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**APPLICATION OF DIGITAL MANAGEMENT SYSTEMS TO
IMPROVE PROJECT ACTIVITIES OF INVESTMENT
COMPANIES**

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Abstract

In recent years the economic development of companies has been characterized by a transition from functional management to project management. To cope with this successfully new effective instruments such as digital management systems are needed by companies that are engaged in project activities. This is particularly important for investment companies which are interested in performing various projects. The object of the research is digital management systems for project activities of investment companies. This object of study is chosen due to the rapid development of investment companies in recent years and the need to optimize their activities with the help of digital management systems. The purpose of this article is to perfect the project activities of the investment company with the help of modern digital management systems. To achieve this goal one should perform a number of tasks: to study and analyze the specifics of the activity of the investment company; to choose a digital project management system that takes into account special features of the investment company and of its activity; to evaluate new opportunities for the company arising from the implementation of the selected project-oriented digital system. The results can improve the efficiency of project activities of the investment company using digital management systems.

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1. Introduction

Currently there has been a transition from functional management to project management (Guinan, Parise, & Langowitz, 2019). Therefore, business and government organizations, whose activities are closely related to project activities, are in urgent need of effective methods and tools, namely digital management systems (DMSs further in the article) to perform their key tasks such as (Prendville, 2018; Troshani, Janssen, Lymer, & Parker, 2018):

- Selecting the right investment projects that can be beneficial to business and completing them in due time;
- Controlling the status and the costs;
- Prevention of critical situations in the project;
- Rapid response to changes in business objectives and needs in the course of the project realization.

Digital project management systems provide:

- Support of the entire range of project management challenges in the organization;
- Implementation of the function of business objectives and needs management;
- Implementation of the function of project resource management (human, material, time);
- Reporting services for the project portfolio.

2. Problem Statement

The necessity to use digital project management systems (DPMSs further in the article) for investment companies is caused by:

- The growing size of projects;
- Frequency of their completion;
- Amount of information.

Therefore, the use of DMSs in the company can significantly increase the efficiency of the project implementation in terms of:

- Risk management and prevention of critical situations in the project;
- Calculating of working hours of performers;
- Calculating the schedule of limited resources;
- Control over the project status and costs;
- Rapid response to changes in business objectives and needs during the project implementation.

The specialized digital control system capable of taking into consideration the specifics of project activity of investment companies in the course of performing the tasks of application of various digital systems for improving the project activity of companies should be chosen (Cavallo, Ghezzi, Dell'Era, & Pellizzoni, 2019).

3. Research Questions

The use of DMSs enables to cope with many challenges that investment companies face. It is necessary to define a number of questions to be answered before making a choice of a particular digital management system:

- Which DMSs are in existence on the market today?
- What is the specifics of the investment company's project activities?
- What factors determine the choice of a digital management system to perfect the project activities of an investment company?
- Is it possible to use several digital systems to improve the project activities of an investment company?
- Are there any disadvantages of using DMSs to perfect the project activities of an investment company?

4. Purpose of the Study

The object of this research is DMSs for project activities of investment companies. The choice of this object is caused by rapid development of investment companies in recent years and by the necessity to optimize their activities with the help of DMSs. The goal of this work was to improve the project activities of the investment company using modern DMSs.

To achieve the set goal one should perform a number of tasks:

- To study and analyze the special features of the investment company;
- To choose a DPMS reflecting the specifics of the investment company;
- To evaluate new opportunities for a company arising from the implementation of the selected project-oriented digital system.

This is to improve the efficiency of project activities of an investment company with the help of DMSs.

5. Research Methods

The tasks are carried out on the basis of general scientific research methods:

- Comparative analysis within the framework of the theoretical method. The paper considers and compares DPMSs of Western and Russian developers. The specific features of using DMSs for investment companies are considered and compared;
- Statistical analysis within the quantitative research method. The paper contains quantitative data about the digital control systems market which helped to identify general patterns of development of the digital control systems market;
- Descriptive method presenting the models of digital control systems.

6. Findings

While applying general scientific research methods it was determined that:

a) The specific characteristics of the project activity of a modern investment company are as follows:

- There is high demand for information about project deadlines, budget and any changes in the project.
- The analysis of project information is performed via segmentation, developing a project plan and its model that allows to make forecasts about the most profitable projects and the projects which are unlikely to be profitable.

