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DIRECTIONS FOR IMPROVING THE INTERNATIONAL LEGAL REGULATION OF THE SUPPORT PROGRAM FOR THE TRANSFER OF INNOVATIONS AND TECHNOLOGIES "HORIZON EUROPE"

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This paper reports a study into the essence, levels, forms, principles, and types of means of innovative support, as well as the procedure for their provision, which are provided for by the framework agreement "Horizon Europe". A critical analysis of certain elements of this framework agreement was performed. The expediency of conducting scientific research on changing the international legal regulation of implementation of measures of innovative support within the framework program of the European Union "Horizon Europe" has been substantiated.

This study is aimed at forming the concept of improving the normative mechanisms of legal regulation of the implementation of means of innovative incentives within the framework of the law of the European Union. In addition, the issue of developing proposals to improve legal mechanisms for assessing the effectiveness of the implementation of previously provided means of support was investigated.

It is proved that the formation of an integral concept of supporting innovation processes within the framework of the temporary framework program has a destabilizing effect. A concept of improving the system of normative regulation of means of innovative support and technology transfer in the general system of EU legislation has been proposed. Within the framework of the proposed concept, the expediency of transferring part of the subject of legal regulation of the framework agreement "Horizon Europe" to acts of EU legislation of a higher level is substantiated. Also, a concept of improving the legal mechanisms for assessing the effectiveness of previously provided incentives for innovation and technology transfer has been formed. It is substantiated that such mechanisms should be based on the activities of an expert collegial body within the European Innovation Council.

The study results could be used in the formation of international regulations, for the appropriate regulation of these relations

Keywords: means of innovation support, "Horizon Europe" framework program, stimulation of technological renewal, reform of European legislation

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1. Introduction

It is obvious that the level of economic development of any country in the world directly depends on the number and level of prevalence of innovations and technologies. They can not only significantly increase the level of profitability of a particular type of economic activity but also radically change the entire production structure.

The value of innovation and technology as the basis for doing business is known to many countries. The vast majority of them take all possible measures to intensify the processes of their creation, transfer of rights and implemen-

tation in the production sector of the national economy. At the same time, it is difficult to find a unified approach to the implementation of an integrated system of measures to support the development and implementation of innovations and technologies. The only exception to this rule is the joint innovation exchange programmes that exist within the European Union (EU).

The main discussions about the need to ensure a unified system of measures of state (interstate) support took place within the common European space since the 1980s. The first program to support innovation processes was approved in 1983 and began to be implemented in 1984. For this period of time, the Horizon Europe program is valid until 2027.

The lack of a unified international approach to understanding the essence of innovations and technologies, the existence of legal mechanisms of state technological control, licensing barriers of a political nature, do not contribute to the global spread of intensification of innovation processes. However, the degree of globalization of the world economy indicates the need to form a unified generalized approach to the regulation of innovation processes and technology transfer. The experience of the European Union as a conditional flagship of these processes is extremely useful. Their programs to support innovation processes are the first attempt to establish large-scale international cooperation on these issues. No one doubts the fact that the international agreements that underlie the legal regulation of the functioning of the Horizon Europe program are not ideal. Their low level of performance has long been actively discussed in scientific circles. They represent only the level of joint concessions that EU member states are willing to make. However, in any case, the legal model underlying their implementation should be investigated to form on its basis better models and forms of international cooperation on technology transfer and innovation.

The main task of scientists, in such circumstances, is to assess the practice of functioning of the program "Horizon Europe" and the formation of concepts and proposals for changing the normative model of their implementation. And especially in the part concerning the choice of model and form of interaction between the countries participating in this association. It is science that must find and formulate proposals for types (forms) of international interaction. And also, to form a balanced regulatory mechanism for their implementation. Constant and systematic needs for technologically innovative renewal of the economic systems of each country. The desire to cooperate on these issues, as well as the presence of public (state) interest in innovative renewal, indicate a high level of relevance of related research.

2. Literature review and problem statement

Issues related to the assessment of the effectiveness of the implementation of the European Union program "Horizon Europe", both in general and in the context of its individual elements, have been investigated in numerous scientific works and have been the subject of scientific research by many scientists. Thus, in [1], the feasibility of setting sustainable development goals within the framework of the general scientific and innovation policy of the EU was investigated. There, the possibility of achieving the goals of uniting the member states of the European Union was investigated. The obstacles that exist on this way were analyzed.

