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Change management in integrated entities based on the project approach

Gestión de cambio en educaciones integradas basadas en el enfoque de diseño

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Abstract
Integrated entities are currently facing fierce competition in the global market. In order to increase the efficiency of functioning, such structures should intentionally and regularly change both business processes and the organization of their conduct. The study is due to the growing popularity of the project approach in integrated entities with the goal of optimizing the change management system. This concept defines the possibilities of integrated entity, which should be able to cope with new challenges of the digital economy in the context of increasing global informatization. Within the framework of this system flexible and project management, business modeling, risk management, predicate business analyst, etc., are developed.
key words: change management, integrated entity, project approach, business processes

Resumen
Las entidades integradas se enfrentan actualmente a una competencia severa en el mercado global. Con el fin de aumentar el grado de efectividad del funcionamiento, tales estructuras deben realizar regularmente y a propósito los cambios oportunos tanto en los procesos de negocios como en la organización de su conducta. El estudio se debe a la creciente popularidad del enfoque del proyecto en entidades integradas con el objetivo de optimizar el sistema de gestión de cambios.
Palabras clave: gestión del cambio, entidades integradas, enfoque de proyectos, procesos de negocio

1. Introduction

The development of integrated entities is currently determined by many factors. This is affected by changes in market trends, increased competition, improvement of ownership, functions and management methods.

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That is why, the formation of integrated entities is a positive trend for the effective functioning of the economic system.

The ability of integrated entity to change is a key factor determining its success, making it possible to effectively implement fundamental, innovative and long-term changes that transform the entire system. At the same time, bringing the structure in line with the changing conditions of the digital transformation of economic processes is one of the most important management tasks.

2. Methodology

Theoretical and practical aspects of integrated entities management are considered in the works of domestic and foreign scientists (Andrews, 1971; Porter, 1991; Rumelt, 1984; Ansoff, 1989).

Various aspects of change management in economic systems at various levels are considered by scientists around the world (Gadde, 1992; Ansoff, 1989; Burnes, 2011; By, 2005).

The conceptual basis and problems of the formation and functioning of integrated production structures and vertical interactions in industry were considered in the works of such domestic and foreign scientists (Vertakova, 2018; Rybalova, 2015; Chulanova, 2018). They analyzed a wide range of economic forms of integration and examined the mechanisms of interaction between business entities.

Studies in the field of project management were presented by S.A. Oleinikova. Project optimization models based on finding the critical path were described in the work of I.G. Generalova, S.A. Suslova. I.A. Ptukhin and others also conducted research of the formation of responsibility of construction participants for violation of the calendar deadlines according to the PERT method. G.N. Chusavitina and others used information technology in project management.

3. Results

By integrated entities, authors understand a group of enterprises engaged in joint activity related to the goods (or services) production and sale based on consolidation of assets or contractual relations to achieve common economic and non-economic goals. Integrated entities are a product and manifestation of integration.

A number of changes caused by the development of the digital economy require some changes in the management of integrated entities in order to revise approaches to their regulation. Not all the integrated entities are in time for constant transformation, but those who are ready for change understand that the key to success is in the interconnections between companies and in a new look at the company as a whole.

The digital transformation of the economy affects the ecosystem of integrated structures [8]. Application of the project approach in the context of the digital transformation of economic systems will allow integrated entities to respond flexibly to ongoing changes.

Project management has been developing worldwide for more than 60 years (table 1). During this time, universal project management methods have been developed and a number of expert organizations have been created. Their purpose is to develop project management and implement best practices.

Table 1
International Project Management Experience

Period	Key points of project management development
1930-1950	A matrix organization of project implementation is applied, a critical path method and a network planning system are developed, a systematic approach to project management is used in accordance with the stages of its life cycle
1960s	Professional project management organizations are being established in Europe (International Project Management Association (IPMA)) and in the USA (Project Management Institute (PMI))
1970s	A computer project management method is being developed
1990-2000s	In the UK public administration a universal project management method is being developed
2000 - to the present day	Available support systems for the implementation of project activities are being developed

Source: 3. Boyko, A.N. (2019) Project management in Russia as a component of strategic management // Self-government. .Vol. 2. No. 3 (116). p. 65-67

Any project has the following features:

− singleness, uniqueness, non cyclical nature, novelty of activity;

− the dilemma of choosing the ratio of three key project parameters: quality, cost and timing;

− increased risk;

− consequential development and others.

For the implementation of projects, an empirical or deterministic approach can be used. The empirical approach allows to deepen constantly the understanding of the subject area and the change in the market as the project is developed. Under the deterministic approach, it is first of all important to completely collect all the data on the parameters of the objects effects and properties.

Experience shows that it is not always possible to collect data on the project and describe it completely, therefore, most often they resort to an empirical approach to project implementation.

Methodologies of agile development enable an empirical approach. Flexible project management methodologies based on Agile principles are especially popular. Four basic principles and 12 rules are spelled out in the Agile manifest. The most famous methodologies that ensure compliance with these principles are: SCRUM, Kanban, Lean, extreme programming.

Flexible methodologies are especially effective in cases where the team implementing the project has a shallow knowledge of the subject area. Unlike hard methodologies, flexible ones allow you to respond more quickly to any changes.

Coordinated and efficiently crafted work of the project team plays a key role in the project implementation process. A clear understanding by the team of the changes that need to be made to the project, the presence of an action plan for their implementation are the key to the success of the project. The process of building up the work of the project team is quite complicated, it especially complicates the fact that many projects are implemented by companies not only on their own, but also with the involvement of partners and other organizations.

Accordingly, the project teams of the company are formed not only from among its own employees, but also specialists from other organizations, whose interaction with each other is often limited by distance barriers.

The project team needs to get and to use a tool that allows the team members in the process of joint work on the projec:

− to identify together the changes that need to be made to the project;

− to set deadlines for their implementation;

− to control the implementation of these changes;

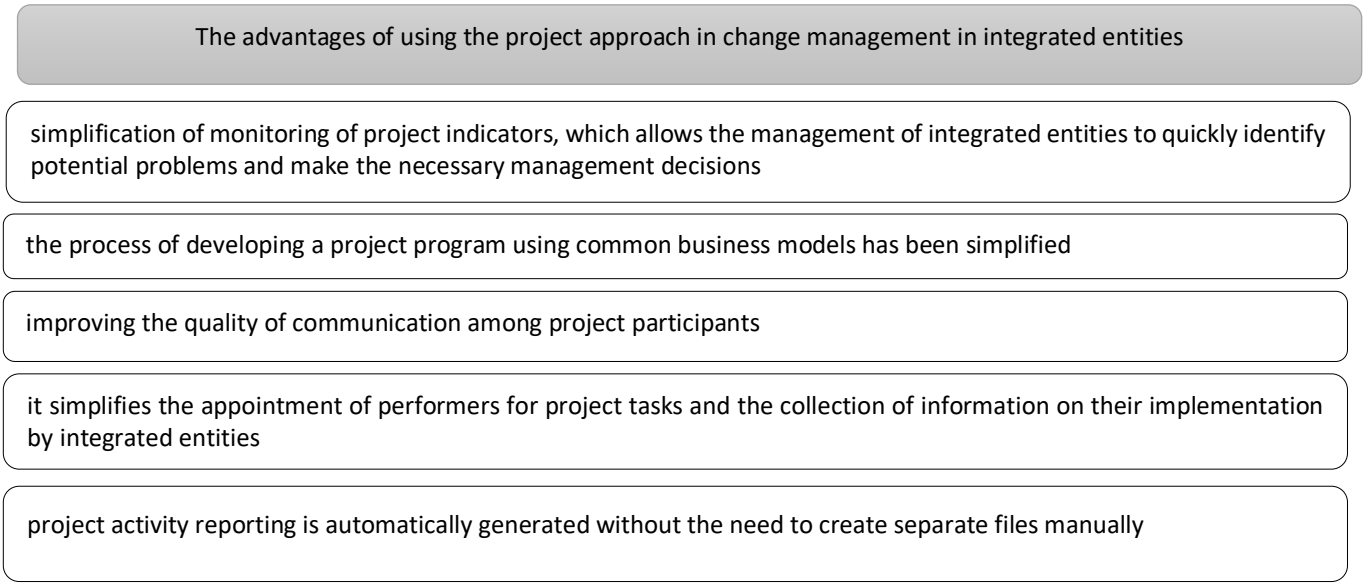
− to exchange information on project implementation issues.

