

Project management regarded as a driver of sustainable development

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Abstract. The article is devoted to the issues of combination of the most important components of the theory of sustainable development and the principles of project management. The current state of the problem has been analyzed, the lack of knowledge on the corresponding issues in national literature and practice has been indicated, the rare use of sustainable development elements in project management has been identified. The prerequisites for the involvement of sustainable development objectives in the components of project management have been examined. Achieving the defined purpose is possible through the implementation of projects that aim to take into account the interests of sustainable development, as well as through the implementation of other projects that include the objectives of sustainable development. Critical inconsistencies in methodological approaches to the accomplishment of the objectives of sustainable development and project management have been identified. Thus, a more profound specification of the project's priorities and objectives, as well as the elaboration of time scheduling and scope of work are needed. The objectives for minimization of the identified inconsistencies as well as for rationale for the principles of corporate social responsibility provision have been defined. The assessment of the current regulatory documents in the field of project management with the focus on the involvement of sustainable development objectives has been conducted. It is pointed out that the corresponding aspects are poorly elaborated in the most well-known regulatory documents, namely, Individual Competence Baseline (ICB), International Project Management Association (IPMA), Project Management Body of Knowledge (PMBOK), Project Management Institute (PMI), A Guidebook of Project and Program Management for Enterprise Innovation (P2M), etc. Methodological approach to the integration of management decisions into the project management, the main components of which must be the integration of the regulations of PM into the main stages of SD, the broadening of time and geography of the project indicators, the identification of the correlations between the life-cycle of the project and product, as well as the expenses on the implementation of these projects and products and significant extension of the requirements of the project manager.

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1 Introduction

Progressive differentiation of incomes of the population, especially in underdeveloped countries, extreme poverty in the majority of these countries, unstable structures of consumption and production, irrational use of natural resources, uneven economic and social development predetermined the emergence of the concept of sustainable development (CSD).

The corresponding concept is a form of social existence which is characterized by the fact that all human activities are aimed at sufficient satisfaction of the basic needs of the present generation while ensuring adequate living conditions for future generations. Current issues of management decisions are most fully covered in a number of international documents, for instance, in the results of the conference known as "Rio+20", which was held 20 years after the well-known conference in Rio de Janeiro in 1992, where one of the major documents on sustainable development (SD) was adopted. The mentioned document presents 283 theses on which it is important to rely on during the implementation of the concept of SD. In 2015, the UN adopted a comprehensive program called "Transforming our world: the 2030 Agenda for Sustainable Development". The main objectives and main prerequisites of SD are: poverty reduction, optimization of consumption and production structures, careful use of available resources, and socio-economic development. The main provisions of the CSD are reflected in the following theses:

1. Sustainable development requires a rational attitude to the resources available to society and securing the environmental safety of the Earth;
2. The society is able to make its development long-term and sustainable with a guarantee of meeting the needs of both the living and future generations;
3. Sustainable development continuously evolves, adapting to the ever-changing demands of current and future consumers [9,19];
4. Sustainable development requires companies with a large amount of resources to coordinate their lifestyle with the environmental standards of the Earth [14].

Sustainable development is provided by a system of interrelated objectives and indicators presented in Table 1. Thus, the transfer of the corresponding information from the global level to enterprises is directed downwards, while at the stage of information aggregation there is the opposite direction — from bottom to top — from companies to management.

Table 1. Sustainable Development Goal System.

Downward direction		Upward direction	
Level	Goals and indicators	Level	Goals and indicators
Global level	Formation of goals and objectives in the field of SD	Companies	Evaluation of the achievement of strategic goals
	Development of a system of target and integral indicators		Formation of a report on achievement of the indicators
	Preparation of target values of indicators for different countries		Reporting
	Coordination and identification of goals and indicators for different countries		
Countries	Development of the country's strategy for achieving SD goals	Regions	Evaluation of the achievement of strategic goals and

	Division of goals and indicators by industries and regions		analysis of the system of methods and stimuli
	Development of industry strategies in the field of SD		Formation of a report on achievement of the indicators
	Coordination and identification of goals and indicators for regions		Reporting
Regions	Development of a strategy to achieve target indicators	Countries	Aggregation of data obtained from different regions and evaluation of the achievement of strategic goals
	Division of goals and indicators by industries and enterprises		Formation of a report on achievement of indicators for different countries
	Creation of methods and stimuli for achievement of indicators		Reporting
	Identification of goals for the administration and interaction with the business		
Companies	Development of a strategy to achieve target indicators	Global level	Evaluation of the values of target indicators system
	Division of goals and indicators		Formation and evaluation of the integral indicator
	Adjustment of the management system in accordance with the goals		

