

Information Support for the Management of Socially-Important Projects

E. Mindzaeva^{1,a*}, S. Beshenkov^{1,b}, and D. Adamchuk^{1,c}

¹ Institute of Education Management of the Russian Academy of Education, 16 Zhukovskogo str., 105062, Moscow, Russia

^a 1vega1@mail.ru, ^b srg57@mail.ru, ^c adamchuck@gmail.com

* Corresponding author

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Abstract: Information aspects of managing socially significant projects are discussed in the article. In these projects, a broad discussion of its implementation and results by a large group of stakeholders plays a significant role. The project “Optimization of the Hot-Food System in Educational Organizations Implementing General Education Programs (Regional Aspects, Best Practices)” refers to such projects. In 2019, it is implemented in the course of research work carried out as part of the state task. It is substantiated that it is advisable to supplement the main components of the project management system (a goal of management; an ideal model of a managed object that must be implemented in the management process; a model of the actual state of the control object; information obtained on the basis of comparing the ideal and actual model; control actions aimed at eliminating deviations of the actual state of the model from the ideal) with a new component, which is the information and communication environment. This environment can be implemented as a portal or site through which project participants can solve current issues related to project implementation. This means that the centralized project management system is complemented by a self-management component. A project management model is being built, which includes, in addition to traditional components, a self-government component based on the information and communication environment.

1. Introduction

In the conditions of the emerging digital economy society, cardinal changes in the organization of management and project activities, the development of information bases for project management are put in the first place. This applies to socially significant projects, for example, projects to improve the quality of school meals.

Back in 2000, Yu. A. Nisnevich [1] emphasized that the increase in the efficiency of managers was carried out mainly by extensive methods: increasing the number of employees, increasing wages, increasing material and technical resources, which was important but did not solve the main issues. Intensive methods associated with the analysis of information flows, the mastery of new methods and means of working with large amounts of information, the organization of adequate control actions are underused.

The main problems of management information management include:

- Adequacy of the information used to the real state of the managed object;
- Completeness and accuracy of information about the managed object;
- Presentation of information in a form that is as accessible as possible for processing and subsequent use.

Management decisions are an essential element of management. At the same time, the property of consistency is an essential requirement of these decisions: the control actions must be sensitive to the “response” of the entire system. Consistency implies not only the implementation of a specific solution, but also its vision in all relationships of the elements of the controlled system.

The control system includes the following main components:

- A management goal;
- An ideal managed object model that needs to be implemented in the management process;
- A model of the actual state of the control object;
- Information obtained based on comparing the ideal and the actual model;
- Control actions aimed at eliminating deviations of the actual state of the model from the ideal.

Modeling is the most important stage of management. Simulation is a reflection of the object being modeled, which preserves its attributes, which are essential from the point of view of the task. The most important property of a model is its adequacy to the object being modeled and the goals of modeling [2].

2. Materials and Methods

The main methods that are used when considering information aspects of managing socially important projects are based on a system-information analysis of the activities of the head of a socially-significant project and modeling its informational activities [3].

3. Results

In a digital economy society, the information factor takes on a decisive role. At the same time, information flows very often appear not only as a necessary condition of administrative management, but also as a self-organizing mechanism. In many ways, this is due to the exponential growth of information, when not a single centralized management body is able to collect, analyze and use all the information at its disposal [4].

1. In the above-mentioned conditions, the creation of a special information environment (for example, a portal or website) is appropriate. Within this environment, the informal management of individual phases of a project can be carried out. This is because project management functions are used not only as a tool to achieve certain goals, but also as a means of human communication.

As you know, all social processes are mediated by the processes of self-organization of participants in these processes. The streamlining of professional and social relationships is achieved not only by creating a vertical management structure, but also as a result of the interaction of team members with each other within a certain information environment. This allows one to develop a specific language system necessary for the joint solution of the task.

Thus, along with the traditional management structure, the informal structure is formed in the process of project implementation, which is based on the principles of self-organization and self-government. As part of this communication, many issues can be resolved at the level of project executors, bypassing the central governing body.

