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INNOVATION ACTIVITY MANAGEMENT IN SCIENTIFIC AND RESEARCH AND DEVELOPMENT ORGANIZATIONS

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Summary

A new trend called "revolution of innovation" is clear visible in the development of the modern economy. Its benefits can be maximized through the rational approach to innovation activity management, knowledge management (treated as a source of innovation) and systemic connection between the science with industry and customers in the process of creating value. The content of the publication is thus the concept of systematic approach to innovation activity management, with special emphasis on the commercialization of innovation, and using of knowledge as a source of innovation. Three models of approach to management are proposed:

1) model of rational organization management,
2) model of conceptual structure of innovative activity management,
3) model of integration of knowledge management and innovation management.

Management accordingto the proposed models allowsto use resources of various organizations in creating value materialized in innovations in the optimal way, especially in the context of the relatively low impact of universities and research organizations on creating ideas of innovations.

Keywords: innovation, manager, knowledge, management, innovation management, knowledge management

Introduction

Every organization, including a scientific, or a research-scientific organization, can be treated as a part of our surrounding reality distinguished by its goal and the resources needed to achieve this goal. Achieving the goal requires the acquisition of adequate material and non-material resources and their proper positioning, which contributes to the creation of an organizational structure constituting a basis for the implementation of the processes making it possible to achieve the assumed targets. The processes carried out in every organization can be divided into basic, auxiliary and regulatory processes. Regulatory processes involve outlining the directions for the development of an organization and securing the implementation of these guidelines. Generally speaking, these are processes carried out by the management — management processes. In the temporal dimension we can talk of strategic, tactical and operational management. This kind of management concerns the whole organization, as well as its particular functions and processes.

Management is often interpreter as the informing and decision-making process, that is, the basis of all decisions is systemically acquired information — both internal and external. External information comes from closer and more distant environment and are acquired by means of appropriately selected instruments (including marketing instruments), stored, processed and updated to be used by managers making particular decisions. What requires special care is information from an environment subject to continuous changes. Proper functioning of an organization, its development require maintaining the balance between the environment and the inside of an organization. All changes, even hardly discernible ones, taking place in the environment have to be identified and used as a basis for changes within an organization to preserve mutual balance. It is a task of the management to inspire such changes and to systemically implement them. Change means transition from a known state to an unknown sta[1]. Simply speaking, change means action constituting a response to the changing conditions in the environment, an event, in which the final state differs from the initial state in a particular period[2]. Changes taking place in the environment can be: gradual, continuous and non-continuous.

The management of each organization should identify the changes taking place in the environment and react to them appropriately in the right time. A reaction to gradual changes is designing and introducing changes of a similar character. A reaction of an organization to continuous changes should be continuous improvement of own operations etc.

However, the very definition of change doesn't meant that each change has to end up with a positive impact on an organization's books, or on the consumer's wallets. Thus, it is reasonable to design and implement such changes that will satisfy particular technical, economic and social criteria. Such changes assume the characteristics of an innovation. A contemporary organization cannot afford to create and implement random changes in an intuitive manner. These should be consciously managed changes.

Thus, the purpose of this publication is to present model solutions for the processes of creating and implementing innovations, to support these processes with management, especially in the context of comparably low and diversified influence of universities and research organizations on the companies' level of innovativeness.

The essence of innovative activity

Innovative activity is an arranged set of scientific, technical, organizational, financial, managerial and commercial actions, conducted in order to work out and implement innovations[3]. The effects of innovative activity may be the following:

1) successful implementation of an innovation,
2) carrying out activities of innovative character, which don't end up with implementation,
3) abandoning activities.

From the point of view of economics of an organization and satisfying the needs of the client, the most beneficial situation is when innovative activity ends up with a successful application of a change bearing the characteristics of innovation.In literature on the subject there is no unambiguous definition of the term. The following examples show this:

1) Innovation is the implementation of a new, or substantially improved product (product, or service), or process, new organizational method, new marketing method in business practice, workplace organization, or relations with the environment[4].
2) Innovation is about introducing new products, successful commercialization of new combinations, it is based on the utilization of new materials and components, introducing new processes, opening new markets, or introducing new organizational forms[5].
3) Innovation is the process of generating new ideas and introducing them in practice. The ability to successfully introduce an innovation is essential for the growth and competitiveness of an organization[6].
4) Innovation means scientific inventions, patents, breakthrough technological solutions and even simple, new ways of carrying out actions. Innovation covers every new idea, or approach, which is applied in a fundamentally different way in order to create value for the organization and other stakeholders like: clients, suppliers, partner organizations, communities, governments and even humanity in general. Innovation is directly associated with creating value[7].
5) Innovation constitutes the concept, practice, object, which is a novelty for the unit using this object[8].
6) Innovation is a process of actions associated with each other, such as: generating a concept, working out an invention, commercialization of a solution. In course of these activities new knowledge is generated and used[9].