2 Research methodology

The methodological approach to the implementation of sustainable development includes a set of principles and methods that are used by economic entities in the long-term and operational planning, in the course of development of indicators of business processes and functions. Thus, the approach under discussion is currently applied in the implementation of project management objectives. The method is considered to be leading in organization of the functioning of production systems. Moreover, the correlation between project management and sustainable development is analyzed in the scientific literature from two perspectives: projects are part of sustainable development [5] and, conversely, sustainable development is an integral part of project management. Recent studies [16], devoted to the goals of sustainable development of companies throughout the world and in the Russian economy, indicate the significance of the topic.

The scientific field dedicated to the integration of sustainable development and project management appeared only in 2010. However, at the present time, there are several hundred publications devoted to the issue. Among them, the works of national authors such as Manaykina E.S., An'shin V.M. [6], Morkovkin D.E. [4, 15], Dikinov A.Kh. [10], Vypkhanova G.V. [9], and Zhaparaliyeva Zh.Zh. [12] should be noted. However, despite

the great number of works in the area, researchers and specialists in the field of project management rarely apply the principles of sustainable development [7].

The survey showed that most experts are not familiar with the term "sustainable development" in the context of project management. In addition, many people are acquainted with the theory of sustainable development [5]. It is noted that the insufficient application of the concept of sustainable development to project management is determined by disinterest on the part of customers, which is a consequence of their lack of knowledge in this field. However, the results of the survey indicate the relevance of using the elements of sustainable development in the practice of project management. Most experts agree that the involvement of relevant regulatory documents would help to increase the effectiveness of project management both for society as a whole and for particular economic entities. Moreover, four out of five survey participants consider the ability to apply the principles of sustainable development to project management to be extremely important in the list of manager's competencies [13]. Therefore, the objective of formation of a methodological base for the integration of elements of the concept of sustainable development and the theoretical foundations of project management is regarded as significant.

The analysis carried out by the authors allowed to state that the solution of the issue of integration of SD and PM is associated with certain difficulties caused by the following contradictions between the systems under consideration:

1. Priorities. Concerning the project management, the main focus is on the project content, its cost and duration. While sustainable development is concentrated on people, planet and profit;

2. Major stakeholders. Thus, concerning project management the interests of investors, contractors and suppliers, management, etc. are taken into account. As for sustainable development, it requires meeting the needs of both current and future inhabitants of the Earth;

3. The focus of the objectives. Project management is aimed at obtaining results, while sustainable development is focused on the product life cycle;

4. Time horizon. Project management is characterized by short-term goals, while sustainable development goals are long-term;

5. The level of implementation. Project management is focused only on the level at which the project is being implemented. In the process of implementation of the objectives of sustainable development, not only local and regional, but also national and global levels are involved;

6. Results for initiators and participants. Under sustainable development, results are achieved in the long term, while project management's results are obtained at the end of the project.

Given the stated above, according to the authors, the methodological approach to the implementation of the integration of project management and the concept of sustainable development should include the following elements (Table 2):

Table 2. Methodological approach to the integration of PM and SD.

№	Element of the methodological approach	Description
1.	Combining the PM and SD components	Formulation of objectives and control of their implementation during all stages of the project life cycle
2.	Review of the system of project indicators	Extension of the project period and taking into account the social and environmental consequences of the project implementation
3.	Elaboration of priorities of project management	Formation of a methodological approaches for determination of priorities of the consumption

		of resources (improvement of energy efficiency, investment in human capital, etc.)
4.	Identification of the correlation and interdependence between product and project life cycles, taking into account the necessary resources	Revaluation of the project life cycle with regard to sustainable development priorities
5.	Working with stakeholders	Involvement of stakeholders and economic entities in project management, expansion of methods for management decisions making
6.	Making higher requirements for project management participants	Formulation of additional functions of managers taking into account the significance of behavioral competencies. Creation of a system of key indicators in the field of SD for all members of the project group
7.	Project performance assessment	Assessment of the impact of project implementation on sustainable development goals at the local, regional, country and global levels

Currently, project management is carried out according to the regulations of the International Project Management Association (IPMA) and the Project Management Institute (PMI) – PMBOK. Table 3 reflects the comparative analysis of the corresponding methodological approaches [6].