2. This situation is common for a society in which the processes of collecting, storing, processing, and transmitting information are the leading source of influence on social and economic processes. According to one of the leading modern sociologists M. Castells, the development of information society has highlighted a significant gap between the technological progress and the imperfection of individual social institutions. In the context of this society, a new kind of organization and management has emerged. It focuses on innovation, provides dynamic flexibility, adaptability, and synergy of human activity, i.e. the network organization. The emergence of a network organization that is becoming more widespread in society indicates a crisis of the traditional organizational model based on vertical integration and hierarchical command-and-administrative management [5].
3. As is known, the activity of a project manager can be described as “management”. Currently, several aspects of the modern manager’s activities are well studied. From the point of view of the implementation of information processes, the role approach proposed by G. Mintzberg is the most adequate. In his approach, 10 roles stand out that the manager performs in various situations. He distributes them into three categories: interpersonal communication; collection, storage, analysis, conversion and transmission of information; management decision making [6].

On the one hand, these roles are independent, on the other hand, they can be carried out simultaneously. First, the project manager acts as an ideological center for the accumulation, processing and transmission of information. Based on interaction with other project participants, the collection and analysis of information, he develops certain management decisions: allocating resources, tracking project stages, and ensuring control over the quality of results.

In modern conditions, the activities of a project manager can be supported by various software tools. The Gantt charts implemented in the Gantt Project software product are one of the effective means of such support. The Gantt chart is a set of horizontal bars oriented along the time axis. Each such strip corresponds to a separate problem solved in the course of project activities. The size horizontally corresponds to the time allotted by the manager to solve this problem. The project manager receives hints from the diagram, what tasks and in what sequence need to be solved for the successful completion of the project as a whole. Specific timing is missing in the diagram (the project manager determines this himself). The diagram reflects the synchronization of tasks that need to be addressed in this project.

The problem of interaction between project participants remains outside the framework of this model. These interactions are carried out in addition to centralized management. Meanwhile, this interaction turns out to be essential both from the point of view of information support of the project, and from the point of view of solving problems within this project [7].

In view of the above, a model that includes, in addition to the management procedure, the preparation of information to support the decision-making process has been developed.

The model includes the following components:

- Decomposition of the main task that this project is aimed at;
- Formalization of private tasks for performers, development of documentation of decisions made and control of their implementation;
- Assignment to each performer of a task;
- Identifying sources of important management information;
- Developing the technology for searching and collecting the aforesaid information;
- Formation of an array of information in accordance with the specifics of the professional problem being solved;
- Developing the technology to convert the collected information;
- Designing solutions based on the results of analysis and diagnosis of the problem;
- Evaluating draft decisions according to existing criteria;
- Developing management decisions arising from their evaluation of the collected and processed information;
- Forecasting the results of implementation of the formulated management decisions;
- Getting the result;
- Analyzing the result obtained from the standpoint of its adequacy to the formulated problem;
- Using the results.

Like any model, the following sequence of steps for implementing management decisions is implemented under certain conditions and limitations. The essence of these conditions and restrictions is as follows.

In accordance with the general management scheme, the management decision-making process is cyclical. At the “zero” stage, the statement of inconsistency of any parameters of the control object with the existing standards, other predetermined indicators occur. At this stage, the problem is formulated, which has the nature of a mismatch between the actual state of the managed object and the desired.

At the same time, the need to define a subject area arises, in which the project manager makes a decision. This definition includes a set of concepts and positions with which one can formulate a task that is adequate to the existing problem.

The development of a plan for solving a problem, an assessment of the consequences of its implementation, the definition of information necessary for its implementation, are the essence of the decision-making process. The presence of complete, reliable, and relevant information is a prerequisite for the development of management decisions. As practice shows, if this condition is fulfilled, then for a task, this or that solution is found.

The use of the information and communication environment is essential. The environment accumulates the necessary information for the implementation of management. This allows one to localize the process of its search and analysis. On the other hand, the exchange of information within this environment can resolve a number of issues that arise among those interested in the successful implementation of the project. Thus, the information and communication environments (for example, the project site) allow solving individual tasks within the framework of the main task of a socially significant project.

For example, when organizing school meals, it is important that parents familiarize themselves with the assortment of dishes included in the school menu. This is especially developed in the following countries: Spain, Italy, Germany, Poland, South Korea, and Japan.

The main task of managers of a socially significant project is overcoming subjective and objective obstacles and creating conditions for the implementation of management decisions. At the same time, control of the implementation of all formulated management decisions is of great importance. In the course of such control, not only deviations from the plan for the implementation of the managerial decision but also certain shortcomings of the decision itself, requiring a series of corrective actions, are clarified. It is advisable to carry it out at all stages of the decision-making process.

