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Scientometrics AS A MEANS OF INTEGRATION OF UKRAINIAN scienceand global information space

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The paper contains compelling arguments about the need to measure the quality and effectiveness research. The possibilities scientometrics its tools. In the current context of globalization of economic life developed countries, where science serves as the main economic and reproductive factors, ensure their development by improving existing technologies, techniques and use of innovative scientific achievements. International scientific and technological exchange, transfer of intellectual potential - one of the signs of our times. It is clear that Ukraine will become prosperous only when it can comprehensively and efficiently learn to take advantage of territory and resources owned. But this is not possible without close economic and technological cooperation with developed countries. Therefore, the strategic goal for Ukraine should be its entry into the international scientific streams that will modernize domestic production, to ensure the competitiveness of basic industries.

Scientometrics, international database for Educational Quality Assessment, Hirsch index, impact factor, research, integration, information space.

He became obvious fact that the scientific scope of the Third Millennium undergoes violent and large-scale changes. The new information technology scientists from different continents working in a single academic space, as if in a laboratory. Previously served as science, technology, today science is progress. Global research costs amount to 1.2 trillion dollars, while the development of information technologies is spent 3.5 trillion. Therefore the actual rating is the quality of research, which is to determine the ways of further development of science and its contribution to the development of technology and make appropriate investments.

Formulation of the problem. The science is part of culture. Therefore, the direct method of assessing the quality of scientific results does not exist

assesses adverse mediated through various scientometric indicators.

There is an optimal system and quality evaluation research. Creating a universal international models, from our point of view is difficult because countries have different ways and at different levels of scientific development. In the US and developed European countries serves as the criterion of the number of winners of prestigious awards (Nobel, Abel, Fildsovska ...) and articles published in the journals Nature, Science, New Scientist and others. Many countries, for which such achievements currently issued impossible (China, Poland, Russia, Ukraine, CIS, etc.), develop their methods for assessing the quality of research that takes into account national specifics of science and its condition. It seems possible to create a common approach on which group of states with close academic atmosphere could be developed only effective method of evaluating the quality of research. Quality assessment of research represents the public interest, because the main source of funding is the state of science. Its main (state) purpose - to ensure effective economic development, and it is directly related to the development of science, which, therefore, is a tool of development. All developed countries (USA, Canada, Japan, Germany, Britain, France) have a high level of science. Economic growth, which we see in the Asian region (eg China, South Korea, Malaysia, Singapore) partly due to the growth of investment in research in these countries, particularly from the large private campaigns (Samsung, Sony, Phillips and other).

In 2012, President Barack Obama, speaking to members of the National Academy of Sciences and National Academy of Engineering USA, stressed that one factor out of the global crisis is the development of science and technology and increased annual spending on science quadrupled (400 billion dollars) . Annual spending on science European Union 270 billion, Japan and China - 140 billion. US per year per scientist spent about 260 thousand dollars and a world record. In developed countries, the figure is 150-180 thousand in - 15 thousand, in Azerbaijan - 10 thousand in Ukraine - 7000. For economic development an important growth funds vkladuyutsya science, and no evaluation of the effectiveness of research is difficult to plan such investments

Analysis of recent research. Former Union spending on science 5% of GDP, it was among the world leaders on this indicator. In 60-70 years of the twentieth century, only the Suggestion of Moscow State University named after MV Lomonosov was over 30 eminent mathematicians - in the history of world science difficult to find a scientific unit which would work simultaneously so many scientists, the names of which were related full-scale research areas. This is made possible by providing sufficient material scientists and effective public policy in the field of science. There was a strong system of basic and applied research, working 1.5 million scientific researchers - about one quarter of

all scientists in the world. In recent years, in all countries there is a reduction in the number of scientists outside the US and China, where the figure is increasing (currently reached 1.5 million). The development of science and technology can be explained by the rapid growth of China's GDP (of over 8 trillion dollars), which, ahead of Japan, was second after the United States economy in the world (excluding EU, GDP there - 16 trillion). Effective investment in science depends on the quality of research. For their evaluation produced by important scientific production (articles, patents) and global reviews (scientific references) to these results. So keen interest represents the effective range of scientometric parameters such as: 1. The presence of internationally recognized scientific production (articles published in journals with high impact factor and patents taken at the international level); 2. display of scientific results in the world of science and their impact on the various sectors (link in leading publications, citation index, Hirsch index, etc.); 3. international cooperation.

If the first two factors virtually displayed online and magazine JCR (Journal of Sitation Report), then the last factor worth looking in more detail.

All outstanding scientific discoveries of recent years (decoding of the human genome, the discovery of graphene, Higgs boson, the revolution in J. Physiology. Shostak et al.) Made possible by the joint efforts of scientists from different countries and continents, as modern science - the notion of a collective. Therefore, great importance is international cooperation, which manifests itself in joint scientific articles and grants with leading scientific centers. Another important characteristic not only of international cooperation, but also international recognition is an invitation to scientists at leading research centers for joint research and lecturing. These factors also reflect the effectiveness of research and the process of evaluation should periodically improved.

It is difficult to compare the field of science such as biology and mathematics, as journal impact factor in the field of biology reached 60, while in mathematics as they do not exceed 5 Therefore, one approach might account impact factor journals according to the research.

The question of assessing the quality of research are the focus of the National Academy of Sciences of Azerbaijan (ANAS) and repeatedly discussed at meetings of the Presidium of ANAS. The information technology research quality assessment, based were placed above mentioned factors. The goal of this technology - to identify priority areas of science and efficient allocation of public funds, the reduction or creation of new research units depending on the results of their functioning more. Currently, the funds allocated for scientific research, is 0.2% of GDP in Azerbaijan. The aim is to increase these funds. Without

assessing the quality of research to prepare appropriate recommendations to the government almost impossible. The developed approach includes five factors:

1. Factor, which characterizes scientific production departments. Number of articles published in scientific journals with impact factor, and international patents, NDI trained staff for the last 5 years as per researcher. For all the magazines entered the weight, reflecting a journal impact factor and number of similar magazines. Encouraged divisions that publish articles in various journals with high impact factors, because it means a wider recognition of the results. Proposed formula for these calculations.

2. The factor that reflects the significance of the results. Average number of citations per scientific researcher. Some CIS can add references made in journals that have impact factors, but respected the CIS. For example, "Messengers" leading universities of Ukraine, NASU, branch academies government. In Russia, this is some scientific journals series "Izvestia RAS". It is necessary to exclude from this factor samoposylannya and samotsitirovanie and give preference to those units, which are referenced in the leading journals and publications.

3. Factor confirming international recognition and interest in the work of researchers. Invitation scientists in the leading international centers for collaborative research and lecturing. This shows the importance of ongoing research, as well as their international recognition.

4. Factor international cooperation. Number of joint papers and grants with well-known research centers.

5. Factor that reflects the efficiency of research. The ratio of the above publications to the total number of articles and patents, published research unit.

The introduction of this factor (rate) will stop the shaft of articles that are published in obscure journals and insignificant. It's a shame that the CIS are journals in which the corresponding fee can publish an article and published in such magazines in several countries continue to be considered when assigning degree. What can I say, when in Ukraine such "scientific" publications and more than a thousand the exact number nobody knows. This variety of "messengers," "collections", "Journals", "research note", commemorative editions, etc.. At the same time, with thousands of real deposited in international databases Scopus only 35 magazines of different directions. The global scientific community can get acquainted with the works of Ukrainian scientists only after publication in these journals.

An important factor is also Hirsch index for individual researchers and for research units. Although this figure is much debate and

discussion, nevertheless it is also necessary to reflect among these factors, but only through the database Thomson Reuters, for the Hirsch index, obtained through Google Scholars, is too inflated and do not reflect the true situation. We would say so that the search engine Google Scholars too carefully "vyshkribaye" all available publications, including publications in insignificant because Hirsch index is not really overvalued, and slightly impaired. This is how easy and popular Australian search program «Pablish or Perish» (Publikuysya or die). This program "sees" (including) and publication in vsesvitnovyznanyh databases Scopus and Web of Science, it is only important to enter the correct name and last name in terms of transliteration. Providing these conditions some factors weighted values depending on the country. In Azerbaijan, these factors are distributed as follows. First - 35%, second - 25%, the third - 20%, fourth and fifth - 10%. The unit, which has a maximum of some factor receives the maximum score. The remaining units are points in relation to the maximum. This weight distribution for Azerbaijan due to the fact that the publication of articles in journals with impact factor and links are currently relevant to the country, although with time preference can be given to international cooperation and international recognition of ongoing research. This fully applies to Ukraine. Developed in Ukraine NUBiP method of assessment (ranking) of structural units of external criteria (indicators) take full account of the nuances and listed priorities.

Among these factors is missing a number of prestigious awards winners, as is customary in the world rankings. For example, the Shanghai model rating THE (Times Higher Education-QS 2014-2015) and others. Note that this approach was developed for the National Academy of Sciences of Azerbaijan, where no such winners, although in this factor be taken into account. On the other hand, the person worthy of such awards tend to award published many articles in leading journals and their works are numerous links. In addition to receiving prestigious awards and medals are often invited to various leading international research centers that indirectly included in the above five parameters. The reader may wonder why when considering issues scientometrics author refers to Azerbaijan? And because it is in this country the status of a science comparable to Ukraine because of the former Soviet republics are those that get leadership is now slightly ahead - is the Baltic States, Belarus, Russia.

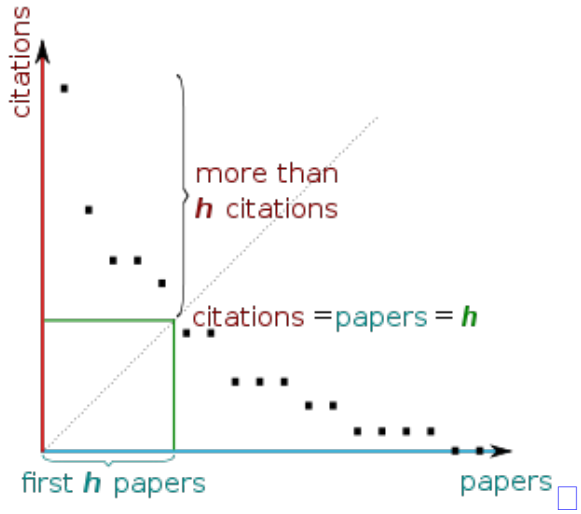
In Nanaimo developed and implemented information technology and personal evaluation of research, which includes about 30 options, which included the awarding of prestigious awards, plenary reports at world forums, conferences, publishing books in leading scientific journals, training and other parameters. Similar methods of evaluating

the quality of scientific work developed in NUBiP Ukraine. Before the Ukrainian scientific community has a task to increase in the next 2-3 years, the fate of Ukrainian publications of researchers in the total number of publications in international scientific journals indexed in the database "Web of Science" and "Scopus" to 2.44% from 1.77% in 2015; 8 priority directions of development of Ukrainian science, including life sciences and the list of critical technologies, which includes 27 points, including genomic, proteomic and posthenomni technology, cell technology, nano-, bio-, information technology, bioengineering, etc., Which match international trends and their main strategic goal - Ukraine's accession to the international scientific community and scientific research internationally level.

Despite the fact that in terms of domestic expenditures on research and development per 1 researcher Ukraine lags far behind developed countries (in 2010 these costs amounted to 16.8 thousand in our country. US dollars, at the same time as in the present figure was 59.7 thousand. dollars, in Switzerland - 394.7 thousand. dollars in the US - 264.2 thousand. dollars, in Germany - 254.9 thousand. dollars, Austria - 244,9 thousand . USD), Ukrainian scientists should focus on international criteria, which besides a convenient system of calculation and indexing of publications (http://www.isiknoledge.com,http: //www.scopus. com, http://elibrary.ru/).

