Issues of Corporate Knowledge Management in the Development of Higher Educational Institutions of Russia

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Abstract: A new stage of development of the world economy, based on knowledge, is characterized by the fact that there are high-tech products and services on the world market as a result of the use of high technology. These knowledge-intensive services include educational services. The increasing complexity of technologies leads to a completely new market, intellectual one. On this market products are not material objects but various objects of intellectual property (patents, licenses, ideas), as well as services. Currently, the educational community is to overcome the problem of the knowledge gap between the knowledge required by community employers and by the set of knowledge and competencies obtained by universities graduates. The solution of this problem cannot be found within the university, due to the lack of an efficient mechanism of interaction between employers and the university. Moreover, the knowledge management process in higher education institution cannot be currently adequately associated with these processes employers because of the lack of appropriate organizational and technological solutions. Over time this situation is compounded not only due to the insufficient inflow of qualified personnel into the teaching staff of the universities but also because of the lack of appropriate forms of educational process. One of the ways to solve these problems is the development of a knowledge management system of the university and the subsequent organization at the university of the knowledge management process meeting modern corporate needs. It is extremely important to protect the traditional paradigm of higher education and organizational model of the university.

Key words: Knowledge, educational process, higher education, corporate knowledge repository of knowledge, knowledge management

INTRODUCTION

The analysis of the current education system showed that the value of higher education in the development of the region, a whole country is increasing, as the progress of society is directly dependent on the quality of education and quantity of educated people. However, socio-economic conditions of present time negatively influence on the development of higher education. These negative trends may lead to personnel crisis which will be expressed in the lack of teachers of higher qualifications and reduction of professional activity and the growth of dissatisfaction of the employees of the universities because of a shortfall of knowledge or incomplete mastery. In these conditions it is important to equip all staff with necessary knowledge focused on the most efficient use of labor potential of employees.

The main feature of "new" resources of the office of higher education reveals the need for their constant renewal in the face of new technologies. The complexity of the prevailing socio-economic conditions for the development of the university calls for a review of approaches and requirements to control mechanisms and as consequence, increasing role of knowledge management that determines the relevance of our study.

The concept and process of adaptation of "corporate knowledge" in the practice of Russian universities causes some difficulty. The complexity of containment is not so much with problems of translation, how many with adaptation of the term to the Russian reality. In Russia the difference is the work on knowledge management is at an early stage of its development. Unfortunately, there has not formed a culture of their management and, in fact, in practice in most management structures at Russian universities there is a dedicated department for knowledge management. This role is performed by other functional units or individual employees.

The analysis of the activities of the university revealed the complex nature of the problems, namely the lack of approved mechanisms for interdepartmental exchange of teaching materials and embedding of the

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results of scientific research in the educational process. New knowledge slowly brought to the consumer. These results provide a rationale for the development of the institutional mechanism of corporate knowledge management in higher education and allow organizing a continuous support of educational services to date.

The management of the university without a centralized corporate knowledge management shows that knowledge exchange is not centralized and the processes that perform specific functions, do not use all available corporate knowledge. To make full use of all provided corporate knowledge it is necessary to maintain all activities at the quality level. One of the key points of solving this problem could be the creation of a repository of corporate knowledge. By this we understand an enterprise knowledge library (repository) that additionally contains metadata and an ordered relationship between them, representing a single structure with a possibility of forming areas of corporate knowledge via the know-how and to further detail the level of corporate knowledge on business processes and employees.

Literature review: The basis of the formation of a categorical apparatus and methodology of the study is based on the research of such scholars as McElroy (2010) and Westerski and Iglesias (2011).

Of particular importance for achieving the goal of the work is provided by the concept of knowledge management in the researches, Zhao *et al.* (2012), Ragab and Arisha (2013), Hemsley and Mason (2013) and Altbach (2015). Problems of educational services and certain aspects of higher education institutions dedicated to the study Lugovskaya (2010), Selyukov and Shalygina (2012). The development of corporate knowledge management in higher educational institutions of Russia as well as providing educational services and certain aspects of performance of higher education institutions paid attention to in studies (Selyukov and Shalygina, 2012).

