

**S2BMM PLATFORM FOR «BUSINESS-SCIENCE» COOPETITION:
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The article is devoted to the issue of “business-science” coopetition and especially the analysis of S2BMM platform for “business-science” coopetition to investigate experience and prospects for Ukraine. It is grounded that the issue of coopetition between business and scientists is quite difficult in Ukraine. Scientists often face the problem of unrealized potential. Many good ideas and projects often go unnoticed. Ukrainian business, in turn, is more inclined to foreign partners for the development of a new scientific product. So, a small number of entrepreneurs pay attention to Ukrainian scientists. Nevertheless, Ukrainian business and science have a great potential for developing innovations, but the main aspect is the need being noticed by other economic agents and partners, who will be able to finance and take the product for implementation. Thus, the main research purpose is to analyse a new platform for coopetition between business and science in new realities, to determine opportunities and prospects of “Science 2 Business” online platform for “business-science” coopetition. The bibliometric analysis of the Scopus data using the VosViewer software, and the Scopus toolkit allowed to compare the number of indexed publications by the search request, as ““business-science” coopetition”, ““business-science” cooperation” and ““business-science” cooperation platform” in titles, abstracts, and keywords of indexed publications. The dynamic analysis of scholars’ interest and publishing activity on the issue of “business-science” cooperation platform was also conducted. Due to bibliometric analysis the map based on the bibliometric data from the Scopus database was created, and 5 clusters of research in this scientific sphere were identified. The peculiarities of “business-science” coopetition, the advantages, and prospects of using an online platform for coopetition between business and scientists were determined. The opportunities provided by the collaboration platform for each participant were considered. Modern scientific projects that are successful on the territory of Ukraine were also analysed.

Keywords: *business, commercialization, coopetition, development, education, innovations, scientific projects.*

DOI: 10.21272/1817-9215.2022.4-17

PROBLEM SETTING

Science and business, without exaggeration, are the leading components of Ukraine's innovation systems. They directly participate in the production and commercialization of innovations, which enables the use of intellectual resources as a factor of economic development and increasing business value. However, the issue of coopetition between business and scientists is quite difficult in Ukraine. Scientists often face the problem of unrealized potential. A large number of good ideas and projects often go unnoticed by others. Ukrainian business, in turn, is more inclined to foreign partners for the development of a new scientific product. Unfortunately, a small number of entrepreneurs pay attention to Ukrainian scientists.

Nevertheless, Ukraine has a great potential for developing innovations, but the main aspect is that it needs to be noticed by other economic agents and partners, who will be able

¹ This research was funded by the Ministry of Education and Science of Ukraine and performed the results of the project «Business-Education-Science Coopetition: Institutional and Economic Models of Innovation Transfer for National Security and Sustainable Development» (№ 0122U000772).

to finance and take the product for implementation. It is also necessary to pay attention to the cooperation of business and education. In the developed countries of Europe, employers have an influence on the formation of educational programs for universities, which, in turn, prepare and graduate students in accordance with the needs of the real labour market. In Ukraine, unfortunately, more attention is paid to theoretical knowledge than to practical experience. After graduating from domestic universities, students have no idea about further employment, and employers are not interested in such young specialists without work experience. First of all, we need to focus on getting students more involved in research projects. Among employers, there is a great demand for students who have creative thinking and are ready for retraining. Companies, scientists, and students (“business-education-science” cooperation) should have a unified online platform where they can collaborate. That is why the article’s topic about one of these platforms is actual and significant.

ANALYSIS OF THE RECENT RESEARCH AND PUBLICATIONS

The issue of “business-science” cooperation is not so widespread as the issue of “business-science” cooperation based on the Scopus database analysis. The search by the first request in titles, abstracts and keywords of indexed publications shows only 17 results for the period from 2000 to 2022, and the search by the second request – 3659 document results for the period from 1931 to 2022. In turn, the search by the request ““business-science” cooperation platform” shows 137 document results for the period from 2001 to 2022 (Figure 1).

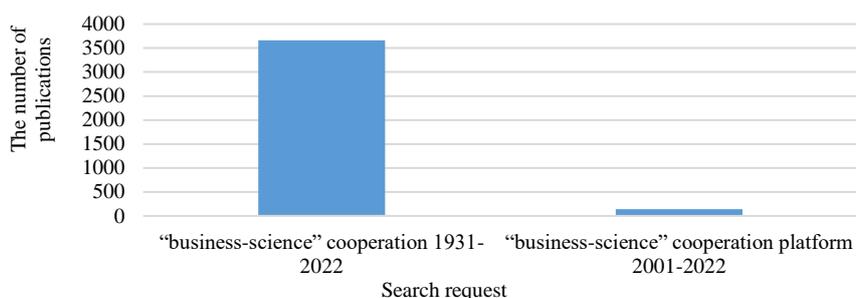


Figure 1 – The number of publications indexed in the Scopus database.
Source: built by the authors based on the Scopus data

The dynamic analysis of scholars’ interest and publishing activity on the issue of “business-science” cooperation platform is given in Figure 2.

