

THE METHODOLOGICAL AND REGULATORY FRAMEWORK FOR TECHNOLOGY TRANSFER

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The Methodological and Regulatory Framework for Technology Transfer

The article deals with study of the methodological and regulatory framework for technology transfer. Having studied existing theoretical and practical research papers focusing on this range of problems, the authors established that the phenomenon of technology transfer is mainly considered as an intermediate stage that mediates innovative activities. Using basics of systemic analysis, the authors grouped and picked out the main methodological and regulatory documents from the legal framework of Ukraine that are used in TT; the authors identified issues that complicate technology transfer and proposed steps that aim at solving such problems; the authors proposed their own approach to formation of the methodological and regulatory framework of TT as a subsystem of the methodology. Formation of mechanisms of realization of an enhanced methodological and regulatory framework of TT constitutes prospects for further scientific research addressing this range of problems.

Keywords: methodological and regulatory framework, technology transfer, commercialization, innovation

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Нормативно-методические основы трансфера технологий

Статья посвящена исследованию нормативно-методического обеспечения трансфера технологий. Изучение существующих теоретических и прикладных разработок по данной проблематике показало, что явление трансфера технологий преимущественно рассматривается как промежуточный этап, опосредующий инновационную деятельность. На основе системного анализа выделены и сгруппированы основные нормативно-методические положения правовой базы Украины, которые используются при проведении трансфера технологий, определены проблемные моменты, затрудняющие трансфер технологий, и разработаны предложения по их решению; обоснован авторский подход к формированию нормативно-методических основ трансфера технологий как методологической подсистемы. Перспективной дальнейших научных исследований по этой проблематике является формирование механизмов реализации усовершенствованного нормативно-методического обеспечения трансфера технологий.

Ключевые слова: нормативно-методическое обеспечение, трансфер технологий, коммерциализация, инновация

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Нормативно-методичні засади трансферу технологій

Статтю присвячено дослідженню нормативно-методичного забезпечення трансферу технологій. Вивчення існуючих теоретичних і прикладних розробок з цієї проблематики показало, що явище трансферу технологій переважно розглядається як проміжний етап, що опосередковує інноваційну діяльність. На засадах системного аналізування виокремлено та угруповано основні нормативно-методичні положення правової бази України, якими послуговується трансфер технологій; визначено проблемні моменти, що ускладнюють трансфер технологій, і розроблено пропозиції з їх розв'язання; запропоновано авторський підхід до формування нормативно-методичних засад трансферу технологій як методологічної підсистеми. Перспективою подальших наукових досліджень за цією проблематикою є формування механізмів реалізації вдосконаленого нормативно-методичного забезпечення трансферу технологій.

Ключові слова: нормативно-методичне забезпечення, трансфер технологій, комерціалізація, інновація

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Overall problem statement and its connection with important scientific and practical tasks. Choosing the innovative way of development by developed countries of the world causes the spread of an economy of a new type – an economy of knowledge. Technology transfer (TT) belongs to basic elements of the economy of knowledge. According to the Ukrainian legislation [1], TT is transfer of technologies that is arranged as a result of drawing up a two-sided or a multi-sided contract between an individual and a legal entity. This contract establishes changes or discontinues property rights and obligations in terms of technologies and/or components.

Moreover, generalization of essential approaches proposed by domestic and foreign scientists to defining TT indicates that this process causes scientific and technological progress in goods and services in markets. This fact affirms the importance of effective organization at all levels of TT, since estimation of innovation implementation periods in the market and enhancement of producer competitiveness depend on effective organization. One of the relevant questions that now arise in the process of TT is improvement of its methodological and regulatory framework.

The methodological and regulatory framework is one of the main instruments of the program and target management of development of science and technology in Ukraine. Over the last years, the share of budget financing for State Targeted Science and Technology Programs (STSTP) in the general volume of research and development financing has been not changing significantly; it is not substantial now as well and does not exceed 7.0 %. This share decreased to 3.9 % in 2013 from 5.3 % in 2012 [2, p.72]. For comparison: stimulation of an economy of knowledge in highly-developed countries causes involvement of 50 % and higher percentages of state budget funds in the process of realization of STSTP. To provide such stimulation, special systems of estimation have been developed. Under such conditions, the methodological and regulatory framework plays a key role, since stimulation of the science and technology area in the country depends on substantiation of indicators of realization of STSTP.

