

UDC 332.025.12:332.055.2

JEL: M12, O32

**THE CONCEPT OF THE MECHANISM OF
MANAGING THE INTELLECTUAL RESOURCES OF
THE INNOVATIVE ACTIVE ENTERPRISES'
EMPLOYEES (EXPERIENCE OF GREAT BRITAIN)**

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Received: December, 2019

Accepted: February, 2020

DOI:10.31520/2616-7107/2020.4.1-3

Introduction. Management of competencies of innovative workers in specific conditions of functioning of innovatively active enterprises as producing ecosystems is considered as the dominant direction of managing the process of production of new knowledge, localized within a specific organization, which can increase the consumer value of final consumption goods/services in the process of global value chains' formation.

Aim and tasks. The purpose of the publication is to summarize United Kingdom practices in the management of intellectual resources of innovatively active enterprises.

Results. The purpose of the United Kingdom science and innovation policy is to develop the professional skills of the population, to organize world-class research and education, to apply knowledge and skills to develop a competitive economy. The established network of science and innovative policy management entities is in line with the open innovation demand model, which implies the establishment of effective cooperation between universities, business organizations, suppliers, consumers. The generalized model of organizational and economic mechanism of regulation of intellectual resources of innovatively active enterprises personnel as knowledge-intensive sociocentric networks is presented in the form of a structured system focused on the behavioral aspects of the activity of subjects of production of new knowledge of means of regulatory and indicative influence on the configuration of regulatory objects that are subordinated to the sub-system in the conditions of global competition.

Conclusions. To fully meet the requirements of innovating the organizational and economic mechanism regulation of intellectual capital' innovatively active enterprises corresponds to the incorporation into the toolkit of realization of the purpose and tasks of development of the means of forecasting the future state, structure, prospects of increasing the value of its elements. This trend of modernization provides an opportunity to increase intellectual capital through the introduction of Foresight procedures for analysing the impact on it of scientific and technological innovations, formulating and modernizing the mission of forecasting inclusive social capital, comprehensive specification of the regulatory sector, taking into account economic macro and mesoscenarios. At the same time, the proposed means increase the degree of scientific substantiation of the processes of regulation of enterprise development by implementing the analysis of alternative scenarios of intellectual capital growth of innovatively active ecosystems of microeconomic level, open the possibility of developing technological roadmaps for the implementation of targeted programs for long-term research, long-term research development of themes and programs for the implementation of applied social technologies at the request of stakeholders.

Keywords: personnel management, innovative enterprise, innovative ecosystem, intellectual resources.

УДК 332.025.12:332.055.2:
JEL: M12, O32

КОНЦЕПЦІЯ МЕХАНІЗМУ УПРАВЛІННЯ ІНТЕЛЕКТУАЛЬНИМИ РЕСУРСАМИ ІННОВАЦІЙНО АКТИВНИХ ПІДПРИЄМСТВ (ДОСВІД ВЕЛИКОЇ БРИТАНІЇ)

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Отримано: Грудень, 2019
Прийнято: Лютий, 2020

DOI:10.31520/2616-7107/2020.4.1-3

Вступ. Менеджмент компетенцій працівників в конкретних умовах функціонування інноваційно активних підприємств як продукуючих екосистем розглядається у якості домінуючого напрямку управління локалізованим в межах конкретної організації процесом виробництва нових знань, які здатні збільшувати споживчу цінність призначених для кінцевого споживання товарів/послуг у ході формування глобальних вартісних ланцюгів постіндустріальної економіки.

Мета і завдання. Метою публікації є узагальнення передової практики Великої Британії у сфері управління інтелектуальними ресурсами інноваційних підприємств.

