CHAPTER 11

Computer Programs as Subject of Intellectual Property

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Summary. Computer programs are a critical area of human creativity and an example of our ability to change the world through the implementation of innovative solutions. Legal protection of computer programs is a result of the long-stated debate, which resulted in making computer programs copyrightable. Software is part of technological advancement and being protected by the law itself, it is also a tool of strong interference in other copyright subject matter. Intellectual property rights, although standardized by international agreements, are still territorial and they are subject to national laws. New technologies get out of control of national legal solutions. Awareness of principles of the legal protection of computer programs is an important part of human creativity and can influence software production and development.

Keywords: Intellectual property, copyright, computer programs, EU law

1. Introduction

The term "intellectual property" is relatively new and was used for the first time in 1967 (the Convention Establishing the World Intellectual Property Organization signed at Stockholm on July 14, 1967). One of the definition in article 2 of the Convention, provides, that – for the purpose of the Convention – "intellectual property" shall include the rights relating to:
  – literary, artistic and scientific works;
  – performances of performing artists, phonograms, and broadcasts;
  – inventions in all fields of human endeavour;
  – scientific discoveries;
  – industrial designs;
  – trademