

**ABSTRACT**  
**of the thesis submitted for the degree of Doctor of Philosophy (PhD)**  
**majoring in “6D051800 – Project Management”**  
**by Zholtayeva Aibarsha Serzhankyzy on**  
**“Identification and evaluation of factors of effective knowledge**  
**management in projects”**

**Relevance and problem formulation.** The peculiarity of our era is that knowledge is becoming a key resource that determines development. Moreover, the most prominent authors (P. Drucker, E. Toffler, J. Quinn, and R. Rich) in the field of knowledge management consider this resource the only one in the current context for the development of an organization. And, a deep analysis of publications in this subject area demonstrates the presence of two established mainstreams associated with development management. The first mainstream explores issues related to explicit knowledge. The above authors are well-known representatives of this field. As part of the second mainstream, the most famous are the works of I. Nonaka, H. Takeuchi, J. Sutherland, and others. The area of study of this mainstream is non-formalized knowledge “born” in the current process of the organization’s life. Having defined the development of an organization as a project in our work, we preferred to adhere to the provisions of the second mainstream, identifying and evaluating the factors of effective knowledge management in projects, which is consistent with the Concept of "Managing the development of an organization through projects", which has been developed since 2008 at the Department of Computerization of Technological Processes and Project Management, the successor of which is the Department of Management and Mathematical Economics.

It is noteworthy that knowledge management as a subject area have not yet been considered even in the works of the well-known PMI center. Thus, in the 6<sup>th</sup> edition, knowledge management only finds a place as a *Project Knowledge Management* process in the *Execution* process groups.

The choice of the research base and the formulation of the problem of this work was influenced by the task currently being solved in Kazakhstan to activate small businesses with the aim of their transition to a higher SMEs category. As the main tool for such a transition, the work explores the process of creating new competitive knowledge in the course of the current activities of the organization. At the same time, the emphasis is on the problem of creating knowledge in the process of managing an organization's development/transformation project.

**Baseline Information and Substantiation of the Study of the Subject**

Various aspects of creating knowledge in projects are considered in the works of foreign and domestic scientists. Among them are the scientific works of domestic scientists, such as Tayauova G.Zh., Saiymova M.D., Sultanbekova Zh.Zh., Stepanov A.V., Amirbekova D.K., Tsekhovoy A.F., Gabdulina A.S., Nurulla A.A., Turganbaev B., and others.

Among the foreign scholars are Chong C.W., Holden T., Milner B.Z., Ajmal M, Helo P., Kekäle T., Koskinen, K, Barancheev, V.P., Sokhanvar Sh., Matthews J., Yarlagađa P., Lutsenko E.V., Drogobytsky I.N., etc. - the scholars had considered in detail the theoretical aspects of knowledge creation in the projects of the organization. The most significant contribution to the coverage of this issue was made by Japanese scholars, I. Nonaka and H. Takeuchi, proving that the creation of knowledge is the most important source of international competitiveness.

To study foreign scientific publications, the Science Network database (Clarivate Analytics) was used. Search result: 1758 articles were published in foreign scientific journals between 1979 and 2021. Thus, we can say that this topic is understudied in the world research area. For comparison, the number of articles on "knowledge management" for the same period is 370,353, although it is also a new direction of management.

**Purpose and Objectives of Research.** The goal is to identify and evaluate the factors that ensure effective knowledge management in projects and, on their basis, develop a model for transforming implicit knowledge into explicit knowledge. To achieve the goal, the following tasks were set:

- to study a set of theoretical and methodological issues related to knowledge management generated by project stakeholders;
- to analyze the peculiarities and problems of knowledge management in projects;
- to identify and analyze the factors that affect the effectiveness of knowledge management in projects;
- to develop a methodology for assessing the factors of effective knowledge management generated by project stakeholders;
- to define criteria for measuring the increase of knowledge of organizations;
- to formulate and substantiate the requirements for the knowledge creation information system based on the Insight-DNA technology, developed within the concept of "Development management through projects".

The **object of research** is the process of managing knowledge generated by project stakeholders.

The **subject of the research** is the factors and managerial relations that determine the dynamics of the transformation of implicit knowledge into explicit knowledge.

The **context of research** is knowledge management in organization development projects.

The **methodological framework of the research** is the academic papers of domestic and foreign scholars in the field of knowledge management, knowledge creation, organization development management, project management.

In the course of the study, such scientific methods as bibliometric analysis, keyword analysis, generalization, comparison, analysis, synthesis, classification,

peer review, factor analysis, in-depth interviews, the main component method, questionnaire survey, the Varimax rotation method, etc. were used.

The **scientific novelty of the research** is that the process of managing the development of an organization is considered for the first time as a continuous research process carried out by a group of top managers, which includes the first executive. In this context, the problem is considered for the first time.

To assess the effectiveness of management, evaluative and descriptive research methods are used, aimed at empirical study and description of the behavior of individuals, groups of people in the decision-making process based on the Insight domestic technology - DNA.

To assess the development of the head of the organization, the metrics "work", "life", "health", "leisure" and "self-development" are proposed as the main strata.