It should be noted that criteria such as the number of publications in rating magazines, the total number of citations, journal impact factor, the maximum quotation of a work and index Hirsch relating to the evaluation of basic research in science (biology, physics, fundamental mathematics, chemistry, etc.). For applied research and studies conducted in closed areas should use their own criteria in this article do not rozhlyaduyutsya. More correctly, in our view, would be to use criteria and an evaluation of the specific research, which can be grouped into 2 groups: fundamental, on the one hand, and applied and innovative - on the other. Thus there are always difficulties with the formation of these groups, even though they are clearly defined: fundamental research - a generation of scientific knowledge, applied research - to create preconditions or own the newest products. Thus, the key benchmarks of basic research include: the total number of publications; the total number of citations; journal impact factor; maximum quotation of a work; Hirsch index. The criteria given in all three databases [WoS, Scopus, Russian index of scientific citation (the RINTS)], that is, all of the estimates have been made and no additional criteria to create not necessary, because they will not be anything to guard for the international scientific community and only vykryvlyat objective picture.

Results. In Ukraine traditionally academic performance was evaluated by the number of articles. This "gross" figure to date savor some "outstanding" Ukrainian scientists: Believe us, has 200, 300 ... 700 Post! But the article - is the quintessence completed many years of scientific research laboratory, department, creative team or individual researcher. Moreover, the results of testing or implementation. Or, as they say, the fruit of many years of reflection, deeper analysis and more. We also have scientists, for whom writing grew into a hobby, published everywhere, indiscriminately, on any topic, a sort of fun "but longer tolknut Lee mnye ocherednuyu statyeyku." I know scientists who produce this delicate really complex product like a horn of plenty - every week (!) Published in any publication. In such prolific journalist with the popular media. And that these "work" little known in Ukraine and completely unknown abroad, that they sent no one and no quotes or in Ukraine or abroad - this is modestly silent. So write, actually, for themselves. The benefits of such "activity" highly questionable. Rather a pity, because divert time and resources. Therefore to assess the quality of scientific publications use has long been accepted in the world index (Index) quoting. Finally, in 2005 the American physicist Jorge Hirsch index invented his own name: h-index. The index is calculated based on the distribution of citations of the work of the researcher. For example, researchers are 1 article 9 citations, 1 Article 8 of the citation, article 1 of 7 citations ... 1 citing Article 1 of each of them, his h-index is 5 (for 5 of its articles cited at least 5 times). Usually the distribution of publications depending on the number of citations *q* a very rough approximation corresponds hyperbole: N (q) ≈ const × q-1. Coordinates of the point of intersection of this curve with straight N (q) = q will be equal to the Hirsch index (Fig. 1). A fault is described in the journal "Offer» №1 for 2011.



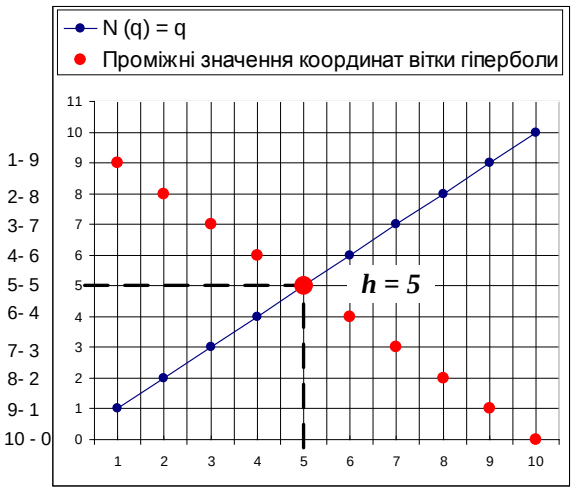


Fig. 1. The value of h-index based on the number of publications and their citation.

Figure shows a decrease with increasing quoting the serial number of publication. Hirsch draws index that provides a stable of scientists - the so-called enduring performers, - which give a lot of good (interesting and necessary, and thus bahatotsytovanyh!) Work. In our view, it is a good addition to the integral parameters such full citation.