The project office is intended to manage projects, but it is still important to choose a management method. There are many project management methodologies: rigorous and flexible.

The growing popularity of the project approach in integrated entities has led to the need of automation of project management activities.

The advantages of using the project approach in change management in integrated entities are presented in Figure 1.

Figure 1
The advantages of using the project approach in change management in integrated entities



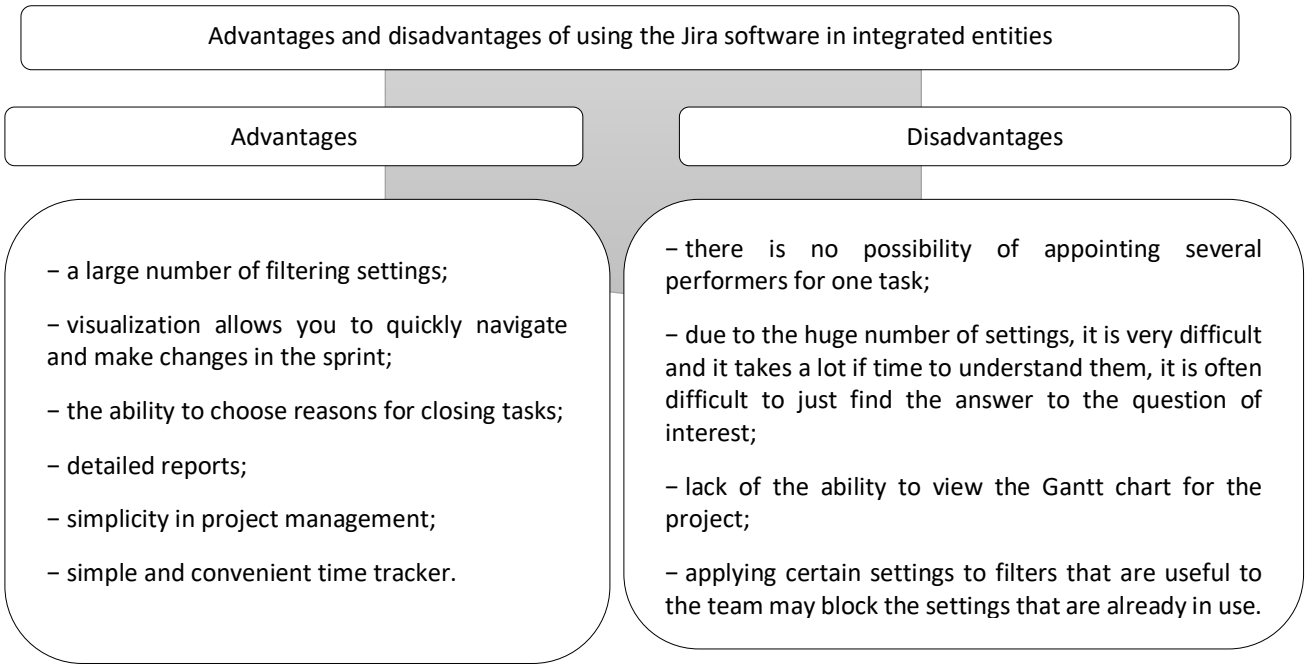
Let us consider systems for project management, both created by Russian developers and by foreign ones, paid services and free ones, web services and desktop applications.

The most popular project management application is Atlassian's Jira. Initially, Jira was positioned as a system for tracking errors; currently, Jira has powerful functionality for managing project activities.

Jira has the ability to install additional extensions and the environment for developing its own plugins for Jira, it has a mobile version and the possibility of integration with other systems, such as version control systems.

Let us present in Figure 2 the advantages and disadvantages of using the Jira software product in integrated entities.

Figure 2
Advantages and disadvantages of using the Jira software in integrated entities



Atlassian owns another project management product, Trello's online service. The program has the ability to manage several projects: a separate board is created for each project. Cards are added to the board - tasks, cards support comments, attachments, deadlines and checklists. The advantages of this product are: intuitive interface, free distribution, multi-user mode.

This application has a number of convenient functions: to create on the board several lists of tasks with statuses, to note the dependence of some tasks on others, which tasks can be started only after the completion of the previous ones.

Microsoft's product is Project, which creates a critical path. The program allows to visualize the work plan for tasks in the Gantt chart. The latest releases of the program allow to use the Scrum methodology for flexible project management (subscription project Online).

In such a way, the main advantage of the program and necessary for project management in integrated entities is the visualization of tasks in the Gantt chart.

Also, the program is convenient as it is possible to appoint the involved participants in the task, mark the dates of tasks and the sequence of tasks.

The disadvantages of the program include a difficult to understand program interface, there is no multi-user access to projects, the application is desktop. The product is more suitable for project planning than for collaborative project management.

The next ProjectLibre product has an interface similar to MS Project and a similar approach to build a project plan. This product can be used for free. ProjectLibre allows to develop a hierarchical structure of the project's work, a network diagram of the project, a resource plan, set the duration of work, determine the cost of resources, and control the project. This product is compatible with MS Project, supports Gantt Chart.

Another product is the Russian project management system - Advanta. Advanta allows to initiate and manage project content, carry out scheduling and project control, manage changes and risks.

The following advantages can be distinguished in the Advanta system: managing several projects at the same time, visualization in the Gantt chart, project reports (progress, quality of management), online communication in the system, differentiation of accessibility by role.

Next application worth to be mentioned is Podio. Podio is an analogue of a corporate social network, it is possible to customize the program as you wish, using the constructor. More than half a million organizations around the world use this tool - from advertising agencies to furniture manufacturers.

Work at Podio application is organized by projects. There is a built-in chat, so you can carry out discussions with participants directly from the project page. You can attach files to all the objects.

Basecamp is a tool for project management, collaboration and task setting for projects, distributed according to the public-cloud model. The application has the ability to assign tasks to one or more users, add notes and file attachments, leave comments on tasks and lists. In Basecamp, it is possible to create a schedule. It is also possible to exchange messages, send files, organize chats directly in the application. The service provides the ability to generate reports. Basecamp is considered insufficient for conducting complex and long-term projects, as well as for use in large companies.

The next English-language service for collaborative task management is Asana. As in all previously discussed similar services, Asana has projects, tasks, and subtasks. The creators of the task manager in terms of detailing added the ability to divide tasks into sub-sections within a single project. Tasks can be moved freely from one section to another. When there are too many completed tasks and projects, they can be sent to the archive. For each element, deadlines and tags are set, you can put likes, write comments and add subtasks. If there are a lot of employees, and the projects and tasks are diverse, it is possible to divide them into work areas in order not to get confused and clutter up the workspace. For this, Asana has a Worksection element.

The advantages of the service include a flexible multi-level structure, which is well suited for projects requiring detailing.

The disadvantages are the absence of a Gantt chart, there is no built-in messenger and file sharing capabilities.

Wrike is an online working environment similar to asana. The principle of work organization and functionality differ. The main actions in Wrike are implemented through folders, projects and tasks. The latter can be grouped by folders and projects, set deadlines and priorities, comment on and appoint performers. There is a news feed to keep track of the latest developments on all projects.

Targetprocess is a web-based project management service for Scrum and Kanban methodologies. A project manager can create multiple individual projects and data, assign roles, specify requirements, appoint an executor, and alert other team members or customers.