The use of modern means and methods of working with information, as well as the presence of a component of self-government, allows one to focus the efforts of the leader of a socially significant project on finding the most effective solution. The availability of pre-processed information in the form of summaries, reports, forecasts, and conclusions enables decision makers to draw conclusions about the development of the problem situation and its solvability. Thus, the management decision making process is a multi-step process, its basis is information support.

The formation of information support for the decision-making process by the head of a socially significant project implies the existence of a certain information culture. Based on the work of N. I. Gendina [8] and E. A. Rakitina [9], we can identify the following components of the information culture, which reflect the specifics of management activities.

The culture of working with information in this case implies:

Understanding:

- Information is a *fundamental property* of matter, like matter and energy;
- The informational essence of any object, phenomenon, process is manifested as its *semantic property* - the meaning of the object being studied;
- Practically in all phenomena and processes observed in the areas of cognition and communication, we can distinguish the *information component*;
- Since many information processes can be formalized, they can be *automated* to the extent;
- Hardware and software for information processing have certain *limitations* that must be considered when organizing automated work with information.

Knowledge:

- In which *form* the information “manifests” for a person when interacting (for example, studying) with this or that object;
- What *properties* it has;

- Which *forms of presenting* information exist;
- Which *information processes* constitute the main information cycle when making decisions;
- Which *information technologies* exist and what are their main properties;
- How *information technology tools* can facilitate and optimize work with personally and/or professionally important information;
- In what cases it is possible (and necessary) to resort to the help of information systems, in particular, artificial intelligence systems.

Skills:

- Choosing *the optimal form for presenting* both the data and task conditions;
- Presenting the information in the chosen form – *formalizing it*;
- Selecting a view and build *an information model* of the task;
- Identifying *the structure of the data* needed to solve the problem;
- Choosing *an adequate data structure representation model*;
- *Analyzing data* and *systematizing* them;
- Formulating conclusions and/or generate ideas arising from data analysis and models, etc.

Mastering these ideas, knowledge, and skills also enhances the culture of management, especially when it comes to a socially significant project.

4. Discussion

The problem of informational aspects of management and self-management is one of the key problems of the activity of a manager within the framework of a modern informational society. Various aspects of this problem have been discussed by many researchers [10], [11], and others. However, the problems of providing information to socially significant projects remain little studied.

5. Conclusion

The management of socially significant projects has its own specifics. It is expressed primarily in the presence of a significant number of stakeholders who may have a certain impact on the progress of the project. On the other hand, the proper organization of the information and communication environment makes it possible to integrate this interest in the process of making management decisions within the framework of the project. As a result of this organization, the component appears in the management system of a socially significant project, endowed with internal self-government. In the process of informal communication, all interested persons can solve several emerging problems, bypassing the project manager. Of course, this does not apply to the problems that constitute the core of a socially significant project. However, a few related but rather important, from the point of view of the general problematic's issues, can be solved in this way. Thus, a self-governing component based on the information and communication environment becomes a necessary component of a socially significant project. The ability of the project manager and all its main participants to fully participate in the processes of collecting, analyzing, transforming, and transmitting information is an important aspect of this approach.

Within the framework of the project “Optimization of the Hot-Food System in Educational Organizations Implementing General Education Programs (Regional Aspects, Best Practices)”, the development of the Healthy Nutrition website (<https://hf.kursobr.ru>) has been launched. Within this site, it is planned to create a platform for the exchange of views, discussions, raising the level of knowledge in the field of healthy nutrition in general and the formation of healthy eating habits in children as the basis of health-saving technologies. In the process of a joint and interested dialogue with each other, as well as with experts (physicians, nutritionists, employees of ministries) that manage the organization of the school feeding system and other specialists, parents of students would have the opportunity to take an active part in making decisions on the organization of hot meals in educational institutions. For example, in the framework of

research work on finding solutions for optimizing the hot meal system in schools, a sociological study to assess the satisfaction of students and parents of students with the food system in general educational organizations implementing general education programs is planned.

From our point of view, all the above approaches will improve the efficiency and significance of management decisions. The experience gained during the implementation of this project can also be used in other socially significant projects.

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