



International Conference on Research Paradigms Transformation in Social Sciences 2014

Cognitive management: theory and practice in the organization

Nikulina I.E. *, Khomenko I.V.

National Research Tomsk Polytechnic University. Tomsk, Russia

Abstract

In the context of modern management cognitive management is considered as one of the innovative trends. Management activities in cognitive management are carried out through tools affecting human cognitive capabilities. The subject field of cognitive management is the process of managing organizational knowledge, which is possible in the information society and is most effective in a social environment.

© 2015 The Authors. Published by Elsevier Ltd. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/3.0/>).

Peer-review under responsibility of Tomsk Polytechnic University.

Keywords: cognitive management, knowledge economy, knowledge properties, the management mechanism, principles of cognitive management, methods of human knowledge management, conceptual approaches to knowledge.

1. Introduction

Methodology of cognitive management appeared relatively recently, at the beginning of the XXI century, at that time the practice of social processes was changing due to the coming understanding that they need to be skillfully managed and used in business development. Cognitive management would not have arisen without the information society, with its knowledge economy. For understanding the cognitive management as a new trend in the context of the management science, it is necessary to clarify what is meant by "knowledge". In this case it is not knowledge, which comes from books, encyclopedias, reference books and dictionaries, but knowledge relevant to activities of an organization.

2. Review of related research

In the present conditions of the organization, when the markets are globalizing, technologies change and grow, competitors multiply and products become obsolete, before they reach the consumer, success comes to those companies that purposefully create new knowledge, spread it and put it into new technologies and manufactured products. Business of such organizations is a continuous process of innovation.

* Nikulina I.E. Tel.: 8 (382-2)50-36-99
E-mail address: nie@tpu.ru

However, in spite of the many definitions of “intellect” (brain-power) and “intellectual capital», few modern leaders are aware of the true nature of the companies – creators of knowledge. They do not understand what the company should do for application of knowledge technology and how such organizations should be managed.

Knowledge in management theory is a well-thought information about the subject and object of management, practice-proven result of understanding reality, its valid reflection in human consciousness. It may be noted that one and only definition of “knowledge” cannot exist. However, knowledge properties are observed by many scientists. In the cognitive management these properties include:

- Knowledge is in constant development, which motion vector starts from ignorance to the level of understanding and explanation of the various facts in the system of notions of management science, up to their inclusion into theory.
- Knowledge understands the reality of the situation (problem) of the organization in its past, present and future, in the reliable synthesis of facts.
- Knowledge finds necessary and regular behind the random, general – behind the unique and based on that forecasts development of the organization.
- Knowledge, of course, is the product of individual minds, but it can be used by many, while many may not perceive it. Hence the need for a particular knowledge in the practice of management of the organization often has to be proven.
- Knowledge can be stored in a systematic manner in a variety of storage media (books, documents, databases, files, etc.) which facilitate its use.
- Knowledge can be explicit and implicit, explained by the ease or difficulty, with which it can be described in terms that are understandable to a broad audience. In this connection, for example, Japanese managers explain the success of Japanese firms in the business by their ability to extract explicit knowledge from implicit in the process of working together, and then reproduce it in different situations, thus turning it into additional corporate resource (Nonaka and Takeuchi, 2011).

Since cognitive management is associated with organizational knowledge, from the philosophical point of view two approaches to knowledge are recognized. The first approach is a paradigmatic or functionalistic knowledge, which relates to the theory of organization, originating from positivism and corresponding to the methodology of natural science research. Managers working in this way are mainly interested in general and universal laws of cause and effect relationships of the organization, regardless of context. Such approach is not very appropriate in analysis of individual case study research, however it can be applied in unexplainability of etymology of certain problems which need to be understood for further solution.

The second approach is called thematic or narrative, it is focused on the understanding of a fact, and therefore the context here is of prime importance. This approach considers the human actions and intentions. This helps to reveal the values of the organization at the level of the various staff members, organize them, and pass the organizational culture on to new employees.