The system uses four different views: timeline, list, view, and board. The service has a number of interesting features: estimation of participants' workload; management of backlog and landmarks; management of releases and sprints; creation of user plugins; REST API and plugins for Eclipse.

Active Collab allows tracking of time spent on a task, project, client. The service allows to create and send invoices directly from the system, and on their basis forms automatic reminders to debtors. Using the Joint Notes function, the team can work on a single document at the same time. The system allows to regulate the access of employees and clients to data, as well as to store activity logs. The built-in calendar allows you to create different

types of events and calendars, color coding, customize recurring events, and share data with your colleagues. The reporting tool helps to track transfers of funds, timesheets by clients and commands, compare planned and actual time spent.

"Planfix" is a system of management of collective work. Designed for both large business and freelancers. For team work in "Planfix" there are tools – projects, tasks and sub-tasks, and for even better detailing – check lists. And one of the out of the box things is actions. They add comments, date, status, artist, etc. to the tasks.

One of the main advantages is the presence of an analogue of Kanban board, which contains customizable planners – tools that display the necessary tasks on one screen, as well as a convenient status system for tasks. Disadvantages include absence of messaging and complex interface.

Let us present in Table 2 a comparative analysis of the functionality of project management systems in integrated entities.

Table 2
Comparison of the functional capabilities of project management systems in integrated entities

Functional capabilities	**Project cloud**	**Jira**	**Advanta**	**MS Project**	**ProjectLibre**	**Trello**
Project templates	-	-	+	+	+	-
Multiproject management	+	+	+	-	-	+
Resource information	+	+	+	+	+	+
Assigning resources to tasks	+	+	+	+	+	+
Scheduling	+	+	+	+	+	+
Resource usage means of control	-	+	+	+	+	-
Means of the cost state of the project and analysis on the basis of the work performed	-	-	+	+	+	-
Preparation of financial statements	-	-	+	+	+	-
Project risk analysis tools	-	-	+	+	+	-
Maintaining a project risk base	-	-	+	+	+	-
The ability to refine and to add new functionality	+	+	-	-	-	-

To manage the project activity in integrated entities, it is necessary to have a function to create a multitude of projects, calendar planning of each project, drawing of a Gantt diagram, control of tasks, control of time spent, the interaction of the team members by means of comments and messages within the system. In addition, the system should be multi-user and it should be a web application.

The closest feature set for project management in integrated entities is the Jira product.

The main task in project management is the analysis of data by projects, teams and interactions within the team.