Everyone is clear that academic performance can not be reduced to a single number. But a good set of options already can produce (at least on average) quite adequate picture. Professional expertise is never replace, but it is not always available. Therefore, efforts to develop new and upgrade existing index is sufficiently understood and demand. There are many versions of Hirsch index. Different versions tend to consider self-citation, share reviews and original articles, take into account the factor of time, give greater weight to high articles quoting others. Weed out so-called "mass graves" - many printed materials local conferences, scientific collections, news, information and even some institute and university messengers whose role in scientific communication too small, they buried and perezahoronyuyut Article graduate, thesis, doctoral and search engines. Incidentally, an interesting observation: just log is VAKivskym as soon loses its scientific face. Imagine in Ukraine over 1500 (!) Such publications, although no exact figures are not known. Most of them are not "digitized" no addresses on the Internet and not refereed to known databases of copies 50-150 copies, not everyone is able to get posters least one instance. Many scientific collections severely affected Ukrainian science, says the professor, corresponding member of National Academy of Sciences Anatoly Bilous. In his view, these collections and heralds distract scientists from writing articles in internationally refereed scientific journals, where their achievements would be more useful to the world of science. "Divorced lot VAKivskyh collections. I believe that those people who had by HAC and approved these collections caused extremely great damage to science - said Anatoly Bilous. This is actually samovydannya that no one controls not reviewed that nobody needs, nobody in the world who can not read. " According to the professor, objective measure of success is not the number of scientific publications in Ukrainian collections, and his h-index, which is calculated based on the number of links in the works of other scholars who have published in international refereed journals.

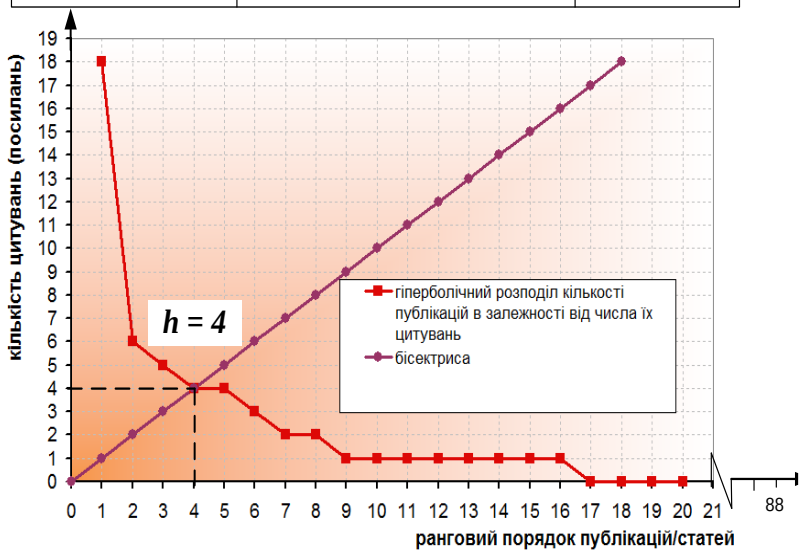
As was notedAfter Hirsch famous article, which was introduced h-index, a host attempts to modify this parameter or enter your own. Recall that the h-index shows the number of articles quoting more h (ie index is 12, shows that there are 12 scientific articles quoting above 12). Index

Hirsch obviously eliminates the presence of a scientist several supertsytovanyh articles (for example, if the scientist wrote superrobotu of quoting 10,000 and then did the Middle neat work, each of which received a citation 10, the index Hirsch 12 he never will reach, at least for superrobotu it can NOBEL PRIZE already handed). Actually, Hirsch index for this and not intended. It displays performance. You can use it along with the traditional full citation, and then all will be well (once only important to consider the dynamics of a set of indexes). In 2006, a Belgian doctor of mathematics Leo C.J. Egghe proposed g-code a number that tries to describe and h-index, and the contribution of a small number superstatey. This index shows the number of items that allow you to gain citation g2. If there is a scientist who has an article quoting of 10,000, and 99 articles from zero, the index equal to 100 g, that will be very high. It is also possible to type, for example, with 100 articles, each with a citation 100. If the distribution of articles by citation smooth enough, the two indices (h and g) will be very close to each other (for example, according to NASA ADS E. Dr. M. Birch h = 11, g = 15, with the full citation and over 300 most cited work with the result of 32, all based samotsytovanosti). Definitely that affects the accounting samotsitirovanie index g. The impact is stronger than hirshevskyy index (which is understandable, because in case of h-index samotsitirovanie affects only near the critical value, and for the g-index influence is important, "all the way" because the integral index). *Leo C.J. Egghe* believes that this shows the superiority of g-index.