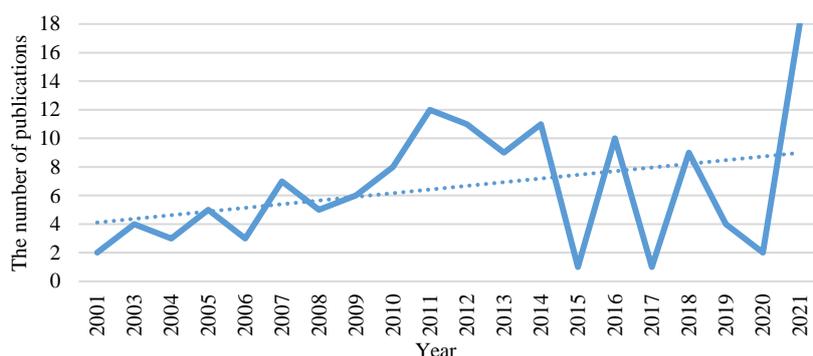


Figure 2 – The dynamic analysis of publishing activity on the issue of “business-science” cooperation platform.
Source: built by the authors based on the Scopus data

In general, there is a positive trend with a high increasing in the last period.

Due to bibliometric analysis the map based on the bibliometric data from the Scopus database was created (Figure 3).

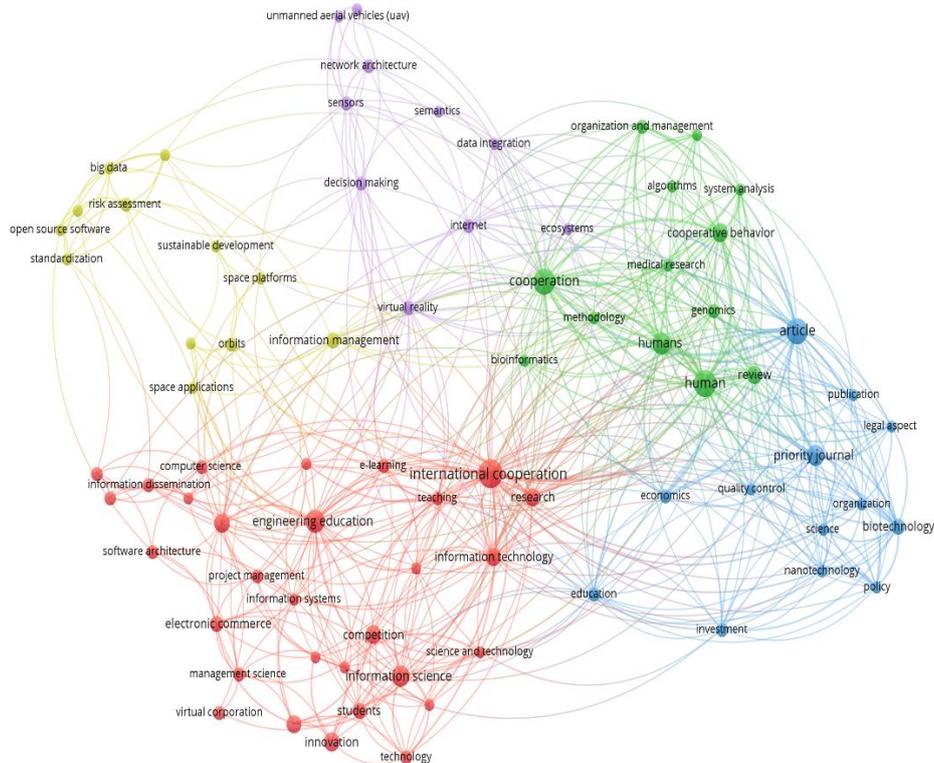


Figure 3 – The map based on the bibliometric data from the Scopus database
Source: built by the authors using VosViewer software

Of the 1674 keywords 79 meet the threshold of the minimum number of occurrences of a key word equal 3. So, the main directions of research in this scientific sphere involve the following:

- 1) sustainable development, standardization, space platforms, space applications, informational management, risk assessment, open-source software, big data (yellow cluster);
- 2) international cooperation, e-learning, engineering education, computer science, software architecture, project management, electronic commerce, virtual corporation, science and technology, innovation (red cluster);
- 3) cooperation, bioinformatics, medical research, genomics, cooperative behaviour, humans (green cluster);
- 4) economics, investment, quality control, organization, nanotechnology, biotechnology (blue cluster);
- 5) ecosystems, data integration, virtual reality, decision making (purple cluster).