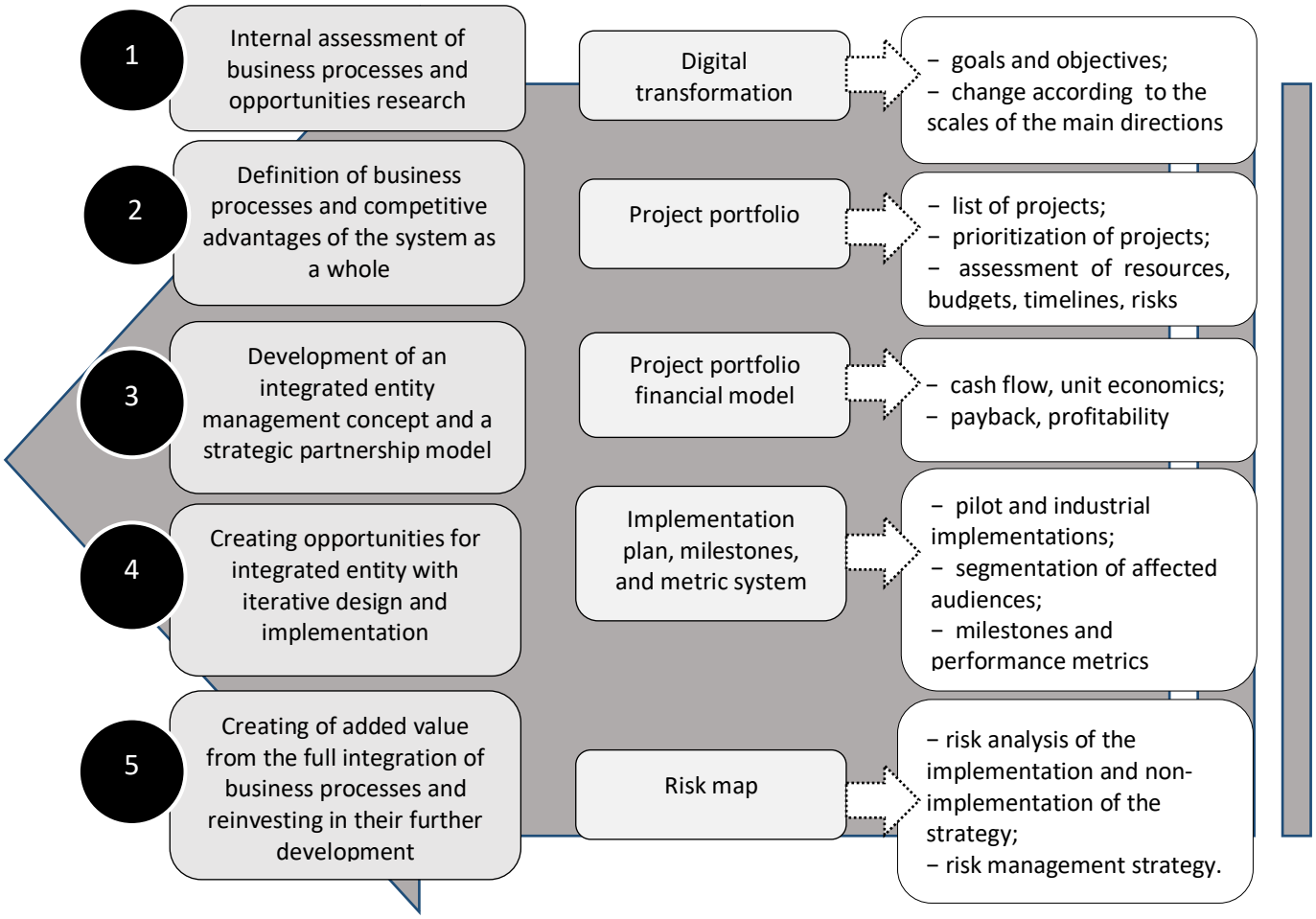
It is necessary to define the data set according to which the project activity can be analyzed, and for this purpose it is necessary to be able to add new parameters to the system to fill in, to make samples of the data.

The development of integrated entities as a new format for the existence and development of business in the digital economy has stimulated the development and redefinition of many concepts of classical management in the light of ongoing changes.

Today, rapidly changing trends in the companies business environment are leading to a steady decline in companies life expectancy, as many of them do not pay adequate attention to managing change. They misinterpret the economic situation, misshape the strategy. Very often, their strategies emphasize short-term efficiency rather than digital risks, uncertainties and environmental instability.

The sustainable development of integrated entity based on the project approach should include the continuous change management in all business processes (figure 3).

Figure 3
Integrated entity Business Process Change Management
Algorithm based on the project approach



4. Conclusions

As a result of the integration and merging of business processes into a single model, the efficiency of the economic activity of the integrated entity increases considerably.

Thus, project-based management will create new, more efficient forms of interaction of integrated structures, allowing consumers to choose not only the supplier but also the parameters of the product or service to be provided.

The management of the changes in the integrated entities will make it possible to increase the complexity, quantity and quality of the problems being solved, which inevitably accompany the active transition of economic agents to the new economy and the large-scale use of digital technologies.

Bibliographic references

Andrews, K (1971) The concept of corporate strategy. Front Cover. Dow Jones-Irwin. - Business & Economics - 245 p.

Anshin, V.M., Aleshin, A.V., Bagrationi, K.A., Ilyina, O.M. (2013) Project management: fundamental course: textbook. - Moscow: HSE.- 624 p.

Ansoff, I. (1989) Strategic Management. M .: Economics, 303 p.