In this regard, it is clear that the descriptive approach, in contrast to the paradigmatic, is more productive, for example in terms of culturally defined aspects of organizational behavior and interaction. Another example of the use of organizational knowledge in the context of competition in business is technology and techniques of work used by managers, managerial abilities, accumulation of practical experience, formation of a database of competitors, customers and suppliers, receiving patents and other similar application of knowledge in the modern management of the organization.

Any methodological divergence in modern management is formed primarily on certain scientific principles. Cognitive management is not an exception. Its methodology and principles are based on the experience of British Petroleum, and were laid down in 1998 (Devenport & Prusak, 2006):

- Knowledge emerges and remains in people's minds;
- Shared use of knowledge requires trust;
- Technology enables new forms of cognitive behavior;

- Shared use of knowledge should be supported and rewarded;
- To use the knowledge it is necessary to have managerial support and additional resources;
- Initiatives in the application of new knowledge can be assessed using qualitative and quantitative indicators of organizational development;
- Knowledge is the product of creativity, to develop it in new directions encouragement is needed;
- Knowledge as a resource has weight and size;
- Knowledge as an asset has value and creates value;
- Knowledge as property has a value and exclusive affiliation;
- Knowledge as virtual matter has the properties of flexibility and viscosity, but is not material or substantial phenomenon.

In summary, we can determine how and wherewith knowledge manifests itself in the modern management, as well as where cognitive management is the most applicable in the organization. Knowledge is embedded in almost all of the tools of management mechanism, the structure of which is defined by the following elements: principles, methods, functions, with a mandatory provision of the entire resource base from staff to information.

According to this model of management mechanism various functions in management receive differentiated sets of tools, which change at different combinations of knowledge about the connections of functions. Let us give specific examples of network branching and penetration of cognitive management into organizational functioning and development through some of the structural elements of the management mechanism. We begin with the study of innovative management principles (Nikulina, 2011), from which we can select those meeting the contemporary requirements of cognitive management:

Cascading – a transfer of resources to customers with special knowledge – "know-how". This principle can be applied in the implementation of a modern business processes of outsourcing, out-staffing and other modern forms of transfer of part of the business of the organization to other companies owning knowledge about more efficient and innovative organization of transferred part of business.

De-centrization – the delegation of authority. Transfer of part of the functions of the center to more competent divisions, affiliates, offshoots and other structural divisions of the business entity. This important rule of modern management which is based on the preservation of certain forms of autonomy can be achieved only with knowledge of efficient processes for exercising such powers.

Self-generation of business – a self-sustaining process that occurs without outside assistance. Organizations can develop better by improving the basic processes, thus improving the knowledge in the course of time. Self-generation analysis gives way to judge the strength of support and self-healing provided by management mechanism tools.

Self-collage – an innovative technology for producing high quality new visual structures from holistic knowledge of management organizational structure.

Polysemy of processes in management – self-formation of multiple interpretations, the existence of different but related meanings, or knowledge of the same process, different interpretations of the same action.

"Form follows people" – the main principle of business process reengineering. Reengineering – the fundamental rethinking and radical redesign of business processes of enterprises in order to achieve an abrupt improvement in key indicators of their actual activity: cost, quality, service and rates.

Unprecedentedcy – absence of previous experience or knowledge comparable with the actual development of the organization.

Pluralization – importance of unfettered potential and creativity of employees to replace the strict administration in modern management.

Information capacity growth in management.

Principle of counter-incrementalism (incrementalism is gradual addition, piece-by-piece approach) – this is a departure from the step-by-step climb to the goal, maximization of intra-systematic development of the organizational management.

The principle of free movement of each participant of relations in modern management within a specific context, for example, within the boundaries of corporate structures, free economic zones, etc.

Agonistic principle (from the Greek: Agon – contest) and *observability* of social relations, as the coexistence of "sworn friends" in the organization.

The principle of the transition to a more humane society, in modern management – is the provision of more space for autonomy, diversity and self-expression of employees.