In [2], the potential results of environmental restrictions aimed at "decarbonization" of the production sector and their impact on the policy of implementation of "Industry 4.0" are investigated. However, there were no proposals to eliminate the identified negative impact.

Within the framework of study [3], the degree of influence of the "Horizon Europe" program on health care was studied. In general, an exceptionally positive economic and organizational impact on this area was noted. However, no holistic characteristics of the economic result for this sector are given, due to the lack of relevant statistical information.

In [4], conclusions are drawn on the feasibility of establishing and implementing within the EU, the goals of innovative development of the space industry. The negative and positive aspects of this phenomenon are studied in detail. However, no proposals have been made for general improvement of the efficiency of regulatory mechanisms for fixing them.

Within the framework of study [5], economic patterns of growth of innovative potential of business entities that received targeted grants within the framework programs of the European Union were thoroughly studied. A relatively small economic effect from the direct distribution of grant funds was established. The main reason for this phenomenon is the low level of corporate joint investment in innovative developments. It is proposed to change the existing approach to financing by introducing more stringent legal mechanisms for recipients of grant funds.

In [6], the mechanism of functioning of the framework agreement as the main means of regulating innovative support was criticized. The reason for such criticism was the lower level of effectiveness of such framework agreements compared to individual innovation agreements concluded by governments. However, in the work, no proposals were formed to improve and change the content and form of normative documents of the European Union but only a problem was formed.

All the works reviewed above [1–6] indicate the focus of scientific research on solving individual aspects or manifestations of the effectiveness of the "Horizon Europe" program. No works have been identified within which a comprehensive concept of reforming this system of measures of interstate support of innovation processes would be formed. Also, no works have been identified in which such a concept would be substantiated through changes in the forms and algorithms of interaction between the EU member states. However, it can be stated that there are problematic aspects of the implementation of means of support and functioning of institutions within the framework of this framework program.

Similar conclusions are contained in the report on the results of implementation and expansion of participation, compiled as a result of the implementation of the previous framework program "Horizon 2020" [7]. Within the framework of that work, 22 scientific clusters and 9 scientific fields were investigated. The results of influence within individual countries with key scientific areas are reported. According to the results of the study, innovations were most developed only in computer science, healthcare/medicine, and biology/agriculture. Other industries showed insignificant levels of positive innovation effect. It was also found that joint intergovernmental innovation support programs had a much greater effect than sectoral innova-

tion support measures. A sharp development of the level of process innovations aimed at improving the level of interaction within the framework of joint innovation activity has been identified. At the same time, the framework program "Horizon Europe" was not aimed at their intensification. In general, it has been found that decentralized mechanisms of innovation support are less effective than those that take place under the auspices of governments of countries or international institutions.

All this suggests that it is expedient to conduct a study into the formation of the concept of changes to the "Horizon Europe" program. The proposed changes will make it possible to strengthen the European Research Area (ERA) more effectively and ensure the implementation of sustainable innovation development directions. The conclusions formed within the framework of this study can become the basis for further scientific advancements, as well as the basis for the formation of promising international regulations.

3. The aim and objectives of the study

The aim of this study is to form the concept of changing the normative support of forms and algorithms of innovative interaction within the framework of the program "Horizon Europe". The obtained achievements may become the basis for changing the legislation of the EU member states, EU legislation, and (or) the basis for further research.

To accomplish the aim, the following tasks have been set:

– to analyze the normative nature and content of the system of measures to support innovation processes and technology transfer within the framework of "Horizon Europe" program;

– to study the procedure for implementing measures to support innovation processes and technology transfer, within the "Horizon Europe" program framework;

– to formulate conceptual proposals for changing the legal regulation of forms of interaction and means of support within the "Horizon Europe" program framework.

4. The study materials and methods

The object of our study is the content of regulatory support for the implementation of means of supporting innovation processes and technology transfer within the EU "Horizon Europe" program framework.

During this study, an assumption was adopted about the inconsistency of the form and type of normative document with its content. Namely, the legal regime of the framework agreement does not meet the tasks of regulatory and regulatory influence that are registered in it. The basis for this was the assessment of the content of the tasks which should be achieved as a result of fulfilling the requirements of the framework agreement "Horizon Europe".