Результати. Метою реалізації науково-інноваційної політики Великої Британії визначено розвиток професійних навичок населення, організацію наукових досліджень і освітньої діяльності світового рівня, застосування знань та навичок для розвитку конкурентоспроможної економіки. Створена мережа суб'єктів управління політикою відповідає моделі попиту на відкриті інновації, передбачає налагодження ефективної співпраці між університетами, комерційними організаціями, постачальниками, споживачами. Узагальнену модель організаційно-економічного механізму регулювання інтелектуальних ресурсів персоналу інноваційно активних підприємств як знаннємістких соціоцентричних мереж представлено у вигляді структурованої системи акцентованих на біхевіористичній діяльності суб'єктів виробництва знань засобів розпорядно-індикативного впливу на конфігурацію об'єктів регулювання, що підпорядковані меті реалізації продукуючої функції в умовах глобальної конкуренції.

Висновки. У повній мірі вимогам інноватизації механізму регулювання інтелектуального капіталу персоналу продукуючих екосистем відповідає інкорпорування до інструментарію реалізації цілі та завдань їхнього розвитку засобів прогнозування стану, структури, перспектив зростання вартості елементів. Такий напрям модернізації забезпечує можливість нарощувати інтелектуальний капітал на основі запровадження процедур *Foresight* аналізу впливу на нього наукових та технологічних інновацій, формулювання та модернізації місії прогнозування інклюзивного соціального капіталу, комплексної специфікації сектора регулювання з врахуванням економічних макро- та мезосценаріїв. Одночасно, запропонованими засобами забезпечується підвищення ступеня наукового обґрунтування процесів регулювання розвитку підприємств за рахунок запровадження аналізу альтернативних сценаріїв нарощування інтелектуального капіталу інноваційно активних екосистем мікроекономічного рівня, відкриваються можливості розроблення технологічних дорожніх карт реалізації цільових програм його розвитку на довгострокову перспективу, формування замовлень на фундаментальні наукові дослідження, розроблення тем та програм реалізації прикладних соціальних технологій за запитом стейкхолдерів.

Ключові слова: управління персоналом, інноваційне підприємство, інноваційна екосистема, інтелектуальні ресурси.

Introduction. Intellectual resources of innovatively active enterprises are the creative competencies of the expert level of participants in the processes of creation, dissemination and evaluation/capitalization of technological and humanitarian knowledge, which are necessary for the implementation of long-term market strategies of business process owners, which are deployed within the functioning of sociocentric producing social networks as ecosystems. Innovatively active enterprises as a new organizational integrity and ecosystem of innovation production in the 21st century [7; 25] provides a combination of epistemological, linguistic and psychological abilities of high quality human health and education carriers in the process of production of new knowledge by means of development of employees' social capital – network configuration and close links, level of favourable organization of cooperation (structural dimension), languages, narratives (cognitive dimension), trust, norms, obligations, identification (relational dimension) [16; 28].

Analysis recent research and publications. The process of producing new knowledge that can increase the consumer value intended for the final consumption of goods/services during the formation of global value chains of the post-industrial economy – the dominant scientific area of competence management (*Knowledge management*) in the specific conditions of functioning of innovatively active enterprises as producing ecosystems. Presented in previous publications [6; 10-12; 18; 28] the point of view of transformational transformation of structural, cognitive and relational components of socially inclusive social capital in the process of intellectual capital formation in the environment of innovatively active enterprises functioning, allows to consider simultaneously of innovatively active enterprises as specialized in fast and effective creation/transfer of knowledge of sociocentric social network. The innovative potential of innovatively active enterprises' employees in the composition of cognitive capacity for innovation, motivational and communicative qualities, creativity and personal qualities of the innovator can be reduced to the realized communication resource of expert activity in the subject area. Examining the expertise of expertise in the field of knowledge

management allows us to distinguish a number of variables that are interpreted by the methodology of Interpretive Structural Modelling – the environment of functioning as an element of the innovative ecosystem of the highest level, knowledge, culture, ICT infrastructure, management organization, organizational structures, communication structures – which have a significant impact on the planning and formation of knowledge networks in a commercial use environment. At the same time, the purposeful implementation of the key provisions of the strategy of managing the intellectual resources of innovatively active enterprises personnel could be used to summarize the foreign experience of their use and accelerated development.