Визначення індексу Хірша на прикладі професора В. Сидоренка (Національний університет біоресурсів і природокористування України), який опублікував 88* статей із загальною кількістю цитувань 52 (за даними БД Scopus), h-індекс = 4

Зробимо табличку

К-ть публікацій	К-ть цитувань у Scopus	*h*-індекс
88	52	4



* Articles 17 ... 88 links / citations absent

Arrange ranked at number

Serial number Article	number of citations
1	18
2	6
3	4
4	4 h-index
5	3
6	2
7	2
8	1
9	1
10	1
11	1
□2	1
13	1
14	1
15	1

16	1
17	0
18	0
...	0 ...
88	Σ 52

Fig. 2. The geometrical interpretation h-index.

This is true, but only after "clearing" samotsitirovanie. We think that the statement is true and that the h-index nevychyschenyy better nevychyschenoho g-index. We performed a detailed anatomical analysis and reviewed the physical nature of some instruments scientometrics - namely its indexes. It is most Hirsch index "got" during the discussion. However, we see that the various attempts to improve his or replace other criteria also an off convincingly, but rather not convincing.

So how, after all, in the field to determine the steepness scientist forehead? Take, for example, the famous American scientist and biochemist Titia de Lange, who studies telomeres mammals. If all of its 148 sort articles by their citation, starting with the best, we can construct a histogram (Fig. 3).

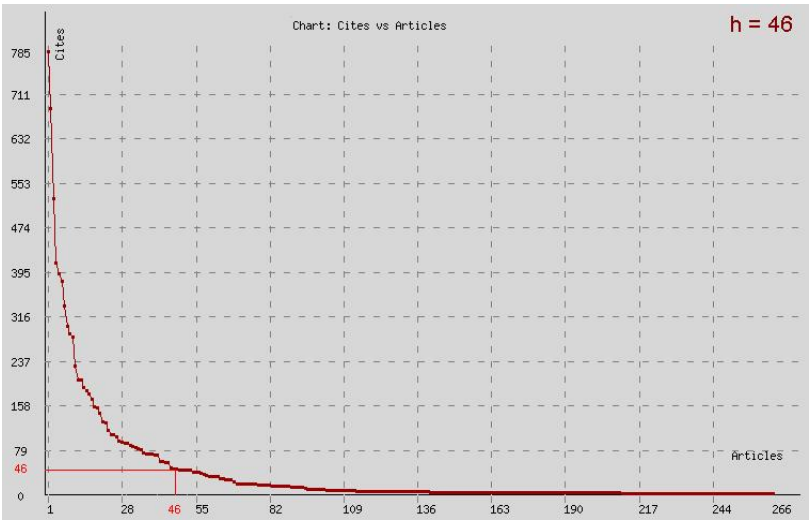


Fig. 3. The article №46 cited 46 times - this is the h-index de Lang.

The main advantage of Hirsch index as a research tool evaluation sciences, unlike the mythical personal citation index and other very bulky "improvements" - simple calculation. You can get into the search engine Google Scholar, a search bar to kill the author's name and get a list of his articles with tags: how many times and where each article is cited. But manually calculate the h-index is not necessary. We showed it in this article at the request of many contributors to demonstrate, explain the physical nature of this unique indicator of science, Hirsch index. It was

important to understand that a number of cited papers ranked in determining the h-index is not chronological, it follows the numbering descending number of citations each subsequent article. If Professor VK Sydorenko 7 article (by chronology) would not cited 2 times, and 19, then it will be ranked number №1 (Fig. 2). In other words, you must know the statistics for each article. Scientists from the University of Thessaloniki in Greece, created an interesting search engine QuadSearch, which he climbs to the base is in a net scientific literature, the second calculates the h-indexand less popular index Eґґe Mr. Leo (g-index)Builds charts and list the number of articles of the author and links to them. QuadSearch (KvadroPoshuk) - is quite suitable for the preparation of ratings and has an undeniable plus - free.