MATERIALS AND METHODS

The first priority in problem solving is to define the list of corporate knowledge as a control object. Internal sources of corporate knowledge are research Results, teaching materials, library and others. The external sources may be library, contractors, internet and other. Materials received from external sources faculty translates into domestic sources. We clarified that the management processes used formal knowledge is included in the unified information system corporate knowledge management.
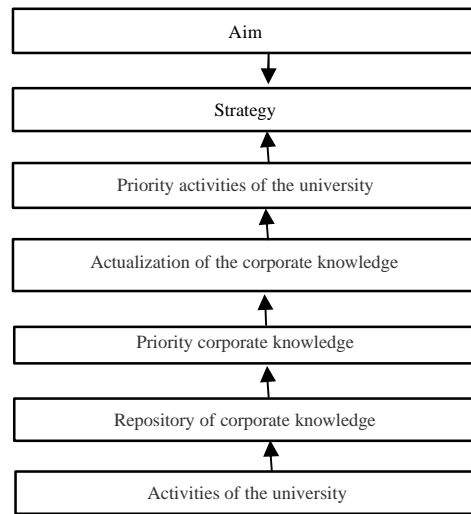

Fig. 1: The concept of university management based on the principle of corporate knowledge management

The mechanism of the corporate knowledge management in higher education is presented on the basis of the considered organizational structure of the university. We present the developed block-scheme of the mechanism of the corporate knowledge management in higher education which shows the filtering of corporate knowledge and the necessary functions, the implementation of which will lead to the localization of the knowledge management process of the university.

Our proposed algorithm for the dissemination of knowledge among the staff of the university takes into account the individual characteristics distribution of corporate knowledge to the required user. In this case, various types of corporate knowledge have their own individual characteristics. The algorithm of the selective dissemination of knowledge developed for scientific-technical results of scientific-research works for other kinds of knowledge, thus it is necessary to conduct additional research aimed at further refinement of the developed mechanism and algorithm depending on the identified features. The result of the algorithm-the consumer receives the corporate knowledge appropriate to his needs and interests.

The concept which consists in the continuous upgrading educational services and support it up to date, by ensuring constant rotation of the internal knowledge of the university environment (Fig. 1).

Based on consideration of the organizational structure of the university a mechanism of corporate knowledge management in higher education was
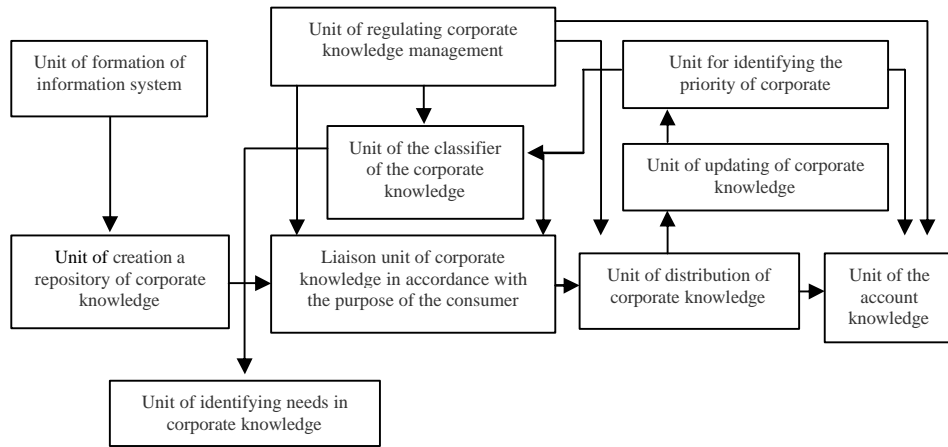
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┌─────────────────┐        ┌──────────────────────┐                    ┌──────────────────────┐
│ Unit of formation of │   │ Unit of regulating corporate │            │ Unit for identifying the │
│ information system │      │ knowledge management │                   │ priority of corporate │
└─────────────────┘        └──────────────────────┘                    └──────────────────────┘