In the course of our study, the provisions of international law, information from open sources were used. In addition, recommendations of leading international institutions, statistical information, and public information were involved. Formal-logical methods of cognition, methods of modeling, deduction, induction, comparison, methods of formal-logical interpretation of the content of scientific and normative categories and concepts were used to draw conclusions.

5. Results of investigating directions for improving international regulation within the framework of the program "Horizon Europe"

5. 1. Studying the normative nature and content of means of supporting innovation processes within the "Horizon Europe" program framework

As already noted, the process of discussing possible forms of innovative cooperation within the European space began in the 1980s. The result of such negotiations was the development and conclusion of a special type of international documents – framework agreements (Framework Program). The essence of this legal mechanism is that the participating countries record their consent to combine organizational and property efforts in order to achieve the main goal. At the same time, detailed (personalized) steps for this are defined in normative documents of lesser legal force – programs (annexes).

Since the harmonization, adoption, and entry into force, within the European Area and the European Union, 8 (eight) framework programs for the support and promotion of research have been implemented. Their names were coded and numbered on an accrual basis. Thus, the framework program for the period from 1984 to 1988 was referred to as FP-1. The period from 1987 to 1991 was covered by the FP-2 program. Similarly, framework programs for other periods were identified: FP-3 (1990–1994); FP-4 (1994–1998); FP-5 (1998–2002); FP-6 (2002–2006); FP-7 (2007–2013). And only the FP-8 program received the personalized name "Horizon 2020" (Horizon 2020).

On April 28, 2021, the European Parliament approved the Horizon Europe Research and Innovation Framework Programme (Regulation No. 2021/695), which became the 9th framework programme of this type [8]. The main purpose of its adoption was to strengthen the European Research Area (ERA), and to support innovation (R&I) to fulfill strategic priorities and commitments.

Within the framework of the Horizon Europe program, the desire to achieve the following goals was declared:

– support for the creation, intensification of dissemination, and transfer of advanced knowledge and science-intensive technologies;

– supporting the development of fundamental and applied scientific research, attracting more young and promising scientists to their conduct;

– increasing the volume of scientific research aimed at the emergence of innovations;

– strengthening cooperation between the institutions of the European Union and the governing bodies of the participating countries, as well as enterprises, institutions, organizations for the dissemination of innovations and their prompt implementation into the economy of the European space;

– development of small and medium-sized enterprises as special forms of cooperation in the development, implementation, and use of innovations;

– creation of new jobs, ensuring a sustainable level of economic growth, promoting industrial competitiveness [8].

A systematic analysis of the provisions of the approved Horizon Europe program and the Regulation approved by the European Parliament makes it possible to determine that all means of supporting and stimulating innovation and technology transfer in the EU are in some way limited and structured. Such restrictions are implemented in several

areas, namely the area in which such support is provided, the principles, levels, and directions (measures) of support.

Thus, the areas of support include innovation and technology transfer on the following issues:

– energy-efficient technologies;

– digital technologies;

– health;

– ecology;

– transport technologies, and others [9].

With the principles of support, the situation is somewhat more complicated. Their definition was influenced by decisions taken by the institutions of the European Union in previous periods. In many ways, the principles of support are in line with previous frameworks on these issues, and sometimes simply referred to.

The first principle of support to be identified is the functioning of open science as a requirement according to which all scientific achievements should be open and accessible to other scientists. The main rules for their dissemination are the algorithms for the functioning of the European Open Science Community (EOSC) and the European Data Infrastructure (paragraph 8 of the Regulation 2021/695).

The second principle is the general focus on achieving the sustainable development goals of the European Union (2030 Agenda for Sustainable Development) (para. 10 of the Regulation 2021/695).

The third principle is the mandatory achievement of the objectives set out in the Paris Agreement adopted under the United Nations Framework Convention on Climate Change (para. 10 of Regulation 2021/695).

The fourth principle declared mandatory support for research activities in the field of social sciences and humanities (SSH). This involves developing scientific knowledge in this area and using the understanding and progress of SSH to enhance the economic and societal development of the EU (para. 14 of Regulation 2021/695).

The fifth principle to be defined is balanced support for basic scientific research and applied research aimed at creating innovations. Simultaneous combination of mechanisms of centralized (vertical) financing and private investment (horizontal financing). Taking into account the potential of scientific communities when choosing the method and form of financial support for their activities (paragraph 15 of the Regulation 2021/695).

