

TIES 2020**International conference «Trends and innovations in economic studies»****MODERN PROBLEMS OF IDENTIFICATION OF AUTHORS OF
SCIENTIFIC ACHIEVEMENTS**

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Abstract

The article is devoted to modern problems of identification of authors of scientific achievements. The article considers the history of the issue, identifies the most pressing legal problems, among which the problem of establishing authorship, including protection against misappropriation or falsification; the problem of identifying authors of the results of collective scientific achievement; identifier matching problem. The author of the study analyzes the solutions to these problems offered by science and practice, in particular – legal opportunities provided by copyright and patent law, means of fixing and proving scientific authorship. The author concludes that today the task of identifying the subjects of scientific achievements cannot be fully performed by traditional means. We propose a new approach to the solution of the problem, which is based on combining the positive experience of the Soviet period, when the results of scientific activity were distinguished into a separate group of intellectual property subject to special rules and network solutions (such as ORCID and DOI – identification systems, respectively, of scientific authors achievements and digital objects).

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1. Introduction

In ancient times, the problem of identifying authors of scientific achievements was not acute: in the ancient world, science was the occupation of a few. Therefore, the traditional means that have developed in society for thousands of years have perfectly coped with the tasks of identification. In general, it should be noted that the higher the degree of organization of a given community and the wider this community, the greater the requirements for the identifiers of its participants – therefore, we can talk about the evolutionary complication of identification systems, including in science (Lisachenko, 2019). In the primitive tribe, everyone knew the fire opener (or metal melting – it doesn't matter), simply because the tribe was small. In a tribal village, an ancient polis or a typical medieval city, since these are compact formations, a serious scientist was usually in the spotlight. Aristotle and Archimedes, Abu ibn Sina and Confucius are celebrities recognized during their lifetime. To challenge the belonging of their scientific achievements to them at that time is practically unthinkable, even if there is no real competition.

The situation has changed dramatically in the New Time. The growth of cities, the growth of the population and its mobility, the development of science and the involvement of more and more people in science, the emergence of universities as research centers, scientific schools, an increase in the information flow and the emergence of a certain information openness (in particular, scientific publications) – all this became a breeding ground for the emergence of a fairly wide range of scientists, and for the emergence of controversial, and even conflict, situations. We can see that already in 17 century there were fierce debate about the priority of publications and scientific discoveries – for example, a textbook clarification of the relationship between Newton and Leibniz about the authorship of differential and integral calculus, the uncertainty remaining to this day, whether Newton formulated the law of gravity or Robert Hook, and so on further. Obviously, it was precisely in the 17 century that there was a quantum leap, when mankind moved from the accumulation of knowledge to its active analysis and understanding. In the following centuries the situation was worse. We can designate the textbook disputes of Faraday and Jacobi, Bell and Gray, Marconi and Popov (Alekseeva, Vorozhevich, & Grin, 2019). Against the background of constant debate about authorship and priority, the rather correct behavior of Charles Darwin towards Alfred Wallace, who at the same time created a very similar evolutionary theory, looks more like a happy exception (Junker & Hossfeld, 2007).

Today, the problem of identifying authors of scientific achievements is more acute than ever, and not only in the technical sphere. The authorship of legal concepts is also disputed, for example, the dispute about the formulation of the problem of economic power in Russian labor law (Shukaeva, 2015).

2. Problem Statement

We can determine the identification problems posed by modern society in relation to scientific achievements, thus:

- 1) the problem of establishing authorship, including protection against misappropriation or falsification;
- 2) the problem of identifying authors of the results of collective scientific achievement;
- 3) the problem of identifier matching.

3. Research Questions

The author sets up the following objectives for the research:

- identify new problems in the field of identification of subjects of scientific activity, generated by the development of society, science and technology;
- establish whether it is possible to use the experience of related fields of activity, primarily copyright and patent law, to solve the identified problems;
- determine which of the previously developed legal means can be used to create and operate a system for identifying authors of scientific achievements;
- determine which of the new legal and technical means can be used to create and operate a system for identifying authors of scientific achievements.

4. Purpose of the Study

The main purpose of the research is to study the problems of identifying authors of scientific achievements in the complex and in the dynamics to develop the optimal way to solve these problems at the current level of development of science and technology.

5. Research Methods

The methods used in this research are universal scientific research methods: generalization, abstraction, formalization, analysis, synthesis, as well as specific legal research methods: technical, comparative-historical, contrastive-comparative, etc.