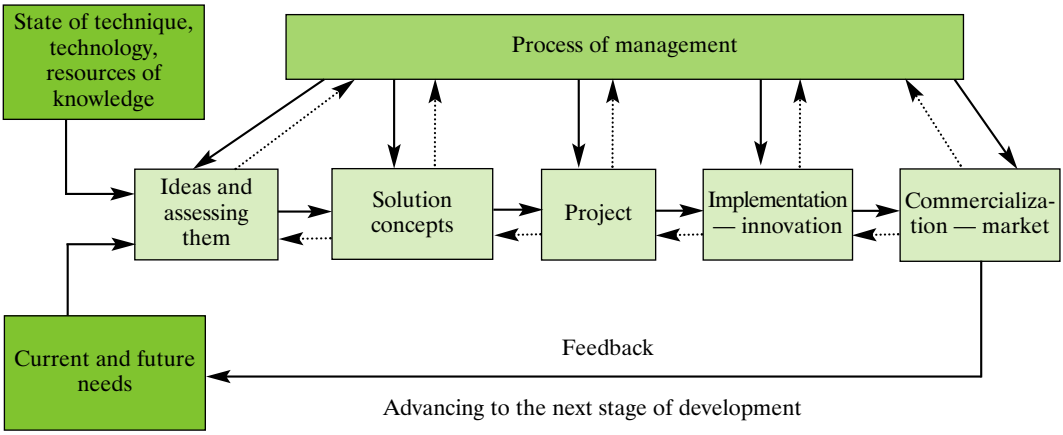
These chosen definitions point to a very broad, or narrow perception of innovation. The common features of these definitions are: change, novelty, character of result, or process. However, the definitions don't show whether the change should satisfy any criteria, especially technical, economic and social criteria and don't show what results an innovation should bring. The lack of clear distinction between change and innovation may lead to errors in interpretation and limit mutual communication.

In order to avoid such misunderstanding, the author of this work proposes to define innovation as a purposefully designed change concerning: product (introducing new, or substantially improved products and services to production and to the market), method of

production (applying new, or substantially improved methods in production), organization of work, or production (new organizational solutions in the structural and process meaning, or substantial improvement of already existing solutions), methods of management, marketing methods, used for the first time in a particular community (the smallest community is a production, service, scientific, research-development organization) in order to achieve social-economic benefits, satisfying particular technological, economic and social criteria[10].

From the perspective of process, innovation understood this way requires carrying out the following partial actions: identification of a need/identification of the state of technique and technology, generating ideas for solving a problem, assessing ideas and choosing the best one, creating solution concept, assessing it and choosing the best concept, working out the blueprint for solving a problem according to the chosen concept, carrying out the project — creating innovation, commercialization (see picture 1).Conventionally distinguished stages of the process of emergence of innovation concern both demand and supply innovation. Each of these stages is different in terms of purpose, character of resources needed to carry it out (including resource of knowledge), scope of content-related and managerial activities.

Picture 1. **Stages of the process of creating innovation**



Source: own materials.

From the point of view of economic of an organization and providing value to the client, in case of product innovation, an important stage is the

stage of commercialization, which involves possibly fastest implementation of a new, or substantially improved product, or service to the market[11]. At this stage, similarly as at the previous stages, an organization can encounter various obstacles such as: lack of funds, lack of marketing knowledge, lack of good understanding of complex, or mutually contradictory regulations, domination of the market by renowned rivals, comparably low demand for innovative products, or services, problems with compliance with intellectual property law, lack of standards and market regulation, undeveloped channels of distribution, insufficient marketing knowledge, insufficient knowledge about the market, lack of the marketing management skills, lack of management skills.

