. To do this, our method involves first evaluating generalizing indicators by modules, and then combining these indicators into a single integral indicator.

Module 1. Institutional Matters Module

Questions related to the application of the concept of sustainability management in the organization; the sustainable development strategy; the time frame of the sustainable development strategy; the three principles of sustainable development-economic, social, and environmental - and their role in the organization's strategy.

We have obtained the following levels of institutional stability:

- 8.0 – 10 points – high level (22 organizations showed this level);
- 6.0 – 7.9 points – above average (23 organizations);
- 4.0 – 5.9 – average level (16 organizations);
- 2.0 – 3.9 – below average (5 organizations);
- 0 – 1.9 – low level (15 organizations).

The average score for the first module was 5.71 points.

Module 2. Special Issues Module

This module consists of 3 sub modules: social, environmental, and economic.

Social direction (module 2A)

The submodule included questions about opportunities for training and professional development of project performers; gender equality; inequality in the distribution of income of employees of the organization; performance indicators in the field of social sustainability (human rights, poverty reduction, prevention of corruption and bribery, customer safety).

The following levels of environmental sustainability were identified:

- 8.0 – 10 points – high level (6 out of 81 organizations);
- 6.0 – 7.9 points – above average (34 organizations);
- 4.0 – 5.9 – average level (13 organizations);
- 2.0 – 3.9 – below average (15 organizations);
- 0 – 1.9 – low level (13 organizations).

The average score for the 2A submodule was 4.92 points.

Environmental direction (module 2B)

The sub module included internal assessment of the project's environmental impact during the planning phase, transport costs, renewable energy use, waste management, and performance indicators for environmental sustainability (water consumption, carbon dioxide emissions, energy consumption, materials, and other resources).

The following levels of environmental sustainability were identified:

- 8.0 – 10 points – high level (9 out of 81 organizations);
- 6.0 – 7.9 points – above average (8 organizations);
- 4.0 – 5.9 – average level (18 organizations);
- 2.0 – 3.9 – below average (18 organizations);
- 0 – 1.9 – low level (28 organizations).

The average score for the 2B sub module was 3.40 points.

Economic direction (module 2C)

This sub module included questions related to the sustainability of an organization and its projects, such as return on investment, net present value, asset liquidity, market share, new workplaces, taxes.

The distribution of enterprises was as follows:

- 8.0 – 10 points – high level (28 out of 81 organizations);
- 6.0 – 7.9 points – above average (17 organizations);
- 4.0 – 5.9 – average level (17 organizations);
- 2.0 – 3.9 – below average (14 organizations);
- 0 – 1.9 – low level (5 organizations).

The average score for the 2C submodule was 6.02 points.

As a result, indicators for modules 1 and 2 were summarized, and for each organization an integral indicator of the maturity level of green project management was determined (table 1).

Table 1. Maturity assessment of sustainable project management

Maturity levels of sustainable project management	Number of organizations in the group
32.0 – 40 points – a high level of maturity	6 organizations
24.0-31.9 points - above average	25 organizations
16.0-23.9 - average level	25 organizations
8.0 – 15.9 - below average	18 organizations
0-7.9 - low level	7 organizations

Source: Authors

The average final score is 20.04 points, which indicates the average maturity level of sustainable project management in the organizations under consideration. Table 2 shows that a high level of institutional sustainability causes a high level of overall maturity of green project management, and it also determines social and environmental sustainability.

Table 2. Distribution of organizations by maturity level of sustainable project management and the level of individual sustainability components

Maturity levels of sustainable project management	Institutional sustainability	Social sustainability	Environmental sustainability	Economic sustainability
25.21 (high and above average) - 31 enterprises	6.84	5.59	4.25	8.54
22.75 (average) - 25 enterprises	6.09	5.51	4.41	6.74
15.25 (below average) - 17 enterprises	4.76	3.87	1.94	4.68
10.70 (below average) -18 enterprises	3.23	3.50	1.64	2.32
7.80 (low) - 7 enterprises	3.05	3.15	0.60	1.00
Total average: 20.04	5.71	4.92	3.40	6.02

Differences between groups are statistically significant: F-criterion = 6,223; p = 0.000.

Source: Authors

The methodology allowed us to determine the motivation, namely, the reasons and factors that contribute to the implementation of sustainable management.

The reason for „The need to create and maintain a positive image of the company (PR) as a „green” company” was given by 42 enterprises, of which 22 enterprises have a level of maturity of sustainability of 26.3 points; 11 enterprises have a level of maturity of 20.3 points; 9 enterprises 12.3 points. That is, this reason is more often called enterprises with a high and above average level of maturity. (M = 21.73, SD = 4.79) Differences between groups are statistically significant: F-criterion = 3.825, p = 0.050.

