THE TOOLS OF KNOWLEDGE TRANSFER IN ACADEMIC AREAS

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Abstract

In recent times, there has been a harmonization of legal rules pertaining to intellectual property not only in the EU, but also in international organizations, research and education institutions. The quality of the intellectual and knowledge potential of an institution and the intensity of its development are connected with information management. Information is an important component of efficient processes of the modern university. It determines the level, attractiveness, and quality of the processes and presents the conditions for quality education and research activity. Knowledge transfer demonstrates a revision of the knowledge position in the value-forming organization hierarchy. The outputs of a search for knowledge transfer tools should represent an integration of education- research and education - innovations and informatisation. Research and education are the most efficient investments in the development of production factors, which are evaluated by two forms: the forming process of derived values in education and research organization are innovated and more efficient, and the conditions of organizational development are formed. The purpose and efficiency of knowledge management must be confirmed by the amount and quality of outputs. Knowledge should be understood as a universal advantage which simplifies the organizing of support systems of science and research. Knowledge management can be characterized as a process supporting integration, access and application of information activities and sources in research.

Key words

knowledge transfer, academic areas

Introduction

Looking for tools of knowledge transfer depends directly on the Long-term aim of state research and technical policy of the Slovak Republic to 2015. In the category Knowledge Technologies with support of information and communication technologies there is a clear definition that a development of technologies helping to find, categorize, interpret and implement knowledge is a necessary condition for successful progress of the knowledge society. Higher attention should be dedicated to development of knowledge technologies with implementation of automated complexes. The area of technical infrastructure of research and development shows an extraordinary importance for building and maintenance of a virtual network with the aim of supporting basic service for research and development.

Framework rules for state programs of infrastructure development of the Slovak Republic are orientated to the activities which relate to the mentioned long-term programs of state research and technical policy. They are characterized by these main specific features:

- securing the development of technical infrastructure of research and development in certain areas with the aim of forming basic conditions of research and development especially for industrial or social development of Slovakia. It means that the project supporting change of service infrastructure has priority,
- attaining a synergetic effect in support of research and development while the development of technical infrastructure will be supported especially in areas which are the main focus of research, e.g. protection and management of intellectual property rights, which are the main project aim,
- support of the creation of technical infrastructure of research and development by state budget,
- support for establishment and initiation of organization building within state programs. State programs will secure knowledge transfer into industrial or social practice and a higher quality of research and development in the region and in the Slovak Republic – projects which evaluate meanings of information with their activities and form a concrete example of transfer from information to knowledge with added value for subsequent research.

Needs analysis for knowledge transfer

Needs analysis will create tools to transfer knowledge in the academic area. The base of analysis will be the fact that information is an important factor of efficiency of each contemporary university. The needs determine the level, attractiveness, and quality of its education process and simultaneously they are a condition and output of quality research activity of a research university. Research and education represent the most efficient investments into development of production factors which can be evaluated in two forms. Firstly, they support innovation and improve efficiency of the formation process of values in education and research organizations. Second, they create conditions for organizational self-development. The advantage and efficiency of knowledge management must be proven by the amount and quality of outputs. Quality university education will always need a quality information system for the education and research process.

A basic definition of these efforts relates to a revision of knowledge's position in the value hierarchy of knowledge. Knowledge should be understood as a universal advantage which simplifies support systems of research. Knowledge management [2] can be understood as a process which supports and enables integrated access and application of all information activities and sources in research phases. For example, the area of management of intellectual property rights, and similar topics, is a very urgent topic which does not have a tradition in the academic field (especially at technical universities).

Outputs of knowledge transfer in the academic area

The set of activities connected with acquisition, innovation, and distribution of knowledge, as well as knowledge protection represents the basis of knowledge management. One condition for creation and application of knowledge potential is research and education – it is the basic university task. The following are the basic activities of knowledge management in the conditions of the academic field which present the structure of knowledge potential:

- acquisition, selection, modification, and knowledge description,
- knowledge distribution (teaching process),
- learning and use of knowledge,
- innovation and reproduction of knowledge,
- creation of a knowledge file – knowledge potential.