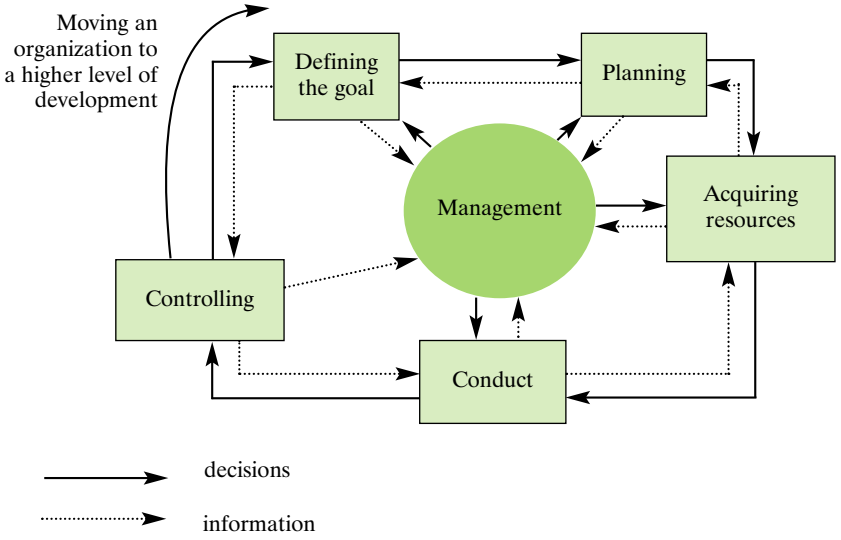
The essence of innovation and commercialization management

The efficiency of the process of creating innovation requires rational combination of particular stages of the process into one system. Such a combination is possible thanks to management processes based on the knowledge of innovation management methods and management through innovation. From a general perspective, the process of management is a set of the following activities: defining the goal of activity, defining the methods used to achieve the goal (planning activities), acquiring assets needed to achieve the goal and allocating, conducting, controlling them (see picture 2).

The first logical activity forming management is defining the goal of functioning of an organization on the basis of earlier prepared vision of developme[12]. Next, it is necessary to define alternative plans for achieving the goal and select the most beneficial plan. The plan constitutes a basis for defining the resources that will be necessary to achieve the goal, that's why in the next stage it is necessary to acquire these assets and to allocate them appropriately. These activities contribute to building the structure of organization securing efficient conduct of the processes serving the purpose of achieving the goal. Processes are carried out by people and for this reason it is necessary to efficiently motivate them, so that they act according to the will of the manager. These actions form the stage of conduct. The last stage of the process of management is controlling, which involves comparing plans with actual results and drawing correcting

conclusions closing the identified gaps. Conclusions from controlling constitute a basis for forming further goals and moving the organization to a new (higher) level of development.

Picture 2. The concept of rational organization management



Source: own materials.

Organization management understood this way constitutes as basis for managing innovations and management through innovations. As innovative activity is strategic in character, managing innovative activity should include the choice of:new technique and technology, work organization, methods of management and marketing, the ways of acquiring and using them, the methods of acquiring, gathering, storing and processing data, information, knowledge with consideration of legal, financial, administrative, social, process-structural, environmental and strategic issues.

As a result, managing innovative activity can refer to an arranged set of actions such as: planning and making decisions, organizing, conducting and controlling, focused on the resources of an organization (material, human, information, financial). These actions are taken in order to achieve the assumed goals in the scope of: choice of innovation, the manner of

acquiring, utilizing and developing them, the choice and manners of utilization of knowledge needed to carry out particular stages of the processes of creating, implementing and commercializing an innovation.

What can help in carrying out such activities is model approach. The concept of the approach is presented on picture 3. Logically, the first element of this model is the choice of the purpose of innovative activity: what should be achieved and how can this be achieved? This goal constitutes a derivative of the adopted concept of organization development. After defining the goal it is necessary to adopt a strategy for its implementation, including three elements: choice of innovation, defining manners of acquiring, utilizing them and rationalizing. The choice of innovation is purposeful outlining of alternative areas of technique, technology, organization in which you should invest taking into consideration the effects resulting from the choice.Identifying the ways of acquiring innovation is an answer to the question: what sources should you use to acquire innovations in order to achieve possibly greatest benefits from innovation? The decision-making process is focused mainly on the choice of alternative approaches:

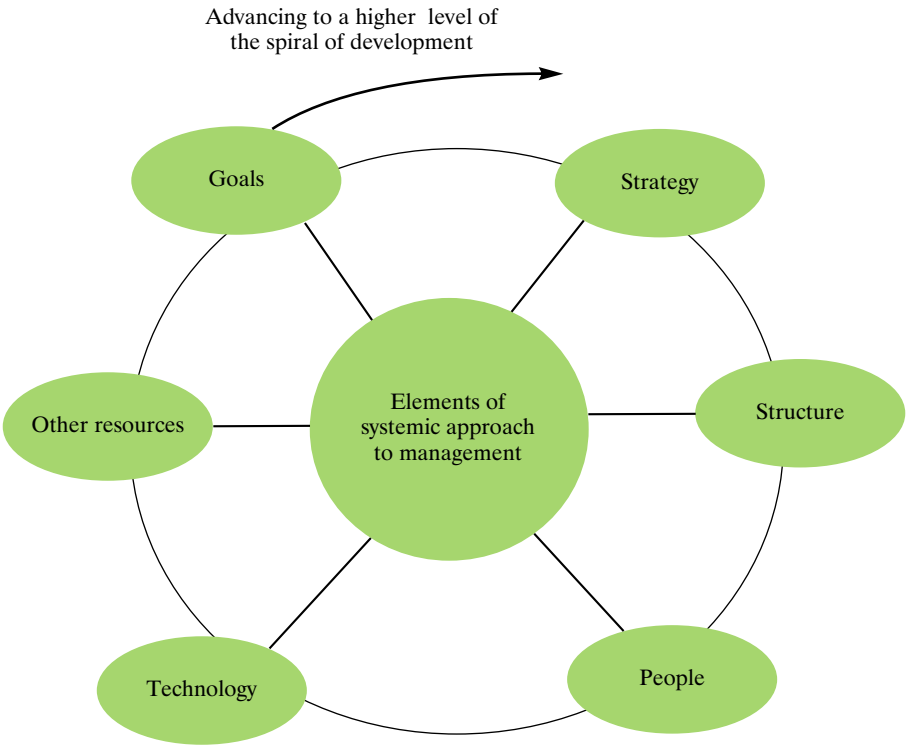
1) should you create innovations on your own?
2) should you acquire them from external sources?
3) should you acquire innovations as a result of organized cooperation with external organizations?
4) Should you acquire innovations through cooperation with individual clients under so-called innovative environment of experience?[13].

What is also an element of strategy is finding the answer to the question: How should we most optimally use innovations and improve them so that the benefits derived from them are possibly greatest? Thus, we need to define: manners of commercialization, manners of internal utilization, possibilities of selling innovations to other organizations, directions and ways of rationalization of innovations. The decision-making process is also focused on the allocation of roles among the participants of the process of using innovation, allocation of tasks and grouping them in organizational units, the choice of methods of assessment of partial and complete actions. All activities leading to the creation of an innovation and its implementation should take place in particular structures including structural and process

solutions favouring innovative activity, division of power, structure of roles, system of communication, methods of solving conflicts etc.Organizational structure should stimulate interfunctional communication, sharing knowledge at all stages of the process of creation of innovation.

One of important elements of model of managing innovative activity are people as bearers of knowledge and experience, necessary in the process of creating innovation. Thus, the decision-making process should be focused on:

Picture 3. **Model of conceptual structure of managing innovative activity**



Source J. Baruk, *Zarządzanie wiedzą i innowacjami*, Wydawnictwo Adam Marszałek w Toruniu, Toruń 2009, p. 140.

1) acquiring people specialized in the area of innovation, with particular skills of solving emerging problems, conflicts, developing team work,
2) strengthening these traits through programmed trainings, especially if creative abilities are acquired skills,

3) testingpredispositions of creative employees and allocating the most creative ones to task teams,
4) motivating employees by means of economic and non-economic incentive instruments,
5) building innovative culture,
6) including individual clients in the process of creating value, materialized in form of innovations.