Regarding the levels at which innovation processes and technology transfer are supported, under the "Horizon Europe" program, the following can be distinguished:

– a system of measures to support the financing of fundamental science;

– a system of support measures to ensure an increase in the level of industrial competitiveness of European enterprises;

– a system of measures to support the functioning of European innovation ecosystems, universities, and research institutions;

– a system of measures to support the European System of Scientific Research.

A systematic analysis of the provisions of the framework of "Horizon Europe" program allows us to identify a number of areas (measures) of support that are directly implemented within its borders. Most of them are financial in nature, but they are aimed at ensuring the functioning of lower-level infrastructure entities that operate throughout the EU, or on the territory of one or more EU countries.

Among them are the following:

– support within the rapid research and innovation procedure (FTRI procedure). Under its terms, support means are implemented for interstate consortia that conduct research or develop innovations classified as key, including defense purposes;

– support within the functioning of the European Innovation Council. Within this framework, the selection and support of those innovative projects and technological developments that correspond to the scope of the framework of "Horizon Europe" program is carried out. The recipients of assistance here may be small enterprises, small and medium-sized enterprises, start-ups, research organizations and universities;

– financial and organizational support provided within the framework of the European Partnership, through the conclusion between the countries participating in a common program European partnership, or a common financial European partnership or institutionalized European partnership;

– support on steps to restore the European Union after the economic, social, and societal consequences of COVID-19;

– organizational support of the requirements of the rules of open science. It consists in compliance by all institutions (enterprises, institutions, organizations, and scientists) with the rules of open dissemination of the results of their scientific and research works;

– creation of preconditions for alternative, combined, and cumulative financing or transfer of resources necessary for innovation or technology transfer;

– the means of support assumed by the European Union to third countries that are not members of the European Community. These means can be completely different and depend on the content of a previously concluded international agreement on these issues [8].

If we try to systematize the means of support in a certain way from the point of view of their general mechanism of provision, we can conclude that the main and prevailing form of support is grant cooperation. The grant is a form of providing financial resources or raw materials, or access to preliminary research results or the material and technical base of European institutions.

In general, it can be stated that the framework of "Horizon Europe" program, as a continuation of the form of innovative cooperation within the framework agreements of FP, is one of the main forms of coordination and streamlining of scientific processes and technology transfer. Within this essentially temporary tool, goals and objectives that go beyond innovative cooperation are already being implemented. These framework programs have become a tool for planning the activities of a large number of enterprises, institutions, organizations. The revealed discussions on the effectiveness of the legal mechanism of framework agreements, as a way of fixing the strategic development goals of the European Union, testifies to the inconsistency of this form with economic challenges [1].

5. 2. Studying general procedures for the implementation of support measures within the "Horizon Europe" program framework

The main procedural tool for providing support for innovation processes and technology transfer is grants. Grant is a specific form of support that can combine not only financial instruments but also support measures of a resource, organi-

zational, and technical nature. The peculiarities of awarding each grant are determined by a special Grant Agreement, which must be concluded with the beneficiaries of its recipient and the coordinator of this process by the institutions of the European Union. All participants of the framework agreement should develop and implement standard forms of Grant Agreements at the level of national legislation. This is done to unify and simplify the conditions for grant support. The overall management of this process is carried out by the European Innovation Council.

Nominally, it is established that any legal entity can apply to obtain means to support innovation activity and technology transfer. Including the one that is based on the territory of third countries that are not part of the European Union. However, examining the content of the Horizon Europe program, one can come to an unequivocal conclusion that the formally declared equal approach is not always respected. Thus, within the framework of support – rapid research and innovation procedure (FTRI procedure), only an international consortium is allowed. In it, at least one participant must be a resident of a member state of the European Union.

When it comes to developing defense innovations, only residents of the European Free Trade Association countries can receive support [10]. Also, it should be taken into account that support in the form of financing can only be received by a legal entity that is a resident, or a member state of the European Union, or a resident of the country of the Associate Member of the framework of "Horizon Europe" program.

A systematic analysis of the provisions of the Horizon Europe program allows us to establish that only a resident of a member of the European Union can receive the greatest level of support. In addition, it should fall under the criteria of SMEs (small/medium-sized enterprises). At the same time, special support for SMEs overshadows scientific and research institutions.

