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Internet Piracy and Vulnerability of Digital Content

V.A. Oganyan[1], M.V. Vinogradova[2], D.V. Volkov[3]

Abstract:

The relevance of the study is due to the problem of consumer Internet piracy and copyright infringement when using digital content. In this regard, this article is aimed at identifying innovative solutions for creating a safety model of digital content on the Internet, which is achieved through the study of Internet piracy in terms of the user and the modern capabilities of the computer and network industry.

The general method for the study of this problem is the method of complex analysis, which allows identifing the reasons of digital content vulnerability and the level of security of its presence on the Internet.

The article also reveals the problem of digital content vulnerability associated with the advantages of Internet users. The results of the article substantiate the use of innovative technologies that make it possible to deduce the method of data storage to a new level.

The study reveals the ways to study the users` network behavior in relation to digital products as well as the use of modern technologies to ensure the protection of copyright on the Internet.

The materials of the article have a practical value for the specialists in the field of copyright and research of digital objects on the Internet.

Keywords: *Internet, Consumer Internet Piracy, User, Digital Product, Innovative Technologies.*

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[1]*Russian State Social University, Moscow, Russia, valeron210194@icloud.com*
[2]*Russian State Social University, Moscow, Russia, m9152531115@mail.ru*
[3]*Russian State Social University, Moscow, Russia, lord7799@mail.ru*

1. Introduction

With each passing year social relations on the Internet are becoming more complicated with new components and require more thorough research consearning practical implementation and more attention from the point of legislation. In addition to the emergence of new computer technologies, the need to explore is reinforced by the increase in the number of network users which expands the scope of the participants' relationships on the network and increases the risk of violations.

The Okinawa Charter on Global Information Society (2000), signed by the President of the Russian Federation July 22, 2000, regulates the provision that information and communication technologies are one of the most important factors affecting the formation of the 21st century society. The Internet becomes an essential part in the life of every person, and over the past 5-10 years, the users` network ability is hard to overestimate. The Internet has become a popular trading space where participants can act as sellers and buyers.

The relevance of the research is due to the lack of necessary categorical apparatus and a small number of works on this issue. It generates the need to study the objects on the Internet. One of the main issues in the studied private-law relationships is Internet piracy - copyright infringement, namely in the illegal use of literature, science, and art works in digital format. In the minds of citizens, the term "piracy" is a commercial copyright infringement, specifically in the creation of unlicensed copies with the subsequent possibility of their sale, and (or) transfer. However, the development of computer and network technologies has given a rise to the development of Internet piracy, and even more copyright infringements of works in the digital form - consumer Internet piracy.

Thereby, the emerging problems on the Internet require the search for solutions to improve the protection of intellectual property results in digital form, which will positively affect the state of the digital economy as a whole.

2. Literature Review

The scientific works by Gerasimova (2011), Ibragimov (2005), Ivanova (2013), and Tsvetkov (2015) make it possible to deal with the problem of Internet piracy and provide help in the use of scientific terminology in the research connected with the Internet issues. The use of digital objects on the network is disclosed by Beard *et al.* (2018) who analyse consumer behavior on the Internet including its moral aspects.

The theme of the blockhain as a safety mode and its Internet relations with digital content is revealed in the scientific works by Oganyan (2017a; 2017b; 2017c). These publications help to research the problem of intellectual property objects vulnerability and also consider the implementation issue of a number of actions in the field of protection of copyright objects in the network.

The foreign view on the use of blockhain as a technology for the safe future is considered in the articles by Dinh *et al.* (2018) and McConagny *et al.* (2017). The works help to reveal on the problem of blockchain use in the digital space without crypto. The important view of user's behavior can be found in the work by Petrazhitskiy L.I. that helps to determine the causes of consumer piracy through the definition of legal awareness

It should also be mentioned that he behavior of consumers is one of the biggest digital piracy problems and the work of Koklich *et al.* (2016a) helps to familiarise with the analysis of consumer`s and Internet users` behavior.

3. Materials and methods

The methodological framework of the research is an aggregate of general scientific and special scientific methods of scientific knowledge. For the research of regulatory instruments, the formal legal method and the method of interpreting the law were used, it seened necessary for the formulation of definitions and their working out from the point of law. Also, these methods allowed accessing the legal status of digital content and copyright protection system on the Internet in the Russian Federation.