What facilitates creating and implementing innovation is teaching people a systematic approach to the implementation of particular stages of the process. These activities form another category of the model, namely, technology. It includes methods and techniques useful in the process of implementation of content-related tasks forming innovative activity. This refers mainly to heuristic methods, value analysis, network methods, methods of computer-assisted design, methods of object allocation, market analysis methods, methods of assessment (estimations) of the effects that can be derived from the implemented innovations, methods of assessing/evaluating the commercial potential etc.

The efficient conduct of the processes of creating innovation, its commercialization also requires taking into consideration the so-called "other resources' including everything that hasn't been considered in previously mentioned categories. This concerns mainly the acquisition and efficient utilization of financial resources, knowledge and technical resources in the innovative processes. For economic reasons one of the most important stages of the process of creating and implementing an innovation is the stage of its commercialization. For this reason, the stage requires systemic management based on discussed, general concept of management. In particular, this management covers:

1) adopting a particular policy with regard to the commercialization of innovation,
2) choice of the model of commercialization,
3) the assessment of commercial potential,
4) the creation of particular organizational units dealing with commercialization,
5) working out particular procedures for commercialization,

6) securing defined financial resources for commercialization,
7) creating an information system about the commercialized innovations,
8) acquisition and distribution of human resources able to carry out the processes of commercialization and innovation and working out an incentive system,
9) working out and implementing a system of control.

From a general perspective it is possible to distinguish two models of commercialization of innovation[14]:

1) traditional model which involves selling patents, rights, or licenses to external entities. Information about innovations which are supposed to be commercialized is published in an open database, eg. on the Internet. In case of passing on the rights to utilization of an invention to a third party by means of granting a license, university's income comes from license fees. The licensing process (looking for a licensee, negotiating contract terms) is handled by the unit responsible for the commercialization of innovations,
2) modern model, which involves the active participation of the research organization, its employees in the process of commercialization, most often through the establishment of a *spin-off*, or *spin-out* company. Conduct based on this model can provide an organization with higher profits from the commercialization of an innovation, compared to the sale of the innovation.

The experiences from the managing commercialization of innovation in practice have led to the creation of other, specific models. According to M. Zalewska-Traczyk they may be the following[15]:

1) a model which involves leaving intellectual property rights to the creator of an innovation, who picks the manner of commercialization himself, it is applied in eg. University of Cambridge in Great Britain. The main elements of the process of commercialization in this model are:
   - granting licenses for the utilization of inventions and patents to companies,
   - creating spin-off companies,
   - intermediation in provision of specialist and consulting services;

2) a model which involves leaving intellectual property rights to the university, it is used in, among others, the United States.

Both these models normalize the ways the creators of innovations and the financing units derive benefits from commercialization.

According to J. Wawrzynowicz P. Gabriel and Z. Krzewiński, it is possible to distinguish three models of innovation commercialization[16]:

1) "internal", when the issues of commercialization are handled by a separate organizational unit functioning within the structure of a research unit eg. a university,
2) "separated", when an entity responsible for the commercialization of innovations (eg. company, foundation, or association) controlled by a university is separated from the structure of a scientific organization. This solution can function along the "internal" model,
3) "independent", when an entity independent of a scientific/research unit carries out orders from the unit. The scientific/research organization receiving services from the independent entity has its representatives in the management of this entity, or a form of share in ownership. These entities clearly focus on supporting spin-off companies.

Systemic management of the commercialization of innovation leads to cooperation of scientific units with the business environment and the market, to creation of specialized units providing services for the process of commercialization, including broadly viewed care for university's intellectual property rights, sale of licenses, patents and trainings, renting out laboratories, organization of joint research with the industry, creating companies based on research results.

Knowledge as source of innovation and innovation management

As every innovation is created as a result of a recombination of the already possessed knowledge, or the utilization of new knowledge, knowledge should be treated as a source of innovation and innovation

management. An organization striving to efficiently manage its innovative activity should create systemic conditions for:

1) distinguishing knowledge from information and data,
2) understanding that knowledge is the main resource of an organization, more important than material resources,
3) taking advantage of the knowledge of the employees from all functional units,
4) allowing the creators of innovation to learn in the process of creating innovation,
5) systemic acquisition of knowledge possessed by individual clients, knowledge about the market and commercial knowledge, scientific knowledge,
6) transfer of knowledge within an organization and between organizations,
7) building culture of knowledge and innovation.