The principle of "know those who know" – focuses modern management practices in the direction of direct communication, accumulation of more acquaintances and knowledge about customers, agents and competitors of the organization.

Fractality as a principle of modern management is used for accounting of generalized knowledge of how the balanced system changes with a change of control parameters.

The principle of development of "individual tastes" – exogenous environment requires compliance – with this principle in the context of growing individualization of economic activities and management.

The principle of continuous self-revision of goals and relations in the system of modern management.

These principles draw attention to the features of postmodern management, ambiguity and temporality of conditions and images of the organization and high rate of propagation of information and computer technologies. Hence the emergence of cognitive management takes place. Nevertheless, the analysis of the use of the combination of the principles applied to the management of the new economy of Russia shows deficiencies of the current management methodology. There is still incomplete utilization of traditional set of management principles, not to mention the more modern ones. Our organizations everywhere continue to be viewed as rigid structures, rather than communities open to new knowledge and learning. Today's partial use of modern management principles, taking into account the new possibilities of cognitive management leads to a significant lag of Russian management from experiences of developed countries.

Besides principles, instrumental base for the mechanism of cognitive management includes management practices and technologies of organizational management. Their study shows that the vector of management science is moving toward rejection or modification of existing mechanistic repetition of classical methods and technologies. Many top managers and scientists in the field of management pay attention to the need for updated knowledge of methods and technologies, rather than the outdated methods and approaches. In other words, an era of mutual and rapid change in organizations of their structures and images, and employees (their professions, positions and organizations) has come. The knowledge economy requires twice the wealth from half of the resources, or 4 times increase in productivity of resources for sustainable economic and social well-being of society.

For example, practices of motivational management in developed countries shows focus on "positive", while the applied management principles from the standpoint of postmodern administration focus on "negative" because of the reliance on the conflict, inaccuracy, vagueness of decisions and results, elimination of canonical approaches. Thus, knowledge of how "demotivation" is no less important in the management of an organization in today's economy.

To prove the necessity and the possibility of using cognitive management technology, we will use the example of one relatively new management function – goal setting. Contemporary social reality in most cases takes knowledge as information, and the emergence of artificial intelligence proves that information serves as the main construction element of contemporary reality. However, subjective knowledge is always creative, and is used in new ways in different contexts. Blurred, "not blinkered" view of the situation of organization's development allows its employees and working groups (teams) to set their own goals and ways of achievement of set goals of organizational development. In the process of goal setting ideals and aspirations of senior managers are very important, but this is not enough for a modern dynamic organization. In this case, guided by the methodology of cognitive management, senior manager must remove all obstacles and prepare organizational and working environment for self-assembly of teams which would be moving towards the objectives of the development not only of the company but also of the members of such teams. Of course, there is a risk in this approach, but the teams create collective knowledge, engaging in an ongoing dialogue and seeking more effective ways to achieve the goals. Important factor here is the interaction of

middle managers. Often they become leaders of such teams and serve as a link between the ideals of the upper level management and the chaotic realities of the market, which ordinary employees have to face. They help the administration to adjust the defined objectives, given the situation "as is" and "as it should be."

3. Conclusion

The above examples help us to understand the possibility and the necessity of use of the methodology of cognitive management in a diverse toolkit of management mechanism of a modern organization. So, what is a cognitive management? According to our research, it is the process of managing the impact on the cognitive ability of people to achieve the goals of socio-economic development of the organization. Most often, the cognitive management formed within a particular social system cannot exist without the knowledge economy and information society. Conclusion: The cognitive management helps in a more productive way "to understand what to do", "to represent how best to do it" and "to strive for minimal costs" (Taylor, 1911).

References

- I. Nonaka and H. Takeuchi (2011) *"The Company – creator of knowledge."* M: Olympus-Business.
- Devenport&Prusak. (2006) *Harvard Business Review, Working Knowledge.*
- Nikulina I.E. (2011) *Innovations in modern management.* Herald of TSU, № 342 January. p. 159-162.
- Taylor F.W. (1911) *Principles of Scientific Management.* New York and London: Harper & brothers.