Table 3. Methodologies and standards of project management.

Name of the PM methodology	Type (standard/certification)	Company, country	The involvement of the principles of the CSD
ICB	Certification system	International Project Management Association, IPMA (Switzerland)	At the level of the project manager's competence, the company's competence according to ICB (4.0)
PMBOK	Project Management Body of Knowledge, American national standard (USA) (PMP, CAPM, etc.)	Project Management Institute, PMI (international organization, the office is in the USA)	A number of sustainability indicators are included in the initiation and planning processes.
P2M	A guidebook	Project Management Association (Japan)	The project is defined as creation of the value of the final product, which is determined by social and corporate ethics, as well as sustainable growth that promotes environmental care.
PRINCE2	Methodology, UK standard for PM in the social sphere	AXELOS Limited (UK)	Describes the processes and stages of working on the project, not including the criteria that management decisions making is based on.
PRiSM	Methodology, GPM Global Standard	Global organization of Green Project Management, GPM Global (headquarters is in the USA)	The principles of "green" management are considered to be major in the process of

			decision making.
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The analysis of the methodical documents presented in Table 3 demonstrated that all the methodologies have a common drawback which is the focus only on the short term results, the absence of consideration of the social and environmental consequences of the project and the impact on processes occurring within particular economic entities as well as regional, national and global levels. They do not provide the methodologies and standards presented in Table 2, and the development of a system of additional criteria of project performance assessment that takes into account the information stated above. These documents do not regard the requirements for sustainable development, control of the implementation of objectives aimed at achieving the goals of sustainable development, as well as the forms of necessary reporting.

3 Results

The analysis of modern approaches to solving project management objectives, as well as the methodology developed by the authors (Table 1) allowed to formulate the main recommendations for implementation of elements of sustainable development in the project management practice. According to the authors, the process of involvement of SD objectives in project management should start with the expansion of the list of indicators for project performance assessment that takes into account the objectives of sustainable development. Thus, it seems to be reasonable to use the scoring method when selecting projects which is characterized by a comparison of particular project options in terms of their contribution to minimization of the discrepancy between the actual and desired level of stability of the company and the region. The method provides an assessment of both traditional factors that characterize the investment advantages of the project and socio-economic and environmental factors (the use of secondary resources, the presence of consumer complaints, the impact on the number of jobs and the level of socio-economic development of the territories, the amount of expenses on the employees' training, etc.). As a result, a project is evaluated basing on the significance of each of the factors listed above.

The objective of application of the most significant elements of sustainable development to the methodology and practice of project management is considered to be essential. First of all, it is necessary to determine at which theoretical provisions of project management and at what stages of implementation it is appropriate to apply certain fragments of SD. The current methodological documents of project management involve the following main stages of the project: initiation, planning, execution, monitoring, closure. It is necessary to determine what activities need to be carried out at particular stages of the project, so that the objectives associated with sustainable development are taken into account.

British scientists conducted a survey on the issue under discussion. Most experts believe that, at the project initiation stage, the content and structure of the project should be elaborated, taking into account the interests of SD. As for the planning stage, it is necessary to adapt the project goals to the objectives stated above, while, at the project execution stage it is important to improve its processes. As for the last two stages, the involvement of sustainable development goals is considered to be optional. Thus, among the separate project management units that require involvement in the SD goals, the most important units are:

At the planning stage:

- elaboration of the project plan,
- precise formulation of corresponding goals,
- characteristics of required resources,

- provided quality characteristics of the product,
- risk assessment and its minimization.

At the project execution stage:

- the level of project plan implementation,
- the actual level of product qualities provision.

At the monitoring stage:

- control of conducted adjustments.

The greatest attention during the implementation of the principles of sustainable development in the project management should be paid to the following aspects: the content of the project, its implementation, management of available resources, product quality and risks. It is evident that the earlier this implementation is conducted, the greater effect would be obtained in the future.