Understanding the meaning of knowledge is the basic condition for a rational approach to management. In literature on the subject there aremany different definitions of knowledge.It is assumed that knowledge is codified information with a high share of added value contributed by people through intuition, interpretation, wisdom, information about clients, competitors and partners in business[17]. R.P. Beijerse defines this notion as information; ability to interpret data and information in the process of assigning a particular meaning (particular contents) to this data and information; approach expressed by the will to do something tangible. Ability and approach are the result of access to the sources of information, experience, qualifications, cultures, character, attitudes[18].

For the purposes of this work it will be assumed that knowledge is the ability to interpret information and assigning new, creative meaning to it in the process of creating innovations and their commercialization in the process of innovation management.

In the context of such understanding of knowledge it is reasonable to ask the following question: What knowledge should be acquired to secure the efficiency of particular stages of creating innovation and their commercialization and the efficiency of innovative activity management? Among the basic categories of knowledge there are the following[19]:

1) market knowledge,
2) social knowledge,
3) technological knowledge,
4) procedural knowledge,
5) economic knowledge,
6) organizational knowledge,
7) managerial knowledge.

Market knowledge concerns mutual relations and influences between an organization and the elements of its closer and further environment, such as: suppliers, recipients, individual clients, partners and other stakeholders. This is mainly the knowledge about the individual needs of clients, their loyalty and consistency, channels of distribution, ways an organization and its products are perceived by clients, relations with clients etc. The knowledge constitutes a basis for creating the goals of innovative activity and commercialization of its effects.

Social knowledge is the category of knowledge found in human minds (scientific employees, employees of a particular organization, its clients). The symptoms of this knowledge are: qualifications, experience, competence, creativity. This is exceptional knowledge, as it constitutes a basis for the creation of new knowledge, or its recombination, materialized in innovations, in the ability to solve all problems emerging at particular stages of the innovative process.

In order to create innovation, especially technological innovation, it is necessary to possess technological knowledge including the knowledge about: inventions, patents, trademarks, scientific achievements, publications, procedures etc. This category of knowledge constitutes a basic element of key competences of organization groups, single organization, task groups and its particular members.

Procedural knowledge tells us how to achieve the assumed targets. This knowledge concerns structural mechanisms and solutions and for this reason it should be treated as an instrument used to support other categories of knowledge.

Economic knowledge makes it possible to subject innovative activity to efficiency criteria just like in case of other forms of activity, especially production. Thus, it is justified to work out economic criteria for the assessment of particular stages of innovative activity, facilitating the

objective financing of innovative activity and optimization of information-decision-making processes.

Organizational knowledge concerns rational association of scientific, financial, technological, marketing knowledge with manufacturing and distribution activity within one organization, or within a group of cooperating organizations (network structures). Such structural and procedural solutions speed up the creation of knowledge and its materialization in innovations.