Such restrictions significantly reduce the potential number of applicants for access to means of supporting innovation and technology transfer.

If a candidate for support meets the criteria set out in the framework programme and requirements defined by the European Innovation Council, it may receive the following support means:

– advance payment (a type of urgent, gratuitous repayable financial support provided for the organization of the innovative production process);

– financing of developments and research (coverage at the expense of EU funds of the costs of conducting certain types of research);

– financial subsidy (a type of financial assistance that does not require the achievement of certain goals and the return of which is not provided);

– admission to participation in public procurement (means granting permission for a certain business entity engaged in innovation activities to participate in the public procurement system for the needs of the EU or EU member states);

– provision of resources and property necessary for innovative research (except means of financial incentives and support);

– providing access to equipment and material and technical base for research in the field of innovation;

– mixed forms of support and incentives, which are provided both at the expense of funds accumulated within the framework of the program "Horizon Europe", and at the expense of funds and funds of the European Council of Innovations, and other intermediaries (researchers and accelerators).

An applicant for receiving means to support innovation processes and technology transfer may apply with its project. It should apply directly to the European Innovation Council (or its representative offices). Or to the relevant state institutions within their country or to special intermediaries (researchers/accelerators).

These entities, within the limits of existing needs, should analyze the project or business plan that will be submitted by the applicant and decide whether or not to provide the means of support requested by such an applicant. At the same time, the freedom of decision as the European Council of Innovation, national institutions, special intermediaries is limited. The winner can be declared only the applicant that proposed innovation (technology) that has advantages over similar proposals, has a greater potential impact and is able to be more effective.

AQWSA. All audit and control measures that may (but will not necessarily) be applied to the applicant, they will concern only the direction of means of support for previously declared purposes. At the same time, there is no mechanism for monitoring or evaluating the effectiveness of previously implemented measures to support innovation processes and technology transfer. European Innovation Council, only after the completion of the framework programme, will only have to assess the degree of change in macroeconomic indicators of the European Union and, on this basis, draw a conclusion about its effectiveness or inefficiency. Evaluation of the effectiveness of invested funds and implemented measures to support innovation processes, only through pan-European macro-financial indicators are obviously insufficient levers of control. This mechanism needs to be improved, which indicates the need to form appropriate proposals in this regard.

The effectiveness of similar mechanisms for financing innovation, which were envisaged by the provisions of the previous framework program "Horizon 2020", have already become the subject of heated discussions within the EU [5]. The low level of efficiency of corporate investment was noted against the background of consumption of financial means of EU support.

5. 3. Studying possible forms of improvement of international regulation within the "Horizon Europe" program framework

First of all, it should be noted that the framework of "Horizon Europe" program is the main tool for organizing and implementing financial support for scientific, research, innovative works, at the expense of the EU. This determines its special significance and place within the Single Scientific Space of the European Union. Therefore, it is not clear that the main instrument of financial support for the scientific sector is not a centralized regulatory document of binding legal force but only a conceptual, interim agreement between EU members. The presence of permanent rules for the implementation of any type of activity has a much more positive (stable) impact than any rules in force for a certain period of time.

As identified in the course of this study, the framework of "Horizon Europe" program includes areas to which scientific potential should be directed. It defines the principles, forms,

levels, types of support, and criteria for their distribution. It provides for the creation of separate institutions at EU level, such as the European Innovation Council. Institutions that are autonomous in their activities, regarding the use and distribution of means to support innovation processes and are endowed with their own funds (resources), which should be directed to the intensification of innovative development.

In other words, such an instrument as a framework agreement, which is adopted and operates for a certain period of time, regulates social relations that are not peculiar to it. These relations should be regulated at a different level of normative legal acts of the European Union.

The "Horizon Europe" framework program is already the 8th program of this type. All of them are agreed and implemented by the member states of the European Union on a permanent, continuous, and systematic basis. However, the mentioned framework program will cease to exist in 2027. At the same time, most of those scientific and research projects that are supported by indirect funds have a longer deadline. In other words, in 2026–2027, the EU institutions will again begin polemics and discussions about whether to continue cooperation in stimulating innovative development and what forms to use for this. This raises the issue of cooperation in intensifying innovation processes in direct dependence on the political will of the governing bodies of the EU member states. The interruption of financial and other support through the coordination and adoption of a new framework program of innovative incentives has an extremely destabilizing effect on the processes of scientific development.