                           ┌──────────────────────┐                    ┌──────────────────────┐
                           │ Unit of the classifier │                  │ Unit of updating of corporate │
                           │ of the corporate │                        │ knowledge │
                           │ knowledge │                               └──────────────────────┘
                           └──────────────────────┘

┌─────────────────┐        ┌──────────────────────┐   ┌──────────────────────┐   ┌──────────────┐
│ Unit of creation a │     │ Liaison unit of corporate │ │ Unit of distribution of │ │ Unit of the │
│ repository of corporate │ │ knowledge in accordance with │ │ corporate knowledge │ │ account │
│ knowledge │               │ the purpose of the consumer │ └──────────────────────┘ │ knowledge │
└─────────────────┘        └──────────────────────┘                                 └──────────────┘

                    ┌──────────────────────┐
                    │ Unit of identifying needs in │
                    │ corporate knowledge │
                    └──────────────────────┘
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Fig. 2: Flowchart of corporate knowledge management mechanism

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                              ┌──────────────────────┐
                              │ Source of the formation │
                              └──────────────────────┘
                                        ↓
┌──────────────────────┐      ┌──────────────────────┐
│ Corporate knowledge │─────▷│ Creating a repository │
└──────────────────────┘      └──────────────────────┘
                                        ↓
                          ┌──────────────────────┐
                      ───▷│ Choice of classifiers │
                          └──────────────────────┘
                                        ↓
            ┌──────────────────────────────────────────┐
            │ Need in the presented classifiers │
            └──────────────────────────────────────────┘
              ↓                                        ↓
┌──────────────────────┐            ┌──────────────────────┐
│ Develop new classifiers │          │ Marking and approval of corporate │
└──────────────────────┘            │ knowledge │
                                    └──────────────────────┘
                                              ↓
            ┌──────────────────────────────────────────┐
            │ Needs analysis in corporate knowledge │
            └──────────────────────────────────────────┘
                                ↓
            ┌──────────────────────────────────────────┐
            │ Linking corporate knowledge with needs │
            └──────────────────────────────────────────┘
                                ↓
            ┌──────────────────────────────────────────┐
            │ Spread of corporate knowledge │
            └──────────────────────────────────────────┘
                                ↓
            ┌──────────────────────────────────────────┐
            │ Outcome of the formation │
            └──────────────────────────────────────────┘
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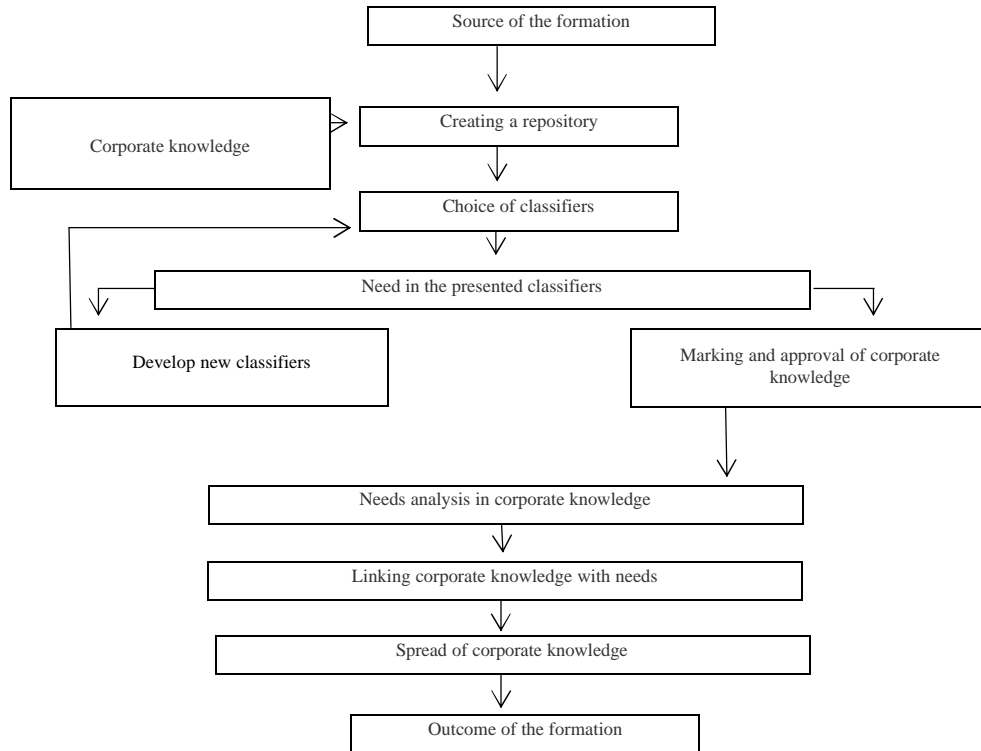
Fig. 3: Distribution algorithm of corporate knowledge