National researchers [6] believe that the involvement of elements of sustainable development in the theory and practice of project management should be implemented at each stage of project management. Thus, it is recommended to apply the method based on a stage-by-stage structuring of the project with pre-defined indicators for each of the stages [11]. The results of each of the stages are evaluated at the management meeting and, after a positive assessment, the transition to the next stage of the project is carried out. Certainly, by the end of each stage, the project must meet the pre-defined criteria and, most notably, the objectives of sustainable development. In case the specified requirements are not met, management decides to suspend the project or return it to the previous stage.

When combining the main parameters of PM and SD, it is necessary to determine priorities in the list of objectives that are peculiar to these two areas. Thus, the most important objective is to find the optimum combination of the content, time periods and the associated expenses. It should be emphasized that taking into account the interests of sustainable development enhances the importance of the resource component of the project, naturally increasing its cost, as well as the completion time.

The next aspect that needs to be paid attention to when integrating sustainable development goals into project management practice is to identify the level of correlation between the project and product life cycles. Thus, the length of the project life cycle should be adjusted, taking into account that the product manufacturer is responsible not only for the project life cycle, but also for the product during its creation, implementation, operation and disposal, as well as for all available resources, including the labor, material, financial and information ones. In addition, it is of utmost importance that, most commonly, in the process of project implementation new assets of the economic entity which the product manufacturer is responsible for as well are formed. Within the current life cycle, a new cycle emerges, during which a new product is produced and the next life cycle begins. The existing recommendations [14] imply taking into account social and environmental responsibility when using the new assets that were mentioned above and products produced on their basis.

A necessary condition for solving the issue considered in the article should be the organization of cooperation of all project participants, particularly, the involvement of stakeholders at various stages of the project implementation. This approach allows to create a more rational project plan, schedule of its implementation, resource provision, as well as to determine the budget, to analyze risks, and ensure the reporting transparency [2]. Integration of elements of sustainable development and project management requires the classification of risks arising in the process into economic, social, environmental, local, regional and global, with the definition of methods for their minimization.

The role of the project manager becomes more important. Its area of responsibility should include the competence to define certain elements of sustainable development that should be involved in the project management objectives [13]. Taking into account the

interests of sustainable development in project management implies a precise definition of the project boundaries in the context of its adequacy for the content, completion time and level of human resources required for the project implementation.

Undoubtedly, it is important to develop a set of criteria that could assess the project's impact on the sustainability of processes occurring at the regional, national and global levels. The document titled "Goals and targets of the post-2015 development agenda" adopted at the 68th session of the UN General Assembly should serve as an appropriate regulatory framework. Most commonly, the implementation of major infrastructure projects has a significant impact on the development sustainability of a particular region and a country. Certainly, smaller-scale projects implemented within an economic entity usually affect the level of sustainable development only within its territory. It is important to note that the correct assessment of the impact of these projects on achievement of the company's goals in the field of sustainable development would lead to a more reasonable description of their performance in terms of the regional strategy of sustainable development. Undoubtedly, it is relevant to create a system for monitoring the existing correlations and interdependencies between the elements of SD and PM.

The final stage of integration of elements of sustainable development and project management is the development of a reporting system of all stages of the project with the definition of the corresponding requirements of the reporting. Moreover, there is a need for a precise classification of criteria for involvement of sustainable development goals in the project in the context of planning, analysis and risk management, as well as social and environmental consequences. After completion of the project, it is mandatory to elaborately monitor the level of achievement of objectives of each project stage. The final report should naturally correlate with all the criteria and indicators provided in the business plan.

4 Conclusions

The scientists and specialists face the problem of integration of the major elements of sustainable development into project management. The solution of the issue requires overcoming the significant contradictions between the concept of sustainable development and project management that were identified in the course of the study. Overcoming these contradictions is achieved by implementing a number of measures, among which the following could be noted as the main ones:

- prolongation of the monitoring stage of the project implementation;
- expansion of the project coverage area;
- formation of a mechanism for stabilizing the level of the project influence on key indicators of sustainability in the regional, country and global context;
- prioritization of project's objectives, resources and completion periods taking into account the interests of sustainable development;
- achievement of sustainability of available resources, as well as the products manufactured on their basis within the socio-economic and environmental aspect;
- provision of social and environmental responsibility when using the assets included in the project life cycle;
- development of the list of indicators in the report documents of each project stage.

The solution of the issues listed above would contribute to a more reasonable formation of a value-oriented strategy of a company, as well as to the increase of the level of socio-economic well-being of the territories without detriment to the life of future generations.

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