Aim and tasks. The purpose of the publication is to develop a concept for managing the intellectual resources of innovatively active enterprises' personnel, based on the experience of implementing an organizational and economic mechanism to regulate competing networked production ecosystems of the knowledge economy, taking into account the experience of the United Kingdom.

Results. The peculiarities of managing the intellectual potential of innovatively active enterprises' personnel in most European countries are determined by the directions and specifics of implementing national science and innovation policy. The basic directions of such policy for different countries are:

- formation of science and innovation policy (Bulgaria, Poland, Lithuania, Latvia, Estonia, Czech Republic, Romania, Turkey);
- optimization of the structure of science and innovation policy (Norway, France, Sweden, Denmark, United Kingdom, Slovenia);
- integrated integration into the international innovation networks (Finland, Israel);
- formation of internal innovation networks (Norway, Ireland, France, Germany, Finland);
- promotion of innovative cooperation between business and science (Finland, Israel, Great Britain, Germany, Denmark) [17].

The UK was one of the last among the European countries to formulate a national science and innovation policy.

In 2003, the Ministry of Trade and Industry of the United Kingdom formulated a technological development strategy for the first time in the country's history. In 2004, the Technology Strategies Council was established.

The United Kingdom's one-stop science and innovation policy of modern appearance was formed in 2008 [26]. The report was published by the reformed Department for Innovation, Universities and Skills, which is responsible for the development and implementation of innovation policy in the United Kingdom. The department's areas of competence include issues related to science, innovation, higher education, vocational training and advanced training. The list of stated goals of the institution's operation includes development of professional skills of the population, organization of world-class research and educational activities, application of knowledge and skills for the development of innovative competitive economy. The strategic perspective on the development of the country's higher education system proclaimed that the needs of employers, first and foremost, of private business, are maximally taken into account. In terms of innovation, Department for Innovation, Universities and Skills has been able to more thoroughly and thoroughly analyse the potential of individual firms in the development and practical use of new knowledge.

The Report sets out the basic provisions of medium and long-term public policy and priorities in the United Kingdom R&D sector [21]. To monitor the dynamics of events in the course of strategy implementation, the Annual Innovative Report is published [27]. The publications of the source are devoted to reports on the accomplishment of current tasks, analysis of indicators of innovation activity, including, in the private sector. Transformation into a world-leading country from the perspective of the knowledge economy is seen as an important means of achieving long-term and sustainable economic growth, improving the quality of life by disseminating new technologies and improving public services. The key to this is: the introduction of a new fund designed to foster the development of professional training in close interaction with business; introduction of regional innovation vouchers to establish contacts between business and research organizations; creation of new networks and laboratories for innovation in

the public sector; the establishment of an Innovation Research Centre to measure and analyse processes in the industry.

United Kingdom science and innovation policy characterizes various aspects of the innovation process: demand for innovation; support for innovation in the business sector; the connection of innovation with the research base; international activities; professional skills related to innovation; innovations in the public services sector; regional innovation.

As of today, a developed system of science and innovation policy management entities has been created in the country, comprising: Office of Science and Innovation within the Department of Trade and Industry; 8 Research Councils (central; physic & technical; biology & biotechnology; economics & social problems; medicine; ecology; molecular physics & astronomy; arts & humanities); Council for Science and Technology; The Parliamentary and Scientific Committee; The Parliamentary Office of Science and Technology; The House of Lords Science and Technology Committee; The House of Commons Science and Technology Committee [4; 22].

The United Kingdom Prime Minister's senior advisory body is the Science and Technology Council. The most influential parliamentary committee in the science and innovation policy is the House of Commons Committee on Science and Technology. Its main function is to monitor and control the activities of the Office of Science and Innovation and its subordinate organizations, which include Research Councils, the Science and Technology Council, the Royal Society of Science and the Royal Academy of Engineering.

The demanding model for open innovation has been declared the dominant in society. Openness involves cooperation between universities, business organizations, other companies, suppliers, and consumers. The sources of innovation include the creative use of proven technologies, as well as a non-standard approach to creating new products/services. These are formed in the process of stimulating the demand for innovative activity from the first consumers – population, enterprises and state bodies – in the process of designing new products and provide a critical income in the early stages of innovative investing.

Government bodies are in demand by means of implementing in-house commercial strategies, their own procurement system, with a clear indication of the effect of strategies, specific ways of implementing innovative purchasing practices. In addition, Department for Innovation, Universities and Skills is tasked with reorienting the Small Business Research Initiative to technological R&D. The paradigm has been replaced by a refined approach where fundamental innovations were supported mainly by policy initiatives related to the proposal of new technologies, which were, for a long time, difficult and uncertain from the point of view of commercialization in the industry.

The Technology Strategy Board, a Department for Innovation, Universities and Skills funded non-governmental organization with the competencies to promote technological innovation in the areas with the greatest potential for accelerated economic growth in the United Kingdom when market mechanisms do not work.

The following measures define:

–Technology Strategy Board' involvement in launching "demonstration productions" to demonstrate technology solutions in practice;

–providing small and medium-sized enterprises with regional innovation vouchers to pay for collaboration with self-selected research organizations;

–empowering Department for Innovation, Universities and Skills to provide innovative companies with affordable financing at all stages of development, providing the necessary methodological support [14-15; 23];

–doubling the joint efforts of Department for Innovation, Universities and Skills and Technology Strategy Board with the volume of partnership agreements concluded in the field of government-funded transfer of knowledge from universities, public and private research institutes to United Kingdom companies;

–joint strategic analysis of service innovation efforts by Technology Strategy Board, Department for Innovation, Universities and Skills and the investment fund of companies in the early stages of National Endowment for Science, Technology and the Art;

–improving the efforts of the Intellectual Property Office to assist small businesses in the

area of investment through improved accounting for intangible resources;

Powerful efforts are being made to increase investment in research and to scale knowledge sharing between research centres and the business sector with a focus on the arts, humanities, government and creative services through:

–participation of Intellectual Property Office in advising on cost reduction and transaction facilitation related to licensing and execution of agreements between universities and socio-centric ecosystem companies on-line;

–development of recommendations for the Intellectual Property Office on improving the management of intellectual property in the interests of economic development in general;

–introduction of updated standards for the use of the Innovation Index;

–introduction of the Innovation Research Centre with the functions of high-quality analysis and policymaking in the field [5; 8-9; 24].

Improving the international innovation vector, enhancing the mobility of individual participants for grants under the EU Framework Program, mastering high-tech market leadership (information technologies, sensors, advanced and functional materials, biotechnology, "green" technology), Big Data, internet of things, advanced and autonomous robotics, additive manufacturing, cloud computing, mobile internet 5G) [2], mergers of international aspects of personnel policy in higher education, vocational education and training, science and innovation [11-12].

Particular efforts are focused on enhancing the professional skills of innovators as part of the "Skills in the UK: the long-term challenge". The basis of this line of activity is the phenomenon of "self-replicating" positive economic effect from attracting creative and highly qualified innovators focused on career prospects in this sphere of activity by commercial ecosystems. Practical steps are being taken towards the creation of National Skills Academy in each major sector of the economy, a detailed description of the professional qualifications of innovatively active researchers in the entrepreneurial field in the Higher-Level Skills Strategy.

Signs of recognition of significant achievements in the field of intellectual capital formation of innovatively active enterprises and, at the same time, separate directions of its development are innovations in order to meet the complex needs of consumers of public services – allocation of resources; structuring of benefits; use of open innovation model; implementation of new solutions implemented in the private and non-profit sectors of the national economy; the National Audit Office conducts specific research related to the assessment of risk factors for stimulating innovation in the public services sector; testing by the Public Services Innovation Laboratory of methods for identifying and evaluating best practices in the public sector; development and testing by the Design Council of a program to generate demand for civil servants by analogy with private sector models.

In order to balance the innovation performance across countries, including by shifting the focus from self-generated knowledge to outsourcing, Department for Innovation, Universities and Skills, together

with Regional Development Agencies, promotes partnerships between venture businesses, universities, innovatively active enterprises and regional authorities. A separate area of activity is the formation of regional offices of Council for graduate entrepreneurship networks of co-financing by Department for Innovation, Universities and Skills institutions and Regional Development Agencies of innovative activity of graduates of Higher Education Institution.

Generally speaking, the organizational and economic mechanism of regulation of intellectual resources of innovatively active enterprises personnel as knowledge-intensive sociocentric networks is a structured system of behavioural aspects of the activity of subjects of production of new knowledge of means of regulatory and indicative influence on the configuration of regulated objects subject to subordination ecosystems in the conditions of global competition (Fig.). The formation of the mechanism takes into account the latest developments, which are described in publications [1; 3; 6; 10; 13; 18; 20].



Fig. 1. Organizational and economic mechanism of regulation of intellectual resources of personnel of innovatively active ecosystems/enterprises

Source: Developed by the author

We consider it expedient to include such elements of social capital as values, mission, tasks and internal network relations to internal factors of effectiveness of functioning of knowledge networks, to external ones – activity of competitors, market context, economic and technological trends.

Organizational structures rely on the execution and management of processes to improve the production, storage, circulation and dissemination of knowledge in various segments of the network by expanding communication channels, decentralization and deformation of decision-making, enhancing the flexibility of business processes.

The defining formal parameters of the culture of functioning of the innovative ecosystem of production and use of knowledge are corporate values, philosophy, mission of the social network, informal – non-articulated (visual, verbal, partially embodied in material artefacts) rules, norms, instructions for approval of models in the network and the models adopted by the partners their feedback.

Communication processes (forums, activities of analytical groups, target seminars, brainstorming sessions) are generated and transmitted through the interaction of employees regarding the deepening of working relationships, dissemination of knowledge using verbal means, sign language.

The sociocentric ecosystem functions as a unit of knowledge only if it fully realizes the creative human capital of the creativity of experts; structural capital (internal networks, systems, patents, experience and knowledge formalization skills) to meet market demand for innovation through their exchange and transfers; stakeholder engagement capital, brand and reputation for social networking knowledge.

The management organization contains the key mechanisms of performance, innovation, continuity management, which underlie the concept of value chain creation by actors producing knowledge of the network [25].

ICT infrastructure provides rapid and accurate codification, exchange and management of intellectual assets, the creation of virtual dissemination networks, and support for knowledge networks at different stages of the life cycle.

Management of employees' intellectual potential is seen as a strategic direction for the management of innovatively active enterprises staff as socio-centric ecosystems of value creation in the post-industrial knowledge economy. It examines the United Kingdom experience as one of the world's five largest exporters of high-tech products and the flagship of the knowledge economy.

In the United Kingdom, which has been pursuing an innovatively active enterprises' intellectual resource management policy for the last 15 years, an effective system of nationwide measures is being put in place to facilitate the processes of co-operation between professional competence holders, their pooling, to accumulate and generate information, to share and to reap the benefits of networking. Knowledge networks help reduce transaction costs, increase innovatively active enterprises competitiveness, transform personal knowledge into a collective, ensure R&D commercial productivity, as evidenced by the experience of South Korea and China [28].

Maximizing the effect of using the organizational and economic mechanism' methodology as a tool to streamline and systematize the relationships between the knowledge network variables requires the development of a holistic organizational and economic mechanism for regulating the intellectual resources of innovatively active enterprises personnel. Based on its use, it is possible to make a real decomposition and develop roadmaps for the application of complex multilevel structural theoretical model of knowledge extraction, accumulation and commercialization, which are disseminated among the participants of internal ecosystem cooperation.

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