However, it should be noted that this search program calculates mostly work contained in *Google Scholar* (And this is the problem of authors who need to know and understand where their chosen database deposited Journal). As noted above, the world is generally 2 database (DB) American private corporation Thomson Reuters Corporation has a powerful database Web of Science, abbreviated WoS. Dutch Elsevier Publishing Corporation is the world's largest bibliographic and abstract database SCOPUS, which is a tool for tracking citation of articles. Search SCOPUS device integrated with search engine*Scirus* search the web and patent database.

It is according to these two databases is the most authoritative and reliable counting of journal impact factor and citation index. To understand that magazines are present in these bases that system of calculation, what criteria is selected, it is necessary, in addition to English, to have access to this database. He can only provided subscription by website-Interface, and it costs tens of thousands of dollars. That's a giant corporation reimburse their contributions to these projects. So it turns out that the scientist published regularly in some special journal, but is a "blind" zone, because this magazine is not refereed to the specified database. Russia has progressed in this direction and created their own system to determine citation index-Russian scientific citation index (RINTS). This system is far from being comparable in scope with Thomson Reuters Corporation, but dynamic.

Conclusions

1. Ukraine confidently takes the first place in the world for density skilled scientific and technical potential, far ahead of Japan, Israel, Russia and the United States. At the same time the level of productivity of the national economy, Ukraine is only 82 nd in the world, playing in Japan, 10.8 times; Israel - 7.8; Russia - 1.9; US - in 13.2 times. This striking gap between available resources one of the major factors of economic growth and levels of national productivity is

typical for all post-socialist countries. Thus, under the indexes that compare these countries take place: Russia - 4 and 59; Bulgaria - 5 and 61; Belarus - 10 and 52; Estonia - 11 and 50; Slovenia - 13 and 26; Slovakia - 22 and 36; Romania - 28 and 58; Poland - 35 and 46; Hungary - 33 and 39.

2. Ukrainian scientific-technical sphere formed a vicious circle situation: a great resource can not be adequately financed, which in turn causes lower its economic efficiency, which then causes a lack of funds for financing. In these circumstances, the government selected a strange tactic financial policies to support scientific and technical sphere - selective and irregular funding only for wages, even in amounts that do not provide the basic needs of researchers. It is clear that this practice creates the illusion of science funding, and really serves as unemployment benefits.

3. Today, over 90% of the products produced in Ukraine, has a modern scientific and technical support, which affects the competitiveness and profitability of most domestic goods. The financial situation of most productions do not allow them to introduce new technologies to retain highly skilled professionals. According to expert estimates by underutilization of modern science and technology in production Ukraine annually loses 10 billion. US dollars. Experience technoparks, small scientific companies implementing other innovative companies indicates significant opportunities for new innovation structures in solving problems of implementation.

4. Thus, the quantitative research in measuring the effectiveness of research possible and necessary, but it is deeply complex professional matter. Here you need to hurry up with their practical implementation, particularly ours, where so far there is no proper system of powerful electronic resources, which would ensure the formation of a national research database. That's why scientometrics on time, it needs the full support at all levels is impossible without integration into the global intellectual space.

List of references

1. Shostak A. scientometrics bibliometric and the National University of Life and Environmental Sciences of Ukraine / A. Shostak // BUSINESS PANORAMA (Business view). International Journal of Chamber of Commerce: centralized sent to the regional chambers of Ukraine, embassies, consulates and representative offices of foreign states. - K., 2011. - №1 (70). - C. 40-42. http: // www. kiev-chamber.org.ua/vyd2-ua.

2. Shostak AV rating evaluation as part of the system of monitoring the quality of education in the university / AV Shostak // Modern Education. All-Ukrainian monthly magazine. - K., 2010. - №7 (70). http://s-osvita.com.ua/content/view/522/116.