developed. A block diagram of the control mechanism corporate expertise in higher education is presented in Fig. 2.

Our proposed algorithm for the dissemination of knowledge among the staff of the university takes into account the individual characteristics distribution of corporate knowledge to the required user. In this case, various types of corporate knowledge have their own individual characteristics. Filtering enterprise knowledge is in the distribution on the basis of a list of classification features considered further. The system of selective dissemination of knowledge is based on the content of the materials.

The algorithm of the selective dissemination of knowledge was developed for scientific-technical results of scientific-research works for other kinds of knowledge, thus it is necessary to conduct additional research aimed at further refinement of the developed

mechanism and algorithm depending on the identified features (Fig. 3). The result of the algorithm the consumer receives the corporate knowledge appropriate to his needs and interests.

In demand educational service is based not only on lecture notes and list of recommended literary but also on the package of corporate knowledge, consisting of the results of scientific research in certain areas which shows consumer prospects; performance of small innovative enterprises, explaining the commercialization of research; how this line intersects with other areas and disciplines. As a result, we can talk about providing multidimensional educational services which in comparison with conventional, enriched of modern scientific and technological achievements.

RESULTS AND DISCUSSION

For targeted distribution of corporate knowledge a typology of classifiers was developed which characterizes the corporate knowledge of the higher education institution according to their content for subsequent selective dissemination consumers. A markable object can be assigned multiple values from a single classifier but features from multiple classifiers can be utilized.

Classification attributes of corporate knowledge is useful to group the breadth of application: the use of inter-university, within a single institution (Table 1).

Analysis of the university shows that there is no centralized knowledge management body, due to which the direct implementation of the proposed concept is difficult. To implement the concept we propose to use a matrix management approach with the inclusion of knowledge management director, enterprise knowledge management center and tutors knowledge.

Integration of corporate knowledge management center into the existing organizational and managerial structure of the higher education institution promotes a quality management of corporate knowledge and the development of an innovative component of high school which results in a continuous support of educational services to date.

We have developed an approach based on the matrix organizational structure of the institution of higher education with an integrated enterprise knowledge management center, knowledge management, corporate director and tutors of knowledge, presented in Fig. 4.

Thus, the developed organizational structure of management with center corporate knowledge management will provide the rotation and prompt delivery to the consumer of new knowledge which in turn will help to support educational services to date.

The presence of a higher educational institution united center of corporate knowledge management will enable to centralize the flow of exchange of corporate knowledge, as in the internal environment of the university and with external organizations which in turn allows you to increase the security of your corporate knowledge by reducing personal contacts and the probability of leakage of knowledge of the university.

Development and implementation of a knowledge management system in higher education institution allow switching to new forms of educational process without changing the traditional organizational structure of the university. The construction of a single (uniform for all curricula) structures areas of knowledge allows to start creation of ontology of the university, a unifying