Analysis of the innovative potential of Ukraine, study of problems arising in domestic economic units in the process of TT, and consideration of foreign experience concerning these questions indicates the necessity of paying particularly significant attention to the methodical and regulatory framework utilized for TT.

Analysis of recent research and published works addressing the problem and forming the basis of the author's research. Various problems of TT realization have recently drawn increasingly significant attention of scientists and practitioners. Works of a wide circle of scientists focus on several methodological questions of TT, among them O.F. Androsova [3], Yu. M. Bazhal [4], M.A. Yokhna, [5], O.M. Liashenko [6], O. V. Kamianska [7], S. M. Katsura [8], S. V. Salikhova [9],

V. V. Titov [10], L.I. Fedulova [11], etc. In spite of the relevance and scientific significance of proposed developments, the methodology of TT is not currently developed. The phenomenon of TT is mainly studied as an intermediate step that mediates innovative activities. These authors did not pay any special attention to the development of the methodological and regulatory basis used for estimation of technologies that should be transferred or prognostication of transfer results, etc.

Several scientists fragmentarily proposed methodological approaches to TT realization. In particular, O. F. Androsova in [3] proposes an improved mechanism of organization of TT implementation on the basis of four-level management that enables immediate exchange of information between the source of technology investment and its consumer. M. A. Yokhna and a group of scientists in the work [5] propose to enhance the level of substantiation of managerial decisions concerning planning of technological development of domestic industrial enterprises by choosing an optimal form of TT.

A system of economic and mathematical models of TT developed by O. M. Liashenko is of special scientific importance. These systems are aimed at providing a balance of consumptive choice, motivation, and precipitation of interaction between units of commercialization of TT and take into consideration real economic conditions [6, p. 7].

Scientists [4; 8; 9] consider TT as a macroeconomic object and substantiate their belief that the economic development of a country depends on the effectiveness of TT. Pre-conditions of TT implementation in Ukraine are discussed in works by L. I. Fedulova, in particular in [11, pp. 295 – 301]. The scientists [7, 10] focus on the study of methodological properties of TT in different industries.

Emphasis on previously unsolved parts of the overall problem considered in the article. Application of the proposed approaches does not permit solving the majority of current legislative and methodological issues in the sphere of TT. The problem is further aggravated by absence of a methodology of TT. Taking this into account, the article deals with the study of a current methodological and regulatory framework of TT highlighting existing problems and substantiation of proposals related to solving such problems. The obtained results may be useful for forming the methodological basis of TT implementation.

Aims and tasks of the article. The aim of this work is to research the methodological and regulatory framework of TT. In order to achieve this aim, the author solved the following tasks: 1) analysis of the current legal framework related to methodological and regulatory provision of TT; 2) singling out the issues that complicate TT and developing proposals aimed at finding solutions to such issues; 3) proposing the authors' own approach to formation of a methodological and regulatory framework of TT as a subsystem of the TT methodology.

Main research material presentation and full substantiation of obtained scientific results. Study of the current legal

framework related to TT questions, especially the methodological and regulatory framework, shows that even application of a whole set of documents does not ensure effective TT. Using

basics of systemic analysis, the author picked out main methodological and regulatory documents from the legal framework of Ukraine that are used for TT. They are grouped in Table 1.