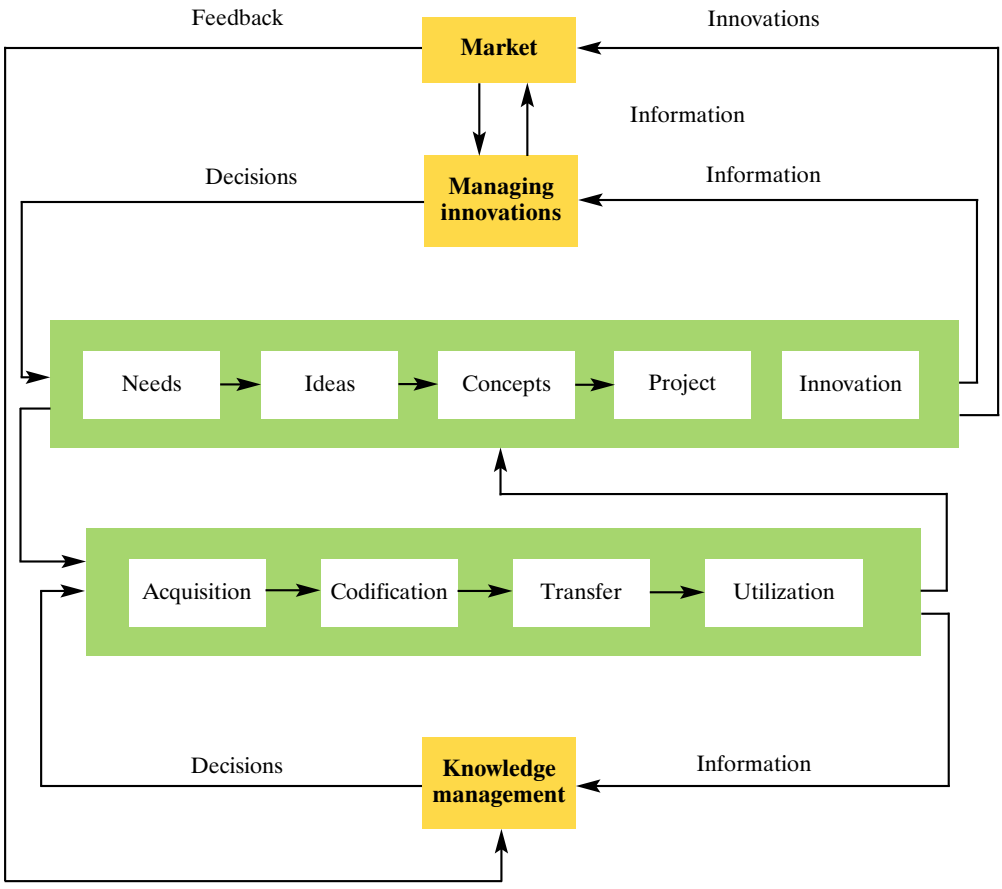
Managerial knowledge is associated with the knowledge about the application of modern methods of management, especially innovation management and management through innovation, strategic management, creating an innovative environment of experiences enabling mutual exchange of knowledge of the employees of an organization and individual clients.

Every innovation constitutes a product of materialization of possessed, or new knowledge and for this reason it has to be included in management focused on acquiring, storing, updating, diffusing and utilization of knowledge for the purpose of carrying out the processes of creation of innovation and their commercialization (see picture 4).In the literal meaning knowledge management is a sequence of systematic activities involving the creation, utilization and dissemination of non-material factors in an organization, so that employees carrying out particular goals have easy access to knowledge useful for them at a particular knowledge, in appropriate form (computer software, databases, procedures, instructions, electronic mail, Internet, etc.).

In knowledge management it is most important to answer the question what the recipient — creator of innovation — wants to and should know. What the holder of knowledge knows is not the central issue, thus it is important to create conditions for sharing knowledge hidden in the minds of individuals — employees and clients. What would strengthen such a process is change of the mentality of managers and focusing decision-making processes on[20]:

1) thinking from the perspective of clients,
2) systemic inclusion of clients in the process of co-creation of knowledge, value and innovation,
3) creating an innovative environment of experiences.

Picture 4. The concept of integration of knowledge and innovation management



Source: own materials.

The influence of universities and research organizations on working out concepts for innovations

Optimization of the processes of knowledge and innovative activity management is fully justified in light of comparably low and diversified level of innovativeness of companies and other organizations. In Poland in 2011–2013 the share of innovative industrial and service companies in the general number of companies amounted to 17.1% and 11.4%, respectively. In comparison to the

years 2010–2012, the indicators increased by 0.6 percentage point in industry and decreased by 1.0 percentage point in services. Traditionally, the smallest percentage of innovative companies was recorded in the group of small companies (10.4%) and the biggest — among big companies (57.7%)[21].

The specific character of innovations, their complexity and high costs make it necessary to apply various resources, especially human resources with particular knowledge and experience to the implementation of whole processes, or their particular stages. Such resources are held by universities and other research organizations. Acquiring such resources requires many integrational activities inspired by the managements of companies and universities themselves [22]. The basic condition here is to convince people of the necessity of such integration and its possible positive effects. Do we encounter such attitudes of the management in everyday practice?

An attempt to answer this question was made on the basis of the results of empirical research conducted at the end of January and the beginning of February 2014 by TNS Political & Social in 28 Member States of the European Union, as well as in Switzerland and the United States, concerning the subject of "The role of public aid in commercialization of innovation", concerning the role of various entities in the area of stimulating innovative activity. The questionnaire survey covered 11206 respondents from various social and demographic groups[23]. The research shows than on average in EU in only 17% of companies universities, or research organizations contributed to working out concepts of innovations, at the same time in 87% of companies managers contributed to working out concepts of innovations. It is necessary to drew attention to the comparably high share of individual consumers — 45% of companies. In particular EU Member States the popularity of such opinions was diversified. The claim that universities, or research organizations contribute to working out concepts of innovations in companies was most popular among the respondents from:

1) Sweden (27% of answers), Denmark (25% of answers) and Finland (22% of answers) — among old Member States,
2) Croatia (20% of answers), Latvia (18% of answers) and Cyprus (16% of answers) — among new Member States.