6. Findings

6.1. New time – new problems

All kinds of scientific and pseudo-scientific falsifications do not surprise anyone in a situation when the so-called “identity theft” becomes one of the most common crimes (Normile, 2009). There are often cases in the information society when the declared “scientific sensation” is just the fruit of a PR campaign (Madison, & Madison, 2018). The situation will worsen in the future. Given the gradual withdrawal of paper from everyday life and the ever-increasing information dependence on global information services and search engines, it will be soon enough to make small adjustments to such a system to be in the eyes of the whole world (in any case, the absolute majority, relying on information from the Internet, and not from the library) the "author" of discoveries, if not Einstein, then at least Frederic Senger.

Identity theft and attribution, however, are not the only problems. A modern scientist, as a rule, works as part of a group, school, department, and so on. For example, Frederick Senger's assistants (Rodney R. Porter and Elizabeth H. Blackburn) themselves received the Nobel Prize in different years. Most notably, in both of these cases, the prize was divided between two and even three scientists (The Nobel Prize in Physiology or Medicine, 1972, 2009) – as a visible confirmation of the sunset of the era of loners in science. Individual authorship in relation to scientific results turns into a rare exception. Finally,

no matter how small the probability of a mere coincidence, it still exists in our increasingly crowded world. As it is shown by specially conducted studies, namesakes are increasingly found in scientific circles, and in some industries and regions their concentration is quite high and gradually grows (partly the reason for this is nepotism, partly migration processes). So, an increasing percentage of American mathematicians and chemists bears the name Zhang, and doctors and sociologists – Smith (Grilli & Allesina, 2017). In conditions where a person's identifier is a non-unique combination of characters (name, surname), the risk that the discovery of one John Smith in certain circumstances will be attributed to another John Smith exists and gradually increases with the growth in the number of Smith scientists.

In addition it is necessary to take into account the “translation difficulties” that arise, for example, during transliteration of names (especially in cases with hieroglyphic spelling) and the tradition of changing the name of many nations under certain circumstances (for example, changing the name at marriage).

6.2. Ineffectiveness of existing copyright and patent remedies

In the law of many states, including Russia, scientific achievements can be protected as objects of industrial property if they meet the relevant requirements and criteria of patentability (protection by means of patent law), or a text containing a statement of these achievements (protection by means of copyright) can be protected. But is this enough to ensure the identification of authors and other copyright holders? We think no, not enough.

In copyright, if we use the model established by the Berne Convention for the protection of literary and artistic works of 09.09.1886 (according to which the use of the rights to works and their implementation are not related to the performance of any formalities), the identification in each case, it is made dependent on the totality of the identifying (in the case of a dispute, a court) heterogeneous data indicating the priority of a person. Mentioning in correspondence, depositing manuscripts, expert examination, etc. – since the 19th century, the arsenal of means of fixing and proving authorship has not changed too much. Is it that replacing sending a letter to oneself or to the president of the Academy of Sciences has come from the placement of texts on specialized sites or their sending by e-mail?

In patent law, the choice of means of fixing and proof of authorship is less, but the identification of the author through a patent application (and, oddly enough, to a lesser extent through a patent) looks much more reliable. So, in Russia, by Order of the Ministry of Economic Development of May 25, 2016 No. 316, the requirements for the content of the patent application and the form of the patent for the invention were approved: among the mandatory fields in the patent application is the column “Applicant Identifiers”, which are by no means a surname, a name and patronymic (identifiers are extremely unreliable due to their nonuniqueness), and unique combinations of numbers (PSRN, KPP, TIN, SNILS) and the data of the applicant's identity document (also containing unique digital combinations). The patent itself, by the way, is still archaic in its form: it still identifies the author in it as a combination of last name, first name, middle name (last – if any) and code (codes) of the country (countries) of his (their) place of residence. In conditions when the inventor John Smith or Ivan Ivanov may not be the only person with that name in the USA or in Russia, such an identifier is nothing more than a decoration, and the true

identifier in the patent is the registration number of the application for the invention indicated immediately (in which the author is already identified accurately).

Thus, if we discard the possibility of attribution of authorship by another person until the time the true author submits the patent application, the patent law has a fairly effective (compared to copyright) identification mechanism. However, there are pronounced "white spots" here.