- A number of services are provided via the Internet (namely, consulting services are provided through videoconferences and business correspondence) to improve the quality of projects and to reduce the burden on the company's experts. The number of clients using Internet customer service portals is growing. Experts must respond to requests made via the Internet showing consistent quality, regardless of the amount of traffic received by their Web applications at any given time.
- Most prompt decisions are made without computer support which leads to subjectivity or experts have to use complex queries to compare and contrast different investment projects, identifying trends and cause-and-effect relationships. The above-mentioned increase in the number of projects makes it difficult to perform such tasks as finding an investor, developing a project plan as well as making certain management decisions (Elia, Margherita, & Passiante, 2020).
- The company's experts should have access to practically valuable information from different sources. Information should be retrieved within a few minutes after the problem arises, not days or weeks later. For instance, the ability to identify budget variations, which do not allow to continue its implementation, is useless if it is not possible to react immediately by recalculating the budget terms and creating suitable conditions for further effective implementation of the project (Burchardt & Maisch, 2019).

b) Problems of project management of an investment company are:

- Weak forecasting, tactical and strategic planning capability;
- Lack of risk analysis instruments;
- Lack of a unified picture for further actions (due to the fact that information is stored in different applications);
- The need for prompt notification of clients about the results of the search for investors, conducting the Investment Committee as well as the progress of the project;
- Lack of tools to effectively control the project and update information on-line;
- The need to eliminate duplication and loss of information about clients and projects.

c) The dynamics and main trends of the digital control systems market are as follows:

- global market for digital project and portfolio management systems grew to 1.95 billion dollars in 2018 which is 11% more than in 2016;
- Mega-vendors such as CA Technologies, Oracle, Microsoft, Planview and Hp have been in dominant position in the market since 2016;
- Almost half of the market is shared by five largest developers. Oracle is the first with a market share of 21%, followed by Microsoft, CA Technologies, Planview and HP;
- The most large-scale organizations engaged in the development of DMSs in Russia are Terrasoft, Advanta, Microsoft, Oracle;
- Mass development of mobile and social platforms entails additional complexity for IT departments (Jakosuo, 2019; Verma, Kumar, & Ilavarasan, 2017);
- It is necessary to integrate IT and business tasks which is a complex issue in project management;

- Primavera had the largest number of projects implemented in Russia from 2012 to 2015. Nowadays Microsoft and other developers are becoming more popular.

d) Assessment of the dynamics and main trends of the DMSs market made it possible to analyze the following software products of the DNS models: Microsoft, HP, CA Clarity, Serena, Desk Away, and Teamwork. The systems were assessed according to seven criteria which are shown in the Table 01:

Table 01. Comparative analysis of digital project management systems

Criteria	Systems					
	Microsoft	HP	CA Clarity	Serena	Desk Away	Teamwork
Price policy, rubles (per month)	35 000 (license for 1 place)	31 000 (license for 1 place)	27 000 (license for 1 place)	10 500	6 068	5 066
Implementation period	2 – 4 months	2 weeks – 4 months	6 weeks	4 – 6 weeks	3 – 5 weeks	1 – 4 weeks
Official office in Russia	+	+	+	+	+	+
Taking into account peculiarities of the industry	+	+	-	+	-	+
Possibility of adjusting	-	-	+	+	-	+
User friendly interface	+	-	-	-	+	+
Microsoft Office integration	+	+	+	+	+	+

Source: authors

- Pricing policy. This is one of the main criteria because the systems of this class are high priced, and the capital invested in its installation and maintenance has to pay off. In addition to the cost of licenses for a fixed number of jobs, the cost of the system implementation and its maintenance are important (errors elimination, updates installation, employee training);
- Duration of implementation. The cost of the system and its payback period depend directly on the time of implementation. The longer the system is being implemented, the higher is the possibility of reflecting all the features of the structure and activities of the company, although the possibility of negative effects is increasing. For example, a long-term adjustment of the system to the features of the enterprise may lead to a malfunction during the operation, which consequently leads to the stop of the project implementation and monetary loss;
- The ability to integrate with Microsoft office tools is important when choosing a system. Microsoft office is essential to operations of most investment companies in Russia, starting from the preparation and acceptance of applications to the implementation of a full project management cycle. The data from the Microsoft office tools used must be extracted into the DMS for the further activities of the company;

- Having an official office in Russia is an important factor since digital control systems are characterized by frequent updating. In most cases, the company is not able to implement this updating itself;
- Consideration of features in the area of innovation and investment. That is why a positive result of product introduction in these areas is desirable;
- Possibility of improvement, i.e. changing the system on its own, without the involvement of specialists from outside. It means that the product has to have an open software code;
- User-friendliness and good interface. It means that the software product is translated into Russian and has an easily understandable design.

e) Based on the data represented in the table, the product named "Teamwork" satisfies the abovementioned criteria the most. The Teamwork solution includes the following modules: project management; task management; Gantt charts; file management; risk management; an expert module; applications for mobile devices; copies backup; security; social networks; report management.