3. Shostak A. How to calculate the quality of education / AV Shostak // Modern Education. All-Ukrainian monthly magazine. - K., 2010. - №9 (71).http://s-osvita.com.ua / content / view / 551/116.
4. Shostak A. Research University: how to improve the index Hirsch / AV Shostak // Modern Education. All-Ukrainian monthly magazine. - K., 2010 - №12 (74).http://s-osvita.com.ua/content/view/610/116.
5. Shostak A. Hirsch index and the authority of the scientist / AV Shostak // "EDUCATION": Ukrainian weekly Ministry of Education and Science of Ukraine. - K., 2010. - №50 (5433).www.tyzhnevyk-osvita.net.
6. A. B. Shostak intellectual information system evaluating the effectiveness of scientific publications in the Research University / AV Shostak // Inf. monthly "Proposal". - Eng. magazine on agribusiness. - K., 2011. - №1. - Addition to the magazine "Ahrokompas." - C. 6-8.http://www.propozitsiya.com /? page = 148 & number = 117 .
7. Shostak AV rating as a strong motivational component // Management Science and Innovation in Ukraine NUBiP / AV Shostak // Collection of completed research and innovation. - K., 2010. № 1 (7). C. 74.http://nubip.edu.ua/sites/ default / files / u39 / vch_nau_2010.pdf.
8. Shostak AV rating How neotъemlemaya sostavlyayuschaya evropeyskyh standartov quality education / AV // Science and Shostak our time. - 2010: collections of articles and V-Mezhdunarodnoy scientific conference: in 3 parts. Part 1 / Pod Society. Ed. SS Chernoff. - Novosibirsk: Publishing House of NSTU, 2010. - 435 p. - ISBN №978-5-7782-1488-0.http://www.zrns.ru.
9 Shostak A. How to evaluate the quality of education in the University Research / *A. Shostak* // Scientific Bulletin of National University of Life and Environmental Sciences of Ukraine. - K., 2010. - Vol. 155, p. 2.http://www.nbuv.gov.ua/ portal / chem_biol / nvnau / index.html.
10. Shostak A. Using bibliometric indicators for the evaluation of research in the Research University / AV Shostak // Scientific Bulletin of National University of Life and Environmental Sciences of Ukraine. - K., 2010. - Vol. 155, p. 3.http://www.nbuv.gov.ua/portal/chem_biol/nvnau/ index.html.

Article Containing ubedytelnыe arguments Need of quality measurement of the effectiveness and the Scientific research. Rassmotrenы Opportunity scientometrics, uh ynstrumentaryy. In modern terms globalization эkonomycheskoy razvytыe life of the country, where the role of science vыpolnyaet hlavnoho economic and vosproyzvodstvennoho factor obespechyvayut own way at the expense of Development Improvement of existing technologies, Technics and pryntsypyalno novyh Using the Scientific dostyzhenyy. The International tehnolohycheskyy nauchnыy exchange and transfer yntellektualnoho BUILDING - one of the pryznakov nasheho time. Understandable, something Ukraine will be flourishing state togda Only, when ÎÍÀ smozhet integrated and mastered in эffektyvno svoyh Interest territory and resources, kotorыmy obladaet. But Set This is impossible without tesnoho the Economic and tehnolohycheskoho cooperation with razvytыmy countries. Therefore stratehycheskoy a view to Ukraine

dolzhna byt ee vhozhdenye in The International scientific-technical flows, kotoryya permit modernyzyrovat Patriotic Production, obespechyt major industry competitiveness industry.

Scientometrics, The International bazы data, otsenki quality education, Khirsha index, ympakt factor, nauchnыe Studies, Integration, ynformatsyonnoe space.

This paper contains convincing arguments about the need to measure quality and efficiency of research. The possibilities scientometrics and its tools. In the current context of globalization of economic life developed countries where science serves as the main factor of economic reproduction, pursue their development through the improvement of existing technologies, techniques and use of innovative scientific achievements. International technological and scientific exchange, transfer of intellectual potential - one of the signs of our time. It is clear that Ukraine will become prosperous only when it can comprehensively and efficiently learn to take advantage of the territory and resources owned. But this is not possible without close economic and technological cooperation with developed countries. Therefore, the strategic goal for Ukraine to be its entry into the international scientific streams that will modernize domestic production, to ensure the competitiveness of basic industries.

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Conceptual framework MECHANICS STUDY OF INTERACTION BETWEEN WORKING elastic suspension from soil

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A concept study of mechanics and mechanisms of interaction of working on an elastic suspension of the ground.

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Formulation of the problem. It is known [1] that one way to improve the quality of tillage implements and reducing the energy