During the research and assessment of the possibility of applying the results obtained, the analysis, induction and forecasting method alongside with synthesis were used. It helped to reveal the reasons for the vulnerability of digital content and consumer Internet piracy.

The aim of the study is to determine the causes of consumer Internet piracy and possible ways of creating a safety mode of digital products on the network. The objectives of the research is to study:

- piracy of material objects and Internet piracy;
- the definition of the concept of digital content;
- the actualization of the Internet;
- the disclosure of user behavior on the Internet;
- technological solutions of the problem through a blockchain.

The objectives helped to achieve the research aim through the sequence of methods used within the research.

4. Results and Discussion

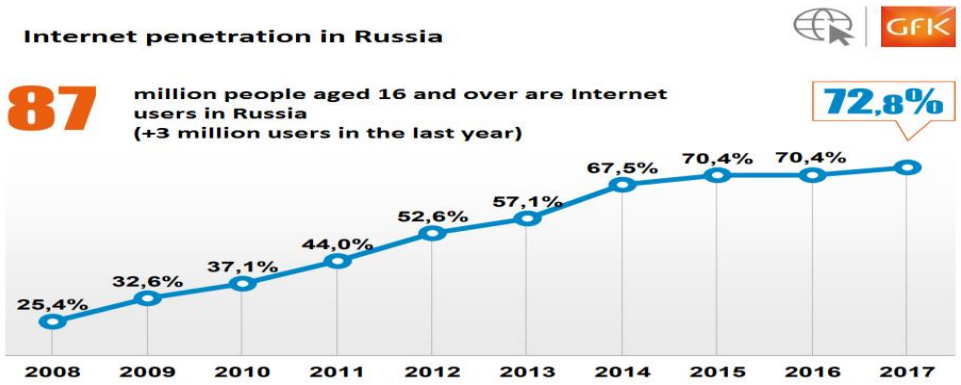
Illegal use of legally protected results of intellectual activity in the form of piracy does not have its own established regulation. The main international sources of copyright, among them: Berne Convention for the Protection of Literary and Artistic Works of 1886 (1886), Universal Copyright Convention of 1952 (1952), the WIPO

Copyright Treaty (WCT) (1996), Directive N 2001/29 / EC "On Harmonization of Certain Aspects of Copyright and Related Rights in the Information Society" (2001), do not regulate provisions of piracy. The only international legal act that mentions pirated products is the Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS Agreement) (Moscow, 15.07.2018). In keeping with Art. 51 of the TRIPS Agreement, pirated products are the following: *"any goods which are copies made without the consent of the right holder or person ..., where the making of that copy would have constituted an infringement of a copyright or a related right under the law of the country of importation".*

Thus, piracy is a violation of copyright on a work, namely the creation of copies and their subsequent distribution. It is important that this offense applies to copyright objects that are the results of intellectual activity (Tsvetkov, 2015).

The Internet network has two main features - user communication and information sharing (Ibragimov, 2005). But due to the development of the digital products market, the Internet has become a demanded trading space, allowing making purchases with the help of technical tools and almost instantly getting the purchased goods in digital form. The Internet also allows network users to act not only in the role of buyers, but also sellers. Thus, the increase in the popularity of the Internet has markedly affected the authors' attention to the realization of their creative results with their subsequent promotion on the Internet. The general trend of Internet penetration in Russia is showcased in Figure 1.

Figure 1. *GfK research: Internet penetration in Russia*



Source: *Research GfK: Internet penetration in Russia, 2018.*

The main consumer goods on the Internet are the works in digital format. These include: audiovisual works (movies, TV series), musical works with or without text, computer games, programs, software and other works that were originally created with the help of computer technologies, and which can be converted into digital form (Oganyan, 2017a). The method of using the object can be namely in the form

of downloading a file with a work to a personal computer or gadget, or using streaming multimedia Internet services (online cinemas, music libraries, etc.).

In contrast to the advantages in the new space, there are risks associated with the copyright infringement on the works in digital format. The central element in the digital piracy system is Torrent Internet site that uses P2P (peer-to-peer) and BitTorrent protocols that contain the copies of works on Torrent Trackers (Gerasimova, 2011). With this modification, the users are able to download files in the "Torrent" format which contain digital-work files, key-identifiers, etc.