As you know, the system of regulations of the European Union consists of several levels. Thus, the main ones are the Treaty establishing the European Union and the Treaty on the Functioning of the European Union, as well as the Accession Agreements of the new member states. The secondary level of regulatory regulation is taken by Regulations, Directives, Decisions, Recommendations and conclusions adopted within the procedures and institutions of the European Union. The third (auxiliary) level is judicial precedents formed as a result of the activities of the European Court of Human Rights. The Horizon Europe Framework Program is the international normative document that takes place within the secondary link of the normative documents of the European Union.

The stability of international legal regulation of the processes of supporting innovation development and technology transfer within the framework of EU legislation can be achieved only if the most fundamental provisions of this cooperation are fixed by normative documents of the primary level. For this reason, it is expedient to propose to divide the subject of legal regulation of the the framework of "Horizon Europe" program, moving part of its provisions to the text of the Treaty on the Functioning of the European Union.

Thus, it seems expedient to include the following issues to the general mechanisms of the EU's functioning:

– quantitative level of ratio of scientific financing to the total level of GDP of EU member states;

– issues of formation and functioning of the European Innovation Council;

– fixation of the obligation of centralized accumulation of financial resources for the implementation of measures to support innovation processes and technology transfer;

– basic principles, forms, and measures to support innovation processes and technology transfer.

Providing innovative support within the EU to the institutional duty within the whole society is guaranteed to contribute to the stable development of these social relations since it will be carried out on a permanent and systematic basis, without being tied to the political will of the leadership of each country. As a result, all negative destabilizing factors will be eliminated at the time of re-approval of the new framework program for supporting innovation processes.

At the same time, the framework program for cooperation in stimulating innovation development should remain within the system of regulations of the European Union. However, the subject of its legal regulation should be variable factors and conditions that depend on objectively existing economic, societal, or social challenges. Within the subject of legal regulation of framework programs, it is advisable to leave areas, levels, directions of support. These issues are variable and depend on the objective reasons and conditions for the development of the EU economy. Re-approving the current list of areas, levels, directions of support for innovation processes, it is possible to achieve a higher level of efficiency in the implementation of those general measures that will be provided.

In addition, during this study, the lack of effective legal mechanisms for monitoring the effectiveness of the use of previously provided means of supporting innovation processes was revealed. Such mechanisms should be developed and implemented within the framework of the European Union legislation system. Based on the results of this study, it is advisable to propose a mechanism for evaluating the effectiveness of the support tools provided. This kind of mechanism should cover such criteria as achieving the result previously declared when applying for grant support. It should take into account the degree of implementation of the developed innovation within a certain economic process, as well as the level of suitability for mass use within the EU. This mechanism should become one of the directions of functioning (work) of the European Innovation Council. And the process of evaluating the effectiveness of the use of dedicated means of support should be carried out at the collegial level with the involvement of competent experts from the scientific community.

This kind of mechanism, at the stage of its development, introduction, and implementation, should be fixed at the level of the relevant framework agreement on innovative cooperation. And after its practical approbation, we can talk about its normative regulation at the level of other legal acts of the European Union.

6. Discussion of results of investigating the criteria for the effectiveness of technology for its further financing and budget support

The concept of amendments to international acts of the EU, aimed at stabilizing the mechanisms of innovative support and increasing their efficiency, is proposed. It is our vision of the direction of development of this issue. In its formation, the circumstances about which there are discussions in scientific circles were taken into account. In general, the defined concept is suitable as the use of international level normative legal acts within the legal technique of forming texts (drafts).

The study is aimed only at forming a conceptual approach to improving the regulatory mechanism for regulating innovation support relations within the EU. It is possible that if the process of changing EU legislation is formed on its basis, the proposed concept will require some revision. However, in any case, all previous scientific studies [1–6] either

did not form such proposals or explored certain aspects of this issue. None of the scientists who investigated this issue proposed the formation of conceptual changes in the provisions of normative acts, but only proposed to correct their individual provisions. The results of this scientific study contain conclusions that can become the basis for the formation of acts of prospective international legislation, which is their advantage over similar studies.

The main disadvantage of the study is the lack of objectively systematized information on economic results received by specific business entities that previously used support tools. No EU institution collects or systematizes them. Only pan-European macroeconomic indicators are assessed. Business entities tend to hide this information because of their confidential nature. The lack of this information makes it impossible to formulate more informed proposals, taking into account economic, social, and institutional factors.