Table 1: Qualifier of corporate knowledge

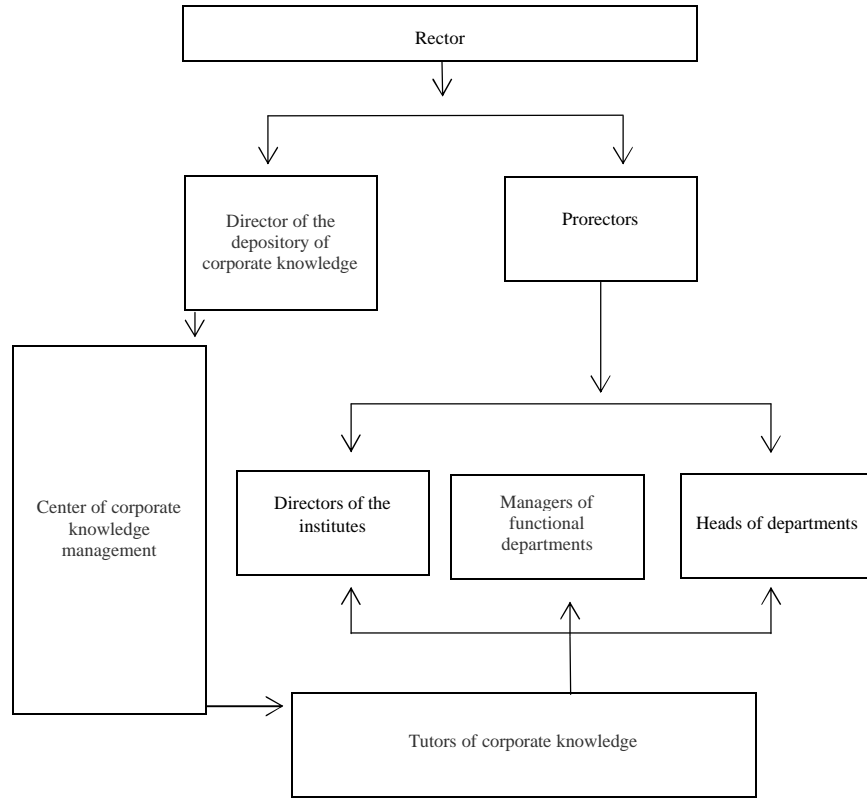| Types of corporate knowledge of the university	Directions of activities					
	Research	Innovative	Educational	Methodical	Providing	Management
University						
The classification of specialties of scientific workers	-	-	+	+	-	-
On assignment to the state classification of scientific and technical information	+	+	-	-	-	-
On assignment to the universal decimal classification	+	+	+	+	-	-
According to the classification of library bibliographic classification	-	-	+	+	-	-
Local university						
The assignment of a scientific school	+	+	-	-	-	-
For classification of origin	-	-	-	-	+	+
The assignment to priority activities of the university	-	-	-	-	+	+
By referring to key words and phrases	+	+	+	+	+	+
The assignment to the free tags	+	+	+	+	+	+
According to the attribution of faculties	-	-	+	+	+	+
According to the attribution of chairs	-	-	+	+	+	+
According to the classification of professions	-	-	+	+	+	+
According to the classification of areas of training	-	-	+	+	+	+
According to the classification of academic disciplines	-	-	+	+	+	+
According to classification as a training group	-	-	+	+	+	+

Fig. 4: The structure of the higher education institution with integrated elements of corporate knowledge management process

ontology of all study in the university disciplines. The ontology can be filled by students and teachers within the traditional educational process. The filling of the ontology will accumulate an array of interdisciplinary links. The result is the possibility of organization of individual educational trajectories of students. Visualization tools of knowledge provide high-quality educational resources, on their base new and effective forms of e-learning can be built.

After the deployment of a full scale knowledge management system, the university can move to the model of "knowledge as process" which gives the opportunity to start bridging the gap of knowledge between the educational process and the requirements of employers. In the future, the knowledge management system of the university can be integrated with a knowledge management system interested companies and organizations.

CONCLUSION

We have developed a mechanism of corporate knowledge management in higher educational institutions

based on the extension of the existing organizational structure of educational institutions by adding in it the subject of corporate knowledge management center corporate knowledge management. Implementation of the proposed concept allows enhancing the relevance of educational services and competitiveness of the university.

The legislation of the Russian Federation in the field of copyright does not include enough standards for high-quality distribution of corporate knowledge, not worked out the rights issues on dissemination of knowledge which is the recommendation for further research. Now a days, it seems possible dissemination of training and educational materials, the circulation of the corporate knowledge relating to science, research and innovation areas is difficult.

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