Teamwork has got all these properties and implements the concept of managing the full cycle of the project. It does not allow the use of Microsoft office tools, including MS Project, which performs only the project time management function. The user has an opportunity to assess the situation as a whole and conduct a detailed analysis of project indicators, by reviewing the modules. It also allows to correct the deviation of the plan in time.

f) The Teamwork means of operational project management allow you to:

- Allocate a free subdomain during registration;
- Maintain a high level of organization of the created projects;
- Collect all the necessary functions to work in a team;
- Identify risks, along with prioritizing them;
- Maintain a high quality of service.

f) The main object of Teamwork is the project. A team of specialists performing the tasks is involved in each project. The work on the project is being done according to the documentation, which is supplemented and edited by specialists throughout the entire life cycle of the project. Teamwork informs about the most important events by using the newsletter, which the project team members receive within the system and via e-mail. Teamwork will also inform users about the tasks reassigned to them, remind them about deadlines and everything that is important to the projects. Thus, the integral components of the project are tasks, documents, news, and a team of specialists.

g) Clients can also take part in the project, making adjustments and explanations, creating new tasks and monitoring the execution of orders. The developed reporting system will allow you to create statistical and interactive reports in any information section.

h) Working with the projects in Teamwork, the company employees use the following opportunities:

- Distributing the roles of employees involved in the project;
- Making a schedule;
- Adding tasks and employees;
- Attaching supporting documents;
- Assigning "control" points and recording changes;

- Looking through the history of changes;
- Making comments on the project and looking through them, the results of conferences, meetings, discussions;
- Receiving the news on the project, formed automatically according to the interests of the project team;
- Creating reports;
- Receiving statistics on tasks/employees;
- Maintaining a knowledge database of the projects;
- Receiving any information on the project at any time.

i) The work on the project consists of fulfilling the individual tasks created by users. The author of the task appoints the worker to whom it is transferred. Each task goes through certain steps following a specific route. Any parameters are easily configured according to the unique characteristics of the company. The absence of strictly regulated routes allows you to use the system's services when solving completely different tasks. Teamwork provides the following opportunities for working with the tasks:

- Describing the task with the help of a text editor;
- Distributing the roles of employees within the task;
- Appointing the deadlines;
- Prioritizing the task;
- Setting the tasks for the control;
- Common planning and discussing;
- Monitoring the status of the task;
- Making the history of changes;
- Massive correcting the tasks;
- Forming the archives of project objectives;
- Attaching files of different formats to the task;
- Looking through files in the program;
- Creating reports in any information section.

7. Conclusion

The investment industry possesses some specific characteristics the purpose of which is to complete the projects on time, without exceeding the allocated budget. The analysis of the DPMSs used by the investment companies in the Russian market has led to the conclusion that the best option is the introduction of the Teamwork software product. The main recommendations for the usage of the digital Teamwork management system in investment companies are as follows:

The most important requirement for the successful project is the recognition of the goals that are to be achieved as the result of its implementation by the management of the company and members of the working group. They must also be interested in an objective assessment of the company's performance and its development prospects. In order to make the implementation successfully, you must consider:

- The need for the business to use project management systems. Even before the start of the project, it is absolutely necessary to determine exactly what benefits the introduction of this

digital control system will bring. The relevance of implementing the Teamwork DPMS in investment companies corresponds with the need of perfection. This need is determined by the increasing growth in the number of projects together with limited human resources;

- Some steps necessary for the company employees to “adopt” a new system. First of all, the management needs to involve them in the processes of formulating tasks and goals, evaluating and choosing a software product and implemented tools. Secondly, they have to be trained on how to use all the possibilities of the created solution;
- The assessment of the system cost recovery is a complex task that does not currently have any standard approaches. In order to assess the potential success of the project, some experts suggest studying similar implementations in other companies and comparing their results with the goals and objectives of a particular company.

So, the implementation of the Teamwork software product is rather time and labor-consuming. It requires preliminary preparation and participation of the managerial staff in the development and decision-making process. Nevertheless, the Teamwork software product is a set of tools that allows the maximum use of the resources available in the company to achieve qualitative changes in improving the efficiency of business processes in various areas of interest. It is the most affordable, it shows all the industry specifics and provides the ability to use mobile applications. The users of the Teamwork system will be able to update information without entering the office and forward it to other company employees without time delays. The Teamwork system belongs to the class of digital systems for project management and is intended for the entire staff, especially managers, experts, lawyers, and accounts. It will allow you to make managerial decisions based on the relevant information, use the resources effectively, and offer in-time verified project management decisions.

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