When conducting this study, not all socio-economic innovations and technologies were taken into account in its subject. Only production technologies that can be the basis of the production process were taken into account. Technologies for implementing political, psychological, pedagogical, societal, and other social processes were not taken into account.

Further development of this study will make it possible to obtain practical results. On its basis, drafts of international documents can be formed.

7. Conclusions

1. Our study into existing means of supporting innovation processes and technology transfer within the EU found that they are unstable, are developed for a certain period of time, and depend on their harmonization at the level of framework agreements.

2. In the course of studying the forms, levels, principles, types of support for innovation processes and technology transfer within the "Horizon Europe" program framework, it was found that its subject matter does not correspond to the settled issues. The subject of legal regulation of the framework agreement has been formed, which should be attributed to other normative documents within the European Union system. It is proposed to include the issues of marginal standards for financing science, the functioning of the European Council of Innovations, the principles of accumulation of financial resources and their use.

3. The concept of improving the system of regulatory regulation of means of innovative support and technology transfer in the general system of EU legislation was proposed. Within the framework of which, the expediency of transferring part of the subject of legal regulation of the framework agreement "Horizon Europe" to acts of EU legislation of a higher level is substantiated. It is substantiated that such mechanisms should be based on the activities of an expert collegial body within the European Innovation Council.

Conflicts of interest

The authors declare that they have no conflicts of interest in relation to the current study, including financial, personal, authorship, or any other, that could affect the study and the results reported in this paper.

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Data availability

All data are available in the main text of the manuscript.

References

1. Kastrinos, N., Weber, K. M. (2020). Sustainable development goals in the research and innovation policy of the European Union. Technological Forecasting and Social Change, 157, 120056. doi: https://doi.org/10.1016/j.techfore.2020.120056
2. Orošnjak, M., Jocanović, M., Čavić, M., Karanović, V., Penčić, M. (2021). Industrial maintenance 4(.0) Horizon Europe: Consequences of the Iron Curtain and Energy-Based Maintenance. Journal of Cleaner Production, 314, 128034. doi: https://doi.org/10.1016/j.jclepro.2021.128034
3. Abubakar, I., Plasencia, A., Bärnighausen, T., Froeschl, G., Burton, M., Cobelens, F. (2019). Horizon Europe: towards a European agenda for global health research and innovation. The Lancet, 393 (10178), 1272–1273. doi: https://doi.org/10.1016/s0140-6736(19)30287-9
4. Hoerber, T. (2012). New horizons for Europe – A European Studies perspective on European space policy. Space Policy, 28 (2), 77–80. doi: https://doi.org/10.1016/j.spacepol.2012.02.013
5. Mulier, K., Samarin, I. (2021). Sector heterogeneity and dynamic effects of innovation subsidies: Evidence from Horizon 2020. Research Policy, 50 (10), 104346. doi: https://doi.org/10.1016/j.respol.2021.104346
6. González Fernández, S., Kubus, R., Mascareñas Pérez-Iñigo, J. (2019). Innovation Ecosystems in the EU: Policy Evolution and Horizon Europe Proposal Case Study (the Actors' Perspective). Sustainability, 11 (17), 4735. doi: https://doi.org/10.3390/su11174735
7. Spreading excellence and widening participation impact report: H2020 results and outlook to Horizon Europe (2022). doi: https://doi.org/10.2848/30035
8. Regulation (EU) 2021/695 of the European Parliament and of the Council of 28 April 2021 establishing Horizon Europe – the Framework Programme for Research and Innovation, laying down its rules for participation and dissemination, and repealing Regulations (EU) No. 1290/2013 and (EU) No 1291/2013 (Text with EEA relevance). doi: http://data.europa.eu/eli/reg/2021/695/oj
9. Horizon Europe, open science (2021). Available at: https://op.europa.eu/en/web/eu-law-and-publications/publication-detail/-/publication/9570017e-cd82-11eb-ac72-01aa75ed71a1
10. Regulation (EU) 2021/697 of the European Parliament and of the Council of 29 April 2021 establishing the European Defence Fund and repealing Regulation (EU) 2018/1092 (Text with EEA relevance). Available at: https://eur-lex.europa.eu/eli/reg/2021/697/oj