The main instruments to counter Internet piracy in Russia are the Federal Law "On Information, Information Technologies and Information Protection" dated July 27, 2006 N 149-FZ (2006) and the Federal Service for Supervision in the Sphere of Communications, Information Technologies and Mass Communications (Rosokomnadzor). However, the countering is not crowned with success, since the creators of "trackers" are not limited to one domain. After blocking one website, a "mirror" of the website is created, containing the files previously available on the blocked website. But, despite the legislative consolidation of provisions on the blocking of mirrors, there are many ways to bypass the lock. Being a competent user of a personal computer and the Internet, a person can easily use web-services and browsers that work through proxy servers in order to use the blocked website and other IP-address (Beard, 2018).

As with all offenses such as Internet piracy, the subjects of relations are individuals who commit illegal activities with respect to the works, namely downloading the works protected by copyright in digital form. On the Internet, consumers of digital content are called users, from "PC Users" – users of personal computers. It should be admitted that it is the attitude of the Internet users that largely favors the distribution of the copyright objects` copies. The legislator, unable to completely block all pirate resources, allows the use of the copies of works on the Internet without the consent of the author and (or) the copyright owners. Therefore, users have a choice, thanks to it they can use both pirated digital content and purchasing it at the marketplace from official distributors or the author directly (Ivanova and Sergo, 2013).

The causes of consumer piracy are associated with the capabilities of modern technology and the widespread development of the Internet. It is not hard to get access to the Internet, its installation in the apartment will take not more than half an hour, and when connected through a mobile device even less (including public networks).

Also, when studying the phenomenon of consumer Internet piracy in the context of the Internet segment, it is necessary to note the motivation of digital content users. In addition to legislative attention to commercial piracy (torrent trackers), it seems necessary to pay close attention to the users of copyright objects on the network. This problem requires consideration from the inside, on behalf of the user who

violates copyrights by downloading a copy of work protected by copyright on the network. From the point of view of legal literature, the reason of consumer Internet piracy in the network may be a low level of legal awareness of citizens. The legal awareness is called upon to develop in the latter case a proper attitude to the work of other citizens, including the results of intellectual activity.

For a more accurate justification of the user's behavior, we can turn to the scientific theory of jurisprudence. So, to consideration is proposed the technique of neutralization by S. Sykes and H. Matza used in criminology against criminals. According to the technique, a person is able to free himself/herself from the morality he\she has instilled since childhood in order to justify his/her delinquent behavior, which can be expressed in using unlicensed copies of digital products on the Internet. The technique of neutralization can be expressed in several types of behavior within the researched problem, based on that model:

1. The user denies his/her guilt and responsibility, complains about external circumstances, which according to him/her are the catalyst for his/her actions (the ability to download files from the trackers, the fee for using the Internet). In other words, he/she seeks to justify own actions;
2. The user denies the harm caused to the author and rights` holders, and in general to the digital products` market, not seeing in own actions the activities causing damage and violating copyrights;
3 The user does not see the presence of the injured party – the author or copyright owners, indicating that one copy does not mean anything and cannot provide a loss on their part;
4. Condemnation by the user of other people who indicate the illegal activities of his/her actions, pointing out that they also use digital results of intellectual activity through the Internet;
5. The user follows any idea that allows him/her to express own position in the society by violating copyright.

Thus, the technique of neutralization is very interesting in the aspect of copyright infringement on the Internet, its theoretical stanpoints can be used to study the behavior of users on the Internet. In one of the types of personality behavior based on the technique of neutralization, there is an indication that the person refers to external circumstances. A similar question is raised in one interesting research (Koklic *et al.*, 2016), the purpose of which was a hypothetical and statistical justification of the general causality of consumer Internet piracy, identifying the factors that play a dominant role in determining the behavior of users on the Internet – objective (external) or psychological (internal).