Bocharov, N.A. (2014) The study of project management models: a scientific article in the journal // Vestnik GUU. - No. 7. URL: https://cyberleninka.ru/article/n/issledovanie-modeley-proektnogo-upravleniya

Boyko, A.N. (2019) Project management in Russia as a component of strategic management // Self-government. .Vol. 2. No. 3 (116). p. 65-67.

Burnes, B., Jackson, Ph. (2011) Success and failure in organizational change: an exploration of the role of values. Journal of Change Management, I. 11 (2), pp. 133-162.

By, R. (2005) Organisational change management: a critical review. Journal of Change Management, I. 5 (4), pp. 369-380.

Chebotarev, S.S. (2017) Technologies of project training and development of video games for preparing students in IT areas in the context of the digital economy // Modern higher school: innovative aspect. - Volume 9, No 3 (37). p.47-56. ISSN: 2071-9620.

Chulanova, O.L. (2018) Technology of project and project team management based on the AGILE flexible project management methodology // Bulletin of Eurasian science. Vol. 10. No. 1. p. 37.

Chusavitina, G.N., Makashova, V.N. (2018) Project management in education using projectlibre. - Magnitogorsk State Technical University. G.I. Nosova (Magnitogorsk).- 200 p.

Covacs, O. (2018) The Dark Corners of Industry 4.0 / Technology in Society

Gadde, L., Hakansson, H. (1992) Analysing Change and Stability in Distribution Channels – A Network Approach // Axelsson B., Eastern G. Industrial Networks: A New View of Reality. – L.: Routledge. – P. 166–179.

Generals, I.G., Suslov, S.A. (2014) Project optimization model based on finding a critical path / Bulletin of NIIEI. No. 5 (36). - p. 36-41.

Huws, Ursula (2016) Labor in the Global Digital Economy: The Cybertariat Comes of Age. Radic. Philos, p.60-62.

Jeff, Sutherland (2016) SCRUM. The revolutionary project management method = SCRUM. The art of doing twice the work in half the time. - Mann, Ivanov and Ferber.- 288 p. - ISBN 978-5-00057-722-6.

Jira: software for tracking tasks and projects. - URL: https://en.atlassian.com/software/jira/

Lezzi, M., Coranno, A. (2018) Cybersecurity for Industry 4.0 in the current literature: A reference framework // Computers in Industry, p.97-110

Lucas, S.D., Nestor, F.A. (2018) The expected contribution of industry 4.0 technologies for industrial performance // International Journal of Production Economics, p.383-394

Parakhina, L.V., Popovicheva, N.E., Bazarnova, O.A. (2018) Digital Transformation of Economic Systems Producing International Investment Activity of a Business // Central Russian Bulletin of Social Sciences. Vol. 13. No. 2. p. 142-160.

Pickett, Joseph P., ed. (2011), "Empirical", The American Heritage Dictionary of the English Language, Houghton Mifflin, ISBN 978-0-547-04101-8.

Porter, M.E. (1991) Towards a Dynamic Theory of Strategy // Strategic Management Journal. – Vol. 12. – Special Issue: Fundamental Research Issues in Strategy and Economics. – P. 95–117.

Rumelt, P. (1984) Strategy, Structure and Economic Performance. – Boston: Division of Research, Graduate School of Business Administration., Harvard University, 235 p.

Rybalova, E.A. (2015) Project Management: textbook. - Tomsk: Faculty of distance learning TUSUR. - 206 p.

Tapscott, Don. (1999) Electronic-digital society: Pros and cons of the era of network intelligence / Per.s Eng. Igor Dubinsky; Ed. Sergei Pisarev // Kiev: INT Press; Moscow: Relf beech. - 432 p.

Trello. - URL: https://trello.com/

Vertakova, Yu.V., Plahotnikova, M.A. (2018) Software products for team and project management in the scientific and educational fields: general review // In the collection: Management of socio-economic development of the regions: problems of the way and their solutions Collection of scientific articles of the 8th International Scientific and Practical Conference. p. 259-263.