The affiliation of above publications indexed in the Scopus database is not mostly cover Ukraine. The analysis of the recent research and publications in Ukraine shows that this problem is not investigated enough. T. Lazorenko and S. Solosich studied cooperation as a modern approach to strategic enterprise management to examine modern types of cooperation especially in the labour market. They also determined the concept of “coopetition”, its main forms, and features of interaction [1]. Zh. Poplavska et al. described modern forms of competitive interaction of business entities. The study also deals with

modern methods of conducting business [2]. H. Shvindina investigated innovations in the development of strategic management on the basis of movement from competition to coopepetition [3]. E. Ropuszynska-Surma and M. Weglarz presented research about such cooperation network as virtual power plant [4]. O. Iastremska et al. put attention on new models of interaction between business partners to produce and implement new products and services [5]. N. Tyukhtenko et al. studied the problem of cooperation between business and state institutions [6].

As a result of analysis of research data, it was noticed that the coopepetition between science and business is not developed at a sufficient level, especially in the case of different special platforms. Furthermore, online collaboration is quite a useful and modern issue that needs to be developed and promoted in wide circles, course modern technologies make it possible to work even remotely, without face-to-face meetings. The low level of commercialization of the results of scientific research, the negative dynamics of the implementation of innovative products in Ukraine and, as a result, the impossibility of Ukrainian manufacturers entering international markets focused on high-tech and competitive products.

AIM OF THE PAPER

The main research purpose is to analyse a new platform for coopepetition between business and science in new realities, to determine opportunities and prospects of “Science 2 Business” online platform for “business-science” coopepetition.

RESEARCH METHODS

During research general and special scientific methods were used. They include comparative and dynamic analysis, bibliometric analysis using VosViewer software, and the Scopus database tools, observation, abstraction, synthesis, etc.

RESULTS

The “Science 2 Business” platform was developed in Ukraine as an online platform for effective and fruitful cooperation between representatives of business and scientists. It enables businesses to find an interesting scientific project that would be useful for them, and scientists – to launch their project into real work. S2BMM was created within the framework of the project “Consulting Fund for the Support of the Ukraine-EU Association”, implemented in Ukraine by the federal company Deutsche Gesellschaft for Internationale Zusammenarbeit GmbH on behalf of the Federal Ministry for Economic Cooperation and Development.

The online site “Science 2 Business” has a number of advantages (Figure 4), such as:

- scientists can present their projects or developments;
- businessmen have the opportunity to place on the pages of the platform their requests regarding scientific innovations that would be useful for their work;
- the process of communication between partners takes place online;
- it facilitates the process of finding partners for implementation and realization of joint projects;
- thanks to the projects presented on the platform, the business can strengthen its competitiveness by using the necessary latest project and manufacturing high-tech products;
- scientists get access to research and the latest infrastructure;
- business has access to scientific and engineering solutions in specific areas, etc.

In today’s realities, the platform greatly facilitates the process of finding opportunities for cooperation of partners for the implementation of new projects. You can also find news Science & Business Startup Bootcamp and Science & Business Demo Day there and other events to combine the scientific and innovative potential of scientists, start-ups, companies, experts, investors, the media, and the search for innovative solutions, raising awareness of business, marketing, sales, investments and innovations.

Scientists, university teachers, students, post-graduates, students of any level of education who carry out scientific activities individually or in a group with other team members can work on the platform, they just need to register. Filling out information about offers and opportunities for cooperation with business representatives and finding partners is done by users themselves, by filling out the appropriate forms in their personal account (scientist profile).



Figure 4 – Opportunities provided by the “Science 2 Business” platform [7]

A sufficient number of research organizations are already registered on the service. “Science 2 Business” helps them in the initial stages to find financing, as well as to focus more on the research and development required for the modern market. This gives academics a business-oriented role. Scientists, university teachers are working on creating mutual relations between the university and business, because this is a rather promising cooperation.