The quality of an organization's knowledge potential and the intensity of its development are closely connected with information management. The advantage and efficiency of knowledge management must be proven by the amount and quality of outputs. The quality of university education will always need a quality information system for the education and research process. When we understand knowledge management as a part of information management with the function defined as rational creation and application of information, and as an organization of information structures, then this is proof that implementation of knowledge management is a result of practical and theoretical change of service paradigm in the academic area [1].

The specialization of education in knowledge management has a strategic meaning with the following basic components:

- information systems, information and telecommunication infrastructure,
- acquisition of information and management of its contents,
- sharing of information and knowledge,
- application of information and knowledge.

In the academic area it is important to identify the strategic knowledge which is necessary for:

- the quality preparation of graduates to perform their jobs,
- the definition and creation of a prospective research-pedagogical faculty profile,
- the formation of self development and perspectives of the education institution.

Project management for knowledge transfer at the Faculty of materials science and technology, Slovak University of Technology (FMST SUT)

FMST SUT is managed by a self-organizational structure. The basis of management derives from the organizational units of institutes, where the education process, research and, processes related to practice are led.

The Center of Technology Transfer (CTTE), as an independent workplace, was built up to manage the projects which are specialized on the structural funds. The key task of this workplace is support and preparation of project documentation for signing with agencies, administration of project documentation, and financial clearance for successful projects. The employees of CTTE are involved in securing projects and financial management, the management of publicity and monitoring. This representation can help to achieve the reduction of the administrative efforts of the project researchers, as well as elimination of certain problems in project administration.

Project administration presents one of the biggest problems of project preparation. CTTE reacts on requests of concrete calls and acquires additional knowledge and experience in the area of project implementation in education and research of the faculty. Administrative steps are connected with these aims:

- increase of employee competency and awareness for implementation of projects during the project call process

- observation of possibilities for prepared projects of Slovak and foreign organizations,
- preparation for presentation of the project goals,
- securing of obligatory documents for applications,
- control of the budget and specific advice.

The common methodology enables:

- explanation and instructions for particular calls for proposals,
- coordination of common questions (criteria) of projects (e.g. publicity, insurance,...),
- workplace description (or faculty) as a project applicant,
- working out of the output process,
- preparation of financial analysis,
- preparation of S.W.O.T. analysis,
- framing of contracts,
- market surveying for public procurement,
- continuous documentary evidence,
- control of expenditures,
- permanent consultation service.

In case that the project is successful and gains financial support, the CTTE workplace coordinates all activities to successful contract signing.

Project management is a method to coordinate people, materials, finances, and time schedules to reach the agreed aims in a way that a certain project (or set of projects) is finished with the required quality, in the shortest time. It is a complete system of modern management techniques during all project phases – preparation, main process and evaluation. The project management has become today the most important task of the faculty which wants to be a successful organization in area of education and also research, as well as management access to calls for proposals supported by the Agency of the Ministry of Education, Slovak Republic for European funds. Basic principles of the project management at MTF STU are the following activities:

1. Project management
   Understanding of philosophy and practical skills to work with tools of project management which are necessary for projects.
2. Communication in project management
   Acquisition of agreement of all participants. Conflict solutions. Creation of a communication plan. "Soft skills" for concrete projects. Methods and practical tools for cooperation of high-performance teams where the members cooperate and communicate often with support of information technologies (IT).
3. Team problem solution
   Methods and tools of effective management and leading of project and process teams of process improvement and problem solution.
4. Permanent improvement and transfer of knowledge and experience
   Ways of permanent process improvement. Definition of improvement possibilities. Motivation of co-workers to improvement. Process management (experience from other projects, observation of trends and factors with influence on project success).

Project on the Knowledge organization center of intellectual property

The project on the Knowledge Organization Center of Intellectual Property is supported by the operation program Research and development which is financed by European fund of regional development. It is the first example at STU where not only the workplace with pedagogical and research employees can apply for projects (and to be successful), but also it serves as an administrative faculty workplace which has the searching of knowledge transfer (Division of Knowledge Management MTF STU) as a basic activity.