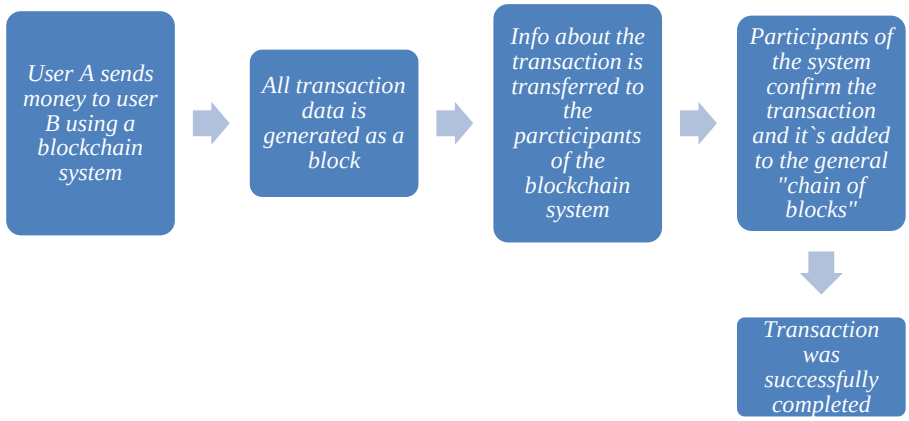
Also, the consumer use of digital copies of works directly depends on the user's personal attitude to his/her own actions, which lead to the consequences in the form of losses of authors and holders' rights as well as digital products' market. Users do

not only see illegal activities in their actions, but also do not give a report, because the consequences of their actions do not excite them.

The capability of using technologies to create a secure protection mode and circulation of digital content on the Internet in the 21st century looks ambiguous. One of the main innovations in the field of data storage with the help of computer technologies and networks in recent years is the blockchain.

The blocks can store information in themselves, and in practical application they represent the information on transactions that are being made (Oganyan, 2017b). For the first time the blockchain was used in the cryptocurrency circulation about ten years ago. However, this storage system is universal and can be used practically in any industry. No matter what operations occur, the essence of the algorithm remains invariable: linked blocks representing the conditional transaction history are coordinated by the parties of transaction, where all the actions are fixed in a single database, this information is available to all the members of the block. The principle of operating the blockchain account by the example of a simple transaction is represented at Figure 2.

Figure 2. *The principle of blockchain system operation in case of transaction*



Source: *Authors*

In the context of the problem of copyright protection, the blockchain system can provide a new level of security and possession of assets on the Internet, providing visibility of the use, transfer and ease of payment of intellectual property within a common and safe system. Through this technology the users will have the opportunity to identify the author or copyright owners using a global book with a record of rights to intellectual property. For companies that are copyright owners, the process of concluding licensing agreements and collecting author's data will be simplified and it will minimize the timing of financial processes. The authors can

confirm and protect copyrights and intellectual property rights. Moreover, the technology will allow secure storage and prompt updating of information about any objects (Dinh *et al.,* 2018; Volkov *et al.,* 2017).

This method of data storage can be crucial for the stability of the digital market and can help to simplify the process of contractual relations between the author and copyright owners, changing the attitude of consumers, forming trust relationships between the users of the block system. The main idea implemented by the blockchain is the transparency of relations, the lack of centralized control over the database, which can be used to protect copyright on the Internet (McConaghy, 2017). To illustrate the operation of the blockchain system, there are several examples. The company Ascribe uses a blockchain system to verify the copyright of artists (authors) to created works of art with the help of unique identifiers and digital certificates. The SingularDTV project with a decentralized digital content distribution system on Ethereum provides users with the ability to post their works, monetize and manage their distribution, and many other start-ups based on the blockchain system.

5. Conclusion

Modern post-industrial society marked the 21st century with a transition to the digital economy, where monetary assets and manufactured goods acquired an intangible form. Digital products are one of the central elements of the digital economy and of modern society in general. Focusing on the consumer, digital industry offers users a wide range of goods and services accessed through the Internet. Based on the results of the conducted research, it can be concluded that in the digital space there is the most dangerous social phenomenon for authors and copyright owners – Internet piracy, which absorbs all the advantages of modern technologies, creating a high level of threat to the preservation of copyright on the Internet. Legislative regulation of relations between the Internet authors and cannot fully guarantee the preservation of copyright, thereby enabling network users to use pirated resources that damage not only the authors and copyright owners, but also the market of digital products as a whole.

The imperfection of legislation and the lack of the ability of state bodies to directly influence consumer Internet piracy have an impact on the level of piracy in the Russian Federation as a whole, which requires legislative initiatives to create an effective system for ensuring copyright protection on the Internet. One of the solutions of the problem that has arisen is the use of innovative technologies that allow changing perceptions about the level of data protection on the Internet. Modern computer technologies in the sphere of copyright protection should be directed at the needs of three main groups - users, authors and copyright owners of works. One of the recent years` innovative technologies, the most optimal method of data storage is the blockchain system, the principles of which can be successfully applied to the protection of copyright on the Internet.

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