As a rule, large companies independently create innovations for themselves, but this requires a lot of funding. The online site “Science 2 Business” gives businesses the opportunity to familiarize themselves with ready-made innovations developed by scientists, without investing their own funds in research and development. Collaboration between business and scientists has many benefits because companies can collaborate with talented scientists who have creative and new ideas. From an economic point of view, such cooperation is quite profitable, because the costs for the projects of little-known scientists will be much lower than cooperation with a qualified person. Innovation makes people’s lives easier, and market research and development help create more new jobs.

The platform presents many scientific developments, which business representatives can view and choose the most interesting for themselves (Table 1).

The other example is Kyiv National University of Technology and Design, which is carefully considering an improved form of shoe insole with improved comfort properties for military footwear based on the results of 3D studies of the feet of military personnel and mobilized persons. Developers expect business partners to provide them with production capacity for shoe production, provide technical capabilities for sewing shoes, high-quality shoe materials and components that meet modern European and American military standards. For their part, the scientists promise to prepare a wide range of footwear concepts for the military, according to modern standards, to improve the standard norms, in accordance with the needs and wishes of the military. A thorough study of the comfort properties of special-purpose shoes and the selection of high-quality material will be carried

out. As a result, military footwear will be produced that corresponds to the anthropometric structure of the feet of men who make up the main part of the military of the Armed Forces of Ukraine. The comfort level of footwear used in combat and military conditions will be greatly improved. One of the main elements of modern uniforms is high-quality and comfortable shoes, therefore Kyiv National University of Technology and Design considers it necessary to develop such shoes and provide them for use by our military [8, 9].

Table 1 – The list of some scientific works on the platform

№	The name of the scientific work	A brief description	Intellectual property rights	Expected results	Scientific branch	Field of application
1	Method of immunostimulation of animals	Intra-abdominal administration of physiological extract obtained from the bodies of medical leech, allows to stimulate the immune system.	Patent for the invention. Inventors: R.Aminov, O.Frolov and E.Fedotov. Owner: Zaporizhzhia National University.	The method allows to increase the immunity and productivity of animals, to correct the immune deficiency states of animals in agriculture.	Biological sciences, Agriculture sciences, Pharmaceutical sciences, Veterinary sciences.	The invention belongs to veterinary medicine, natural pharmacy, and medicine, and can be used in agriculture.
2	The method of obtaining an immune modulator	Dry the body filter sterile paper, fragment the bodies of medical leeches, rubbed in broken sterile glass with physiological solution.	Patent for useful model. Inventors: R.Aminov, O.Frolov, E.Fedotov, P.Lytvynenko. Owner: Zaporizhzhia National University.	It can be used to correct immunodeficient states of animals in agriculture and veterinary medicine.	Biological sciences, Agricultural sciences, Medical sciences, Pharmaceutical sciences, Veterinary sciences.	Belongs to veterinary medicine, natural pharmacy, and medicine.
3	Business risks of companies: assessment, monitoring, forecast	In the process of carrying out scientific work of further development, theoretical, methodical, and organizational principles of risk analysis of companies' activities will be acquired.	The intellectual property rights of the scientific work belong to the developers	The practical value of the scientific development lies in the fact that the results obtained by the authors will contribute to the disclosure of information about the risks of economic activity.	Economic sciences.	Various sectors of the economy.
4	Methodology for evaluating the effectiveness of international technical assistance to small and medium-sized businesses.	A methodology for evaluating the effectiveness of international technical assistance programs for small and medium-sized businesses in Ukraine in the context of regional development has been developed.	Copyright registration certificate – Literary written work of a scientific and practical nature “Methodology for evaluating the effectiveness of program implementation”.	These recommendations will provide an opportunity to evaluate the effectiveness of international technical assistance programs for small and medium-sized businesses in Ukraine.	Economic sciences.	Various sectors of the economy.

Source: built by the authors on the base [7].

Bogomoletz Institute of Physiology offers the manufacture of bionic prostheses of the upper and lower limbs. Unfortunately, the need for prosthetics for Ukrainians has been growing rapidly recently. Since 2016, a state program has been operating in Ukraine to provide the population with prostheses, but not everyone can get it. The Institute of

Physiology, in turn, offers to create a cheap and competitive bionic prosthesis. The principle of operation of the sensory part of the product: even after limb amputation, part of the muscles that are working and innervated remain intact. They are the source of electromyographic innervation, regarding which movement should be performed by the missing limb.

The following elements are required for the development of such a prosthesis: – eight-channel remote receiver of EMG signals from open BCI on open-source software provided; – a set of electrodes for EMG conduction signal; – 3D printer for printing elements of a mechanical limb; – carbon plastic and carbon thread; – an electric linear motor to actuate the limb; – a finger pressure sensor (for a hand prosthesis) that provides feedback between the limb and the processor; – microprocessor-controller Arduino Mega, which will allow to connect the data EMG and mechanical limbs; – lithium-ion battery.