New categories and classifications were proposed in the theory of knowledge management and criteria for measuring the increase in knowledge.

### **Research Hypothesis and Research Questions.**

As a result of working with a large number of sources in this direction and relying on the concept of "Managing the development of an organization through projects", we managed to formulate one research **hypothesis** – "The lack of a knowledge creation system in the process of current activities is a significant obstacle to the successful implementation of organization development projects" and **5 research questions**:

- What factors in the course of the current activities of the organization influence the creation of their own knowledge of management entities?
- What characteristics and features should be the basis for the classification of knowledge in the process of managing the development of an organization?
- What criteria can be used to measure the growth of an organization's knowledge?
- How to organize the process of transformation of implicit knowledge of management entities into team and corporate knowledge within the framework of the Concept of "Development Management through Projects"?
- What methods and tools of project management are used to organize the process of transformation of implicit knowledge of management entities into team and corporate knowledge?

### **Theoretical Significance of the Research Findings.**

The results of the research in the future can be formalized as a new domestic scientific direction. A theoretical platform has been created for creating domestic knowledge management systems in projects for transforming an organization into an SME. The scientific Kazakh language has also been supplemented. Based on the work, it is possible to develop an actual course titled "History of the Knowledge Management Theory".

**Practical significance of the study** is as follows:

- application of the research results for the development of SMEs, contributing to more efficient management of operations and projects, programs and portfolios;
- possibility of accelerated creation of text works in the organization as a result of the generation of new knowledge and the search for the existing one;
- self-development of the management entity on the basis of accelerating the development of new knowledge, skills and types of behavior related to the tasks of management and leadership qualities.

**The main Provisions issued for Defense:**

1. It has been proven that the lack of a knowledge creation system in the process of current activities is an obstacle to the implementation of organization development projects;

2. The following five factors have been identified that, in the course of the current activities of the organization, influence the creation of their own knowledge of management entities:

- 1) the level of organizational culture of project management in the country;
- 2) the involvement of the CEO in the process of managing the development of the organization;

Availability of:

- 3) project management office (PMO);
- 4) the presence of a knowledge creation system (*it should regulate the process of registering individual, team, corporate and network knowledge created in the course of managing the development of an organization*);

5) incentive systems (for registration in the knowledge creation system of individual, team, corporate and network knowledge).

3. The author's classification of the levels of knowledge of management entities and the conceptual and categorical framework of the theory of knowledge management have been developed;

4. The author's set of criteria for measuring the growth of the organization's knowledge is proposed;

5. A model of the knowledge creation process has been developed based on the transformation of implicit knowledge of management subjects into team and corporate knowledge;

6. The requirements for the information system for creating knowledge based on Insight-DNA technology, developed within the concept of “Management of development through projects” are formulated;

**Publication of Scientific Results:** 11 academic papers and reports were published during the period of work, including 1 article on the topic “Factors influencing the legal regulation and management of education system in Kazakhstan: A review and analysis” in an international scientific journal, included in the Scopus database; 3 articles in peer-reviewed publications recommended by the Committee for Control of Education and Science on the topics “Effective management of company development: cognitive aspect and the business case of the manager”, “The concept of an intelligent system for extracting knowledge from

the company's information flow" and "Transformation of information into knowledge at solving the management tasks"; 7 reports - at international conferences: "The work of a manager with intelligent systems in management tasks", "Risk assessment in corporate knowledge management", "Knowledge management as a factor in successful project implementation", "Analysis of factors affecting the effectiveness of knowledge management in the project", "Identifying critical factors for effective knowledge management in project activities", "Knowledge management in projects as a factor in the formation of a corporate system for managing the development of an organization" and "Definition problems of knowledge management in project-oriented organizations", including 4 reports in a foreign international conference.

**Structure and Scope of the thesis.** The thesis work comprises introduction, 3 chapters, conclusion, list of cited references and appendixes. The volume of the thesis is 157 pages of typewritten text, 32 tables, 35 figures, and 181 sources in the bibliography.

**The main content of the thesis.**

The **introduction** sets out the relevance of the thesis work and its main provisions.

In the **first chapter** of this research, a deep bibliometric analysis of research topics related to knowledge management was performed, highlighting two tracks presented in the works of world scientists. The most studied is the process of explicit knowledge management. The process of creating new knowledge in the process of managing an organization's development/transformation project remains understudied, our contribution to the solution of which is indisputable. As a result of working with a large number of sources along this line, and based on the Kazakhstani concept of "Managing the development of an organization through projects", one research hypothesis and five questions of research interest were formulated.

The **second chapter** clearly defines the methodology for obtaining reliable baseline data and their subsequent processing for each formulated question. The solution of these issues can be considered as a theoretical basis for the creation of Kazakhstani knowledge management systems in projects for the transformation of the organization.

In the **third chapter**, based on the results obtained, we formulated the requirements for an information system for creating knowledge based on the implementation of Insight-DNA technology, developed within the concept of "Development Management through Projects". The legal aspects of supporting the process of forming a knowledge creation system are also considered.

The **conclusion presents** key findings and conclusions of the thesis work are presented.