The project fills the free spaces in activities of information workplace at the faculty and creates the opportunity for a continual strategic task of the faculty in management of academic and information activities. The analysis of contemporary state, which was a part of scanning of selected subjects (universities of technical type Slovakia) in information management implementation of academic libraries, shows that there is not enough attention on the questions of protection, right management and information providing in area of intellectual property. The analysis results confirmed general conclusions that information workplaces only record results of creative work (a list of patents of organization employees, subscription of journals in area of intellectual property, ...) but they do not participate in tool creation for knowledge transfer from these collected data. The mentioned observations and analysis results present a set of problems related to:

- place of information creation, which means it identifies an information diffusion to particular organization faculty (or university) parts,
- lack of information or lack of activity performance,
- place of information acquisition and variability of information collection,
- way of information distribution,
- different intensity of connections among the academic departments,
- variability of saving and actualization of information,
- organization activity security,
- system and systematic work with data and information and their effective application.

In the project, the defined functions will support an increase of information and knowledge content of experimental data and information in the area of intellectual property, as well as research by content integration without access barriers and creation of information products. There will be formed a space to verify acquired information from database, which will present knowledge transfer to research activity for information management of intellectual property. The quality increase of research outputs will form a platform for comparison of research results and enable publishing of results in current journals and on international research conferences. The project presents a high level of structure forming, interpretation and presentation of rights intellectual property.

The project of the Knowledge Organization Center of Intellectual Property is a unique fulfillment not only of the long-term priorities of development in state scientific and technical policy, but it can become a real output in harmony with the philosophy of frame rules for state programs. The content of the whole project generates basic ideas which can be defined by basic terms, or theses:

- knowledge transfer and creation of knowledge community (organization),
- forming of a virtual information sphere which support directly results of science and research,
- complex care about management of intellectual property rights as a tool of information and knowledge management.

The project fulfills expectations for space forming for knowledge verification in research. The most important attribute of the presented project is the project value, which lasts during project time. The creation of a center as a part of the existing Division of Knowledge Management at the faculty provides a vision and qualified output to transfer the contemporary academic library to the Center of complex information services. The academic library can be created for research library with worldwide activity of intellectual property.

The project presents systematic and logical structured access of solved issues on the base of research methodological steps. The access to database portal centers of intellectual property and center creation as a unit is important to build the virtual library and digital archive. The functions of expert research and education workplace will be a verification model of gained theoretical knowledge which will be proven in research and education process with added information values. These values will be defined as the meanings of data with aim of their transfer into knowledge of experience and quality.

The creation of the Knowledge Organization Center of Intellectual Property with functions of virtual library and digital archive, complex care for intellectual property rights and the expert research and education workplace will be the result of globalization trends for knowledge as a center of knowledge society. It will be a model of knowledge management which will be defined on the base of information survey, information behavior, knowledge organization, interaction and accesses to information. The contributions are a complex information packet for the area of intellectual and industry property of knowledge institution, which is the aim of the faculty.

The completed center will be based on functions classified to the Division of Knowledge Management which is a part of research faculty base. The results will support an increase of information and knowledge content of acquired experimental data in area of intellectual property and they will support research for implementation of horizontal priority of information institution. Certain space will be formed which will serve to verify the gained information from knowledge database, presenting the knowledge transfer with aim to manage complicated methodological steps. The quality increase of research outputs will form a platform for research results comparison. The project is permanent, sustainable, and presents a high level of structure, interpretation and presentation of intellectual property rights.

The expected benefits of the project (except for the above mentioned benefits) are the activities which relate to creation of complex library-information fund, innovation library – information services and functions modification of expert information workplace at the faculty.

Institutional assumptions for activity performance which generate benefits also after project completion depend on the long-term aim and faculty vision to build a knowledge institution via functions and activities of the Division of Knowledge Management.

Conclusion

The tool building for knowledge transfer creates a space for multiplication effects in definition frame of sociological outputs of information behavior. In application level it supports a theory forming on the borders of psychology, sociology and pedagogy [3]. To research information behavior it is necessary to underline the relations between variables from experience and knowledge amount as a research base. It is demonstrated in the places where it is possible to study relations between task complexity and information behavior, between information source type and specific information application, between problem

understanding and reached information and others. We have to mention objectivity, research validity and knowledge verification as the research problems of information behavior with use of statistic and mathematical methods. The contributions of psychology are especially the researches of cognitive, affective and connotative processes of human in social situations and roles. While pragmatism of the mentioned project focuses on the functions and process of information application, social behaviorism adds ideas on information behavior and explains social acts and interactions which show a state and structure of knowledge on individual, institutional and also community level.

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