The claim was supported least often by the respondents from:

1) Luxembourg (12%), France and Great Britain (13% each) — among old Member States,
2) Slovakia (8%), Slovenia (10%) and Estonia (11%) — among new Member States.

In Poland there were 15% of such companies, which is 2 percentage points less than the average in the European Union. At the same time in the USA respondents from 11% of the surveyed companies expressed this opinion, which is 6 percentage points less than the average in the European Union. The popularity of the opinion that universities, or research organizations contribute to working out concepts for innovations in companies increased along with the growth of company size. In the group of micro enterprises there were 15% of such answers, in the group of small enterprises it was 18%, in the group of medium companies it was 27% and in the group of big companies it was 45%[24].

The respondents were also asked to what extent universities, or research organizations contributed to working out concept of innovations in a company. It turns out that "to a large extent" constituted just 3% of all answers — on average in the EU, similarly as in the USA. This response was most popular in Sweden (7%), Holland and Ireland (6%). In Luxembourg and Hungary nobody expressed this opinion.

The opinion that universities, or research organizations contributed to working out concepts for innovations only to a small extent was slightly more popular. Nieco powszechniejsze były odpowiedzi, że uniwersytety lub organizacje badawcze w niewielkim stopniu przyczyniły się do opracowania pomysłów innowacji.On average in the EU the share of such opinions amounted to 14%, in the USA it was 8%. The opinion appeared most often in:

1) Danish (23%), Swedish (20%), German and Portuguese companies (19% each) — among old EU Member States,
2) Croatian (18%),Latvian(16%) and Cypriot (15%) companies — among new Member States.

The opinion was least common in:

1) French, Spanish and British companies (11% each) — among old Member States,
2) Slovak (6%), Czech and Slovenian companies (8% each) — among new Member States.

In Poland every tenth company expressed this opinion. This was 4 percentage points less, compared to the average in the European Union. In all Member States of the European Union responses suggesting that universities, or research organizations haven't contributed to working out innovation concepts were dominant. The popularity of such opinions ranged from 90% in Slovenia to 73% in Sweden[25].

Conclusion

There is a common conviction that innovations constitute the cornerstone for the development of every organization, including a scientific organization, for the development of the region and the whole economy, increasing their competitiveness . Innovations contribute to improving the economics of every organization and to satisfying the current and future of needs of clients better. The basic condition for achieving such benefits is efficient and systemic management of innovative activity both in industrial and scientific organizations (universities). In order to maximize the benefits derived from implemented innovations, it is advisable to steer this management towards cooperation of industrial and scientific organizations at every stage of the process of creating innovations, especially at the stage of commercialization. The result of this cooperation are innovations delivering value for all participants of such cooperation. At the same time, in case of such cooperation, the costs of creation, implementation and commercialization are comparably low. It would be reasonable to direct the attention of the decision-making process to creating the so-called co-innovations, or platforms for using internal and external sources of creation of new value for all involved parties, especially, the consumers[27]. Undoubtedly, one of the conditions for recognizing a

particular change as an innovation is the capacity of such solution to provide its users with value.

In this publications three concepts for an approach to innovative activity management have been proposed. Their universal character makes them suitable for use both in industrial and scientific/research-development organizations. The development of such organizations has to be based on systemic creation of innovations and efficient commercialization of innovations based on the highlighted models of innovation management, knowledge management and commercialization. The basic conditions for efficient management of innovative activity are the following:

1) changing the mentality of managers,
2) acquiring the internal conviction that innovations are the cornerstone for the development of all organizations,
3) managers have to know modern management methods and master using these methods in practice,
4) openness to all forms of cooperation with other organizations on the market and individual clients,
5) legal and financial solutions favouring the development of innovative activity,
6) ability to form the culture of innovation,
7) strong demand for innovations from the market.

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[11] Commercialization concerns placement of goods and services on the free market. It is governed by the law of maximization of economic benefits.

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