Table 1

The Methodological and Regulatory Framework of TT in Ukraine, grouped by the authors

No.	Document Title	Characteristic
1	2	3
1	The Law of Ukraine «On State Regulation of Activities in the Sphere of Technology Transfer», of 14.09.2006, № 143-V	The Law determines the legislative, economic, organizational, and financial frameworks of state regulation of activities in the sphere of technology transfer and aims at ensuring effective utilization of scientific, technological, and intellectual potential of Ukraine, technological flexibility of products, protection of property rights for domestic technologies and/or their components in territories of countries in which technologies are used or are planned to be used, and extension of international scientific and technological co-operation in this branch [1]
2	The Law of Ukraine «On Evaluation of Property, Property Rights, and Professional Evaluating Activities in Ukraine», of 12.07.2001, № 2658-III	The content of this Law encompasses legal relations that emerge in the process of evaluation of property and property rights possessed by individuals and legal entities of Ukraine in the territory of Ukraine and beyond its boundaries and by individuals and legal entities of other countries in the territory of Ukraine and beyond its boundaries, if the arrangement is concluded according to the legislation of Ukraine, use of evaluation results, and realization of professional evaluating activities in Ukraine [12]
3	The Decree of The Cabinet of Ministers of Ukraine «On Approval of The Procedure of Property Evaluation», of 10.12.2003, № 1891	The Procedure is used to evaluate property in case of privatization (corporatization), creation of companies (joint companies), determination of the value of entire property complexes possessed by joint companies whose shareholders' equity consists of state (municipal) property, etc. [13]
4	The Decree of The Cabinet of Ministers of Ukraine «On Approval of Minimal Premium Rates for Authors of Technologies and Persons Who Transfer Them», of 04.06.2008, № 520	Minimal premium rates are determined in the percentage form as a share of the income received from distribution of products that is gained as a result of application of a new technology or its components according to terms of an arrangement concerning transfer of this technology. [14]
5	The Decree of The Cabinet of Ministers of Ukraine «On Some Questions of Evaluation for the Purpose of Taxation and Tax Assessment and Other Obligatory Payments Charged According to the Applicable Legislation», of 04.03.2013, № 231	The Decree determines the mechanism of evaluation of real property and movable property for the purpose of taxation and tax assessment and other obligatory payments charged according to the applicable legislation and also calculation of state duties, taxes, and other obligatory payments that are charged according to the legislation. [15]
6	The Decree of The Cabinet of Ministers of Ukraine on Approval of The National Standard N4 «Evaluation of Property Rights to Intellectual Assets», of 03.10.2007, №1185	The Standard must be obligatorily used by participants in evaluating activities in the process of evaluation of property rights to intellectual assets and by persons who review reports on evaluation according to the legislation. [16]
7	The Decree of The Cabinet of Ministers of Ukraine on Approval of the National standard N1 «The General Framework for Evaluation of Property and Property Rights» of 10.09.2003, № 1440	The Standard must be obligatorily used while evaluating property and property rights by participants in evaluating activities and also persons who review evaluation reports according to the legislation. [17]
8	The Decree of The Cabinet of Ministers of Ukraine «On Approval of a Standard Regulation on Planning, Accounting, and Calculation of the Value of Products (Works, Services) in the Industry» of 26.04.1996, № 473 (a voluntary document)	The Decree is used to provide planning, accounting, and calculation of the value of industrial products, works, and services both at industrial enterprises and non-industrial organizations that produce industrial goods regardless of the type of property and business. [18]