From the business, the developers expect financial assistance for the purchase of the following components: an EMG sensor, electrodes for them, 6 strain gauges, microprocessors. The institute proposes to make the first designs of the prosthesis from aluminium spare parts, which are inexpensive, and this will significantly reduce the production price. Some of the elements are available to scientists. They have electric motors, so they will try different variations. The electrical supply will be stationary, which will also allow for the future calculation of the actual power of the system and its needs for electrical energy.

So, as you can see, most modern projects are centred around medicine, medical developments will be very useful both now and in the future.

On the “Science 2 Business” platform, businesses can also leave a request for a requested scientific product for them, to which scientists can respond with their ideas (Table 2).

Table 2 – Business request on the “Science 2 Business” platform

The name of the scientific work	A brief description	Intellectual property rights	Expected results	Scientific branch	Field application of
Courses for support relocated business	Development content and conduct courses for entrepreneurs	Idea	The series of webinars	Education	Entrepreneurship

Source: built by the authors on the base [7].

CONCLUSIONS

The conducted analysis of “Science 2 Business” platform allows to conclude that this online site is quite a useful development. “Science 2 Business” allows scientists of various degrees to collaborate with businesses, both small and large. Scientists will be able to fully demonstrate their potential and find additional funding for their projects. The site always presents current scientific projects and business inquiries.

Monitoring of the latest projects shows that recently innovations in the field of medicine have been actively introduced. Medicine has always been the branch that constantly needs the development and improvement of equipment and treatment methods.

For businesses, conducting business abroad is currently an open issue. A large number of enterprises were forced to stop their activities on the territory of Ukraine and start them in other countries. However, many of them have never encountered doing business abroad before. Therefore, the development of educational courses that would teach entrepreneurs to work in new conditions would be very useful.

So, “Science 2 Business” is a new online platform that gives prospects to young talents to realize themselves in the Motherland, and not to go abroad, and businesses to start cooperating with domestic scientists.

АНОТАЦІЯ

Койбічук В. В., Самойлікова А.В., Габенко М.М. Платформа S2BMM для коопетиції «бізнес-наука»: досвід та перспективи для України.

Стаття присвячена питанню коопетиції «бізнес-наука» та, зокрема, аналізу платформи S2BMM для коопетиції «бізнес-наука» для дослідження досвіду та перспектив для України. Обґрунтовано, що в Україні досить складним є питання співпраці бізнесу та науки. Вчені часто стикаються з проблемою нереалізованого потенціалу. Багато перспективних ідей і проєктів часто залишаються непоміченими. Український бізнес, у свою чергу, більше схильється до іноземних партнерів для розробки нового наукового продукту. Отже, лише невелика кількість підприємств звертає увагу на українських науковців. Тим не менш, український бізнес і наука мають великий потенціал для розвитку інновацій, але головним аспектом є те, щоб потреба була помічена іншими суб'єктами господарювання та партнерами, які зможуть профінансувати та взяти продукт на впровадження. Таким чином, основною метою дослідження є аналіз нової платформи для коопетиції бізнесу та науки в нових реаліях, визначення можливостей та перспектив онлайн-платформи «Science 2 Business» для коопетиції «бізнес-наука». Бібліометричний аналіз даних наукометричної бази Scopus за допомогою програмного забезпечення VosViewer та інструментарію бази даних Scopus дозволив порівняти кількість проіндексованих публікацій за такими пошуковими запитами, як «коопетиція «бізнес-наука», «співпраця «бізнес-наука»» та «платформа для співпраці «бізнес-наука»» в назвах, анотаціях та ключових словах проіндексованих видань. Також було проведено динамічний аналіз зацікавленості та публікаційної активності науковців щодо платформи співпраці «бізнес-наука». Завдяки бібліометричному аналізу створено візуалізаційну карту на основі бібліометричних даних бази даних Scopus та виділено 5 кластерів досліджень у цій науковій сфері. Визначено особливості коопетиції «бізнес-наука», переваги та перспективи використання онлайн-платформи для коопетиції бізнесу та науковців. Розглянуто можливості, які надає майданчик для співпраці для кожного учасника. Також були проаналізовані сучасні наукові проєкти, які успішно працюють на території України.

Ключові слова: бізнес, інновації, комерціалізація, коопетиція, наукові проєкти, освіта, розвиток.

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