The reason for the „Increase in prices for energy, materials, waste removal and disposal” was given by 35 enterprises, of which 8 enterprises have a maturity level of 27.2 points, 12 enterprises 19.8 points, 15 enterprises 14.2 points. This reason is often referred to as enterprises with an average or lower average level of maturity.

(M = 19.09, SD = 4.19) Differences between groups are statistically significant: F-criterion = 3.153, p = 0.01.

The reason for the „Tightening of legal norms in the field of environmental and social responsibility - an increase in taxes, fines and sanctions” was given by 34 enterprises, of which 8 enterprises have a maturity level of 25.3 points; 6 companies 17.2 points; 20 enterprises 10.3 points. This reason is more typical for enterprises with a low level of maturity.

(M = 15.04, SD = 5.58) Differences between groups are statistically significant: F-criterion = 2.751, p = 0.010.

The reason for „Our new vision of how the world should be organized, the desire for a new culture and a new social paradigm” was given by 54 enterprises, of which 30 enterprises have a maturity level of 32.2 points; 14 enterprises have 17.4 points; 10 enterprises have 9.8 points. It is clear that the reason is expressed in enterprises with a high level of maturity.

($M = 24.21$, $SD = 8.87$) Differences between groups are statistically significant: F-criterion = 3.915, $p = 0.0010$.

The reason for „The need to work with foreign partners and follow foreign practices” was given by 48 enterprises, of which 20 enterprises showed 27.2 points; 16 enterprises 19.4 points; 12 enterprises 11.2 points. For this reason, companies with a higher level of maturity are preferred.

($M = 20.6$, $SD = 6.45$) Differences between groups are statistically significant: F-criterion = 3.765, $p = 0.000$.

Thus, the study showed that the higher the level of maturity of project management sustainability, the more conscious reasons caused the transition to a sustainable policy. Businesses with a low level of sustainability turn to this policy when necessary, their actions are a forced response.

6. DISCUSSION OF THE RESULTS OF THE STUDY

In the course of the study, we obtained results containing answers to the research questions posed by us. These include the following.

- First, our proposed methodology is workable. At the same time, experts noted its intelligibility and versatility.
- Secondly, using the methodology, the average level of maturity of green project management was recorded. Conclusions are drawn about the lack of balance between the various components of sustainability. Social and environmental sustainability is low compared to economic sustainability. Moreover, the institutional component determines the level of general maturity of sustainability and individual other components. Therefore, a balance of all sustainability components is required, and the institutional component needs to be given special attention.
- Third, the methodology allowed us to determine the motives for implementing sustainable project management. It is proved that enterprises with a high level of maturity are more often motivated to consciously use sustainable management.

Our research develops Carboni's approach to assessing project management maturity. In contrast to this researcher, we have added institutional evaluation criteria to the methodology. As a result, the idea of taking into account the institutional element of sustainability was concretized in the form of a methodology (Gareis 2013; Moldan, Dahl 2007; Silvius, 2017).

Key, novel characteristics of our method are:

- a) It is proposed to assess the maturity level of green project management in enterprises by which we understand the achievement of indicators of economic, environmental, social and institutional sustainability expressed in quantitative values and indicating a certain level.
- b) To assess the level of maturity, refined systems of individual indicators of social, environmental, economic and institutional sustainability are proposed, as well as generalizing indicators for each of these four sustainability criteria. Further, we propose a quantitative integral indicator that consists of generalizing indicators for four modules.
- c) A method of evaluating motivational readiness and value for green project management companies is proposed.

The practical significance of the research is to offer an updated system of sustainable project management based on the principle of balancing all criteria. The balance of economy, society, and ecology on an institutional basis must be observed at all stages of the project management life cycle and in all functional areas of project management. To do this, we consider it important to update and supplement existing project method methods and methodologies, taking into account the requirements of sustainability in different functional areas and at different stages of project management. The institutional framework at the enterprise level is formed by translating classic project management into green project management, as well as by creating a special organizational environment that includes the development of corporate social responsibility and socially oriented project management, lean project management, environmental management and environmentally friendly projects.

7. CONCLUSION

We consider the proposed new methodology and, with its help, the established maturity level of sustainable project management in Russian organizations to be a significant scientific and practical result of the study.

The studied organizations recorded an average level of maturity. Important was the evidence that a high level of institutional maturity leads to a high level, first, of the maturity of green project management in general; secondly, of each of the individual blocks - economic, social and environmental. As a result, we substantiated recommendations for the development of the institutional foundations of sustainable project management at enterprises.

In particular, we have developed the concept of a program for the formation of green project management in enterprises. The novelty and practical significance of the program is ensured by the fact that for the first time a system of subjects, objects, interests of various stakeholder groups, measures to realize these interests are proposed; institutional foundations for the formation of motivational readiness, including a system of green project management in conjunction with systems of socially oriented project management, environmentally sound project management, and lean project management. All these results contribute to the development of the theory and practice of sustainable project management.

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