1	2	3
9	The Decree of The Cabinet of Ministers of Ukraine «On Approval of The Procedure of Evaluation of State Corporate Rights», of 02.08.1999, № 1406	The Procedure allows evaluating the value of state corporate rights and assets of joint companies, whose shareholders' equity consists of state corporate rights. The Procedure is used to determine: the value of state corporate rights as a part of the market value of a joint venture, the value of the equity of a joint venture, etc. [19]
10	The Decree of The Cabinet of Ministers of Ukraine «On Approval of a Standard Regulation on Planning, Accounting, and Calculation of the Value of Science and Research and Research and Development Work», of 20.07.1996, № 830	The Decree establishes a single methodological framework of STSTP value determination in organizations that pursue such programs regardless of the type of property and business [20]
11	The Decree of The Cabinet of Ministers of Ukraine «On Approval of Minimal Premium Rates (Royalties) for Utilization of Objects of Copyright and Neighbouring Rights», of 18.01.2003, № 72	The Decree fixes minimal shares of premiums (royalties) for public interpretation, public demonstration, public announcement or retranslation of scientific, literary, and artistic works; interpretation and (or) publication of works, fixed in phonograms and (or) videograms, commercial lease of their copies; interpretation and (or) publication of works of pictorial and decorative art; use and interpretation of architectural works, etc. [21]
12	The Order of The Ministry of Economy of Ukraine «On Approval of the Methodological Recommendations on Development of a Business-Plan of an Enterprise», of 06.09.2006, № 290	The Order forms practical tasks that are necessary for realization of a business-plan, determination of resources that are necessary for each task; formation of a budget of distribution and flows of resources that provide financing during a whole period of realization of a business-plan; realization of practical tasks, control of figures of business plan realization, and correction of tasks and calculation made in the process of formation of business-plan in case of necessity [22]
13	The Order of The State Committee of Ukraine on Science, Innovation, and Informatization «Methodological Recommendations on Commercialization of Developments Resulting from Scientific and Technological Activities», of 13.09.2010, №18	Determination of the scientific and economic expediency of implementation of developments (effectiveness of commercialization) financed by budget funds; involvement of objects of intellectual property rights and other results of scientific and technological activities in the economic circulation [23]
14	The Order of The State Property Fund «On Approval of the Procedure of Evaluation of Property Rights to Intellectual Assets», of 25.06.2008, №740	The Procedure is used to evaluate property rights to intellectual assets by an evaluating activity subject, e.g. a business entity in cases determined in Chapter 7 of The Law of Ukraine «On Evaluation of Property, Property Rights, and Professional Evaluating Activities in Ukraine» [24]
15	The Order of The State Property Fund «On Approval of the Procedure of Determination of Assessed Value of Objects of Intellectual Property Rights Possessed by the State or Created (Purchased) with State Funds, for Accounting Purposes», of 13.12.2005, № 3162	The Order aims at evaluation of objects of intellectual property rights possessed by the state or created (purchased) with state funds, in order to determine their value on the basis of inventory procedures and to account them [25]
16	The Joint Order of the Ministry of Economy and European Integration of Ukraine and the Ministry of Finance of Ukraine «On Approval of the Procedure of Assessment of the Economic Efficiency of Spending on Scientific Research and Development and Their Implementation in Production» № 218/446, of 25.09.2001	The Joint Order deals with determination of the efficiency of practical science and technology developments as potential innovations at all stages of their life cycles, meaning scientific research, design and engineering developments, creation of research samples, their testing and implementation in production [26]

Having researched the methodological and regulatory framework of TT, the authors can conclude that the current legislation of Ukraine, on the one hand, determines directions of legislative, economic, organizational, and financial regulation of TT activities, on the other hand, it does not actually fix ways of their application. Absence of a systemic methodological and regulatory framework of innovative development of the domestic economy, consistency in series of documents, etc. cause diffusion in main tasks of TT and limit the efficiency of its practical application.

In particular, several methodological and regulatory documents mentioned in Table 1 have a limited field of application or are voluntary. The Procedure of property evaluation confirmed by the Decree of the Cabinet of Ministers of Ukraine № 1891 of 10.12.2003 [13] concerns evaluation of property in case of privatization (corporatization), creation of companies (joint companies), determination of the value of entire property complexes possessed by joint companies whose shareholders' equity consists of state property. In addition, the Decree of the Cabinet of Ministers of Ukraine [15] determines the mechanism of evaluation of real property and movable property, but the mentioned evaluation is used for the purpose of taxation and tax assessment and other obligatory payments that are charged according to the legislation.

The content of the Procedure of assessment of economic efficiency of spending on scientific research and development and their implementation in production (approved by the Joint Order of the Ministry of Economy and European Integration of Ukraine and the Ministry of Finance of Ukraine of 25.09.2001 №218/446) [26] is used to determine the efficiency of practical science and technology developments as potential innovations at all stages of their life cycle, meaning scientific research, design and engineering developments, creation of research samples, their testing and implementation in production. The results of assessment of efficiency of STSTP are used for the following purposes: choosing the main directions of research and development and prediction of efficiency of research implementation; selection of projects and tasks for inclusion into scientific and technological, industrial, regional, interregional programs and programs of development of several regions; formation of innovative programs and projects, rational allocation of resources according to life-cycle stages of science and research activities and scientific engineering works; determination of the actual economic efficiency of use of scientific and research developments in production, including their influence on the social and economic state of participants in production and the economy of country; evaluation of activities of scientific and research and design organizations. Nevertheless, this procedure does not meet the requirements of the current period, including the current legislation focusing on questions of TT and innovative activities. In particular, the procedure does not include a formalized system of categories, does not propose a restrictive definition of TT, and does not use a limited quantity of economic figures, etc.