In the patent law the previously mentioned problem of co-authorship is not solved. There are different opinions in the literature about where the boundary of the circle of people directly involved in the discovery goes, and sometimes this circle is very broadly outlined: "At present, substantive law does not take into account the direct relationship between the amount of creative work brought into creating the object patent rights, and the number of co-authors who could bring it" (Maximov, 2019, par. 5, p. 61). This problem is equally acute in science. It is not known how significant the creative (Murzin, 2019a) contribution of a member of the scientific team to this or that achievement must be to claim authorship of the discovery and a share of world fame. For example, in modern astronomy, the preparation of an experiment and the processing of results often take much longer than the actual observations, and more than one astronomer, but a whole team, has long been working on the telescope. If, as a result of the joint efforts of all these people, a new planet of the solar system is discovered, to whom and in what proportions will the Nobel Prize be awarded?

Finally, patent law is not a means to solve the problem of identifying authors of the results of scientific achievements, also because only some of the results of scientific activity fall under the signs of patentable objects. So, in particular, in accordance with the direct indication of paragraph 5 of Article 1350 of the Civil Code of the Russian Federation, discoveries, scientific theories and mathematical methods, rules and methods of games, intellectual or economic activities, as well as decisions consisting only in the presentation of information are excluded from the circle of these objects.

It can be stated that today the task of identifying subjects of scientific achievements cannot be fully accomplished by existing means.

6.3. Possible solutions

It is necessary to recall the rather positive experience of the Soviet period, when the results of scientific activity were allocated in a separate group of objects of intellectual rights, subject to special rules. "For a while, a feature of Soviet law was the legal protection of the discovery. Modern Russian law has refused to give special status to a scientific discovery" (Murzin, 2019b, par. 4). Some of the results of scientific activity were also protected by Soviet norms on rationalization proposals (Novikova, 2019), which was only partially offset by modern provisions of the legislation on "know-how" (Lushnikova, 2015). In the context of the ever-growing value and significance of scientific data and the results of scientific activity, this path ceases to seem like a dead end branch of development. Moreover: today's technologies make it possible to avoid many problems that previously seemed insurmountable (cumbersome registries and the length of data entry, bureaucratic procedures during registration, risks of falsification of data in the registry, etc.), due to the advent of digital (primarily cloud) technological solutions to capture scientific achievements, including in dynamics – with the ability to consider intermediate stages and determine the creative contribution of each of the probable co-authors to the

creation of the final result. Additional guarantees of the truth of the data may be their distributed storage and the use of technology "blockchain" (or similar).

As for the technical and legal side of the issue, it seems reasonable to use precisely digital methods and means of identification. Of course, the biometric system has its advantages, however, while biometric identification tools are in the infancy, and in addition, coincidences are not excluded in the biometric parameters of different people (Torvald, 1991). In addition, biometric identification is not possible for a legal entity, even if the reality of its existence is recognized in the most anthropomorphic form – for example, according to the organic theory of Otto von Guericke. As S. N. Bratus notes, "Gierke recognized in one of his last works that there is only a certain similarity between man and the human union, and that only by analogy can the latter be called an organism" (Bratus, 1950, p. 174). The digital method makes it possible to identify a legal entity as a subject of law (Shelepina, 2017), including in relation to scientific achievements.

Particular examples of modern solutions of this kind can serve as ORCID and DOI – identification systems, respectively, of authors of scientific achievements and digital objects. The sixteen-digit ORCIDs (Structure of the ORCID Identifier, 2020) are uniquely unique and allow tracking in dynamics the scientific achievements of a scientist regardless of spelling (or even change) his name. The task stated by the creators of ORCID “to make transparent and understandable the links between a huge number of scientific projects and the people who implement them” (<https://orcid.org/about/what-is-orcid/mission>) is generated by the urgent needs of the modern scientific community and meets these needs. The same can be said about the DOI system (Digital Object Identifier) or, in the Russian version, the system of discrete object identifiers (National Standard of the Russian Federation, 2016).

7. Conclusion

In fact, today we are witnessing a kind of rebirth of the Soviet system for recording scientific achievements and their authors in special registers, however, firstly, at a new round of technological development (which, according to apt observation of Vengerov (1975), does not change the essence of the relationship, and secondly, most importantly, in the global version. It is the lack of universality, global coverage that is the main drawback of national identification systems, like DAI (Netherlands). A global open digital registry relevant to the whole world is a natural and only alternative to the outdated mechanisms for recording and protecting the rights of authors of scientific achievements.

With regard to national legislations, it seems worthwhile to heed the proposals formulated back in the middle of the 20th century and supported by some modern scholars to recognize authors' scientific achievements (including those not protected) of authorship rights to such achievements (Jonas, 1972; Salitskaya, 2015).

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