In order to apply the Law of Ukraine «On State Regulation of Activities in the Sphere of Technology Transfer» and in order to provide a methodological basis for commercialization of innovative developments, the Order of the State Committee of Ukraine on Science, Innovation, and Informatization of 13.09.2010, №18 approved the Methodological Recommenda-

tions on commercialization of developments resulting from scientific and technological activities. This document [23] determined possible ways of commercialization of results of such developments and methodological approaches, criteria, and figures used to estimate the efficiency of TT, presented an appropriate terminology, a list of actual legislation instruments on the mentioned topic, formulated stages of commercialization of developments, etc. However, the mentioned document is not mandatory, but voluntary. Moreover, there is no complete list of expenses that may be defined as investment costs for commercialization of such developments in the document [23], and the content of Clause 3.1.1 of the Methodological Recommendations assumes that expenses arising from creation and commercialization of such developments are calculated according to regulatory documents on calculation. Simultaneously, the Decree of the Cabinet of Ministers of Ukraine of 26.04.1996 № 473 [18] that approves the Standard Regulation on planning, accounting, and calculation of the value of products (works, services) in the industry is not valid and is voluntary.

Moreover, the methodological and regulatory acts have some disadvantages, meaning there is no legal and methodological basis for activities in the sphere of innovation for venture funds, agents of infrastructure of innovations, possibilities of venture investment in innovative works, etc.

The results of this study indicate the absence of a systemic approach to legislative instruments implementation in the TT branch. An effectual legislative ground, which may provide and stimulate transfer of the economy to an innovative way of development, has not been yet developed.

No doubt, the methodological and regulatory framework of TT requires significant improvement. Using the results of a study of theoretical and practical experience concerning the problem of the domestic TT, the authors proposed such directions for its improvement:

- development of a general methodology for evaluation of economic expediency of implementation of innovative works, including know-how;
- development of methodological and regulatory documents on regulation of venture investment in innovative works;
- establishment of unambiguous rules of formation of expenses estimated in both accounting and tax assessment on the basis of different procedures that will enable legally acceptable usage of an investment tax credit;
- legislative consolidation of mechanisms of realization of state and private partnerships in the process of TT;
- settlement of questions pertaining to determination of procedures of accounting of intellectual property objects, intangible assets, etc.;
- providing due regulation for purchase and disposal of property rights to intellectual property objects created with state funds;
- improvement of legislative mechanisms of regulation of the intellectual product market, transfer on the basis of commercial terms by a business entity;
- implementation of stimulation of a private cost formation mechanism in the process of calculation

of an income tax that restricts implementation of innovative tax regulators.

Conclusions and prospects for further research in this area. Studying the methodological and regulatory framework of TT as a subsystem of the TT methodology (interconnected with other subsystems, among which are organizational and economic, socioeconomic ones, etc.), the authors suggest that substantiation of this subsystem determines the efficiency of functioning of other ones, since this system establishes a particular set of rules, methods, and principles of TT realization. Therefore, implementation of proposed improvements is of primary importance, since it facilitates adequate development of other TT processes. Taking this into consideration, formation of mechanisms of realization of an enhanced methodological and regulatory framework of TT constitutes prospects for further scientific research addressing this range of problems.

The proposed approaches to formation of a methodological and regulatory framework of TT imply the necessity of pursuing a complex of activities aimed at a balanced development of all elements of the national innovative system. Conditions of the global market environment require activation of TT as the most effective method of enhancing a country's competitiveness and its further development aiming at an intensive way of development.

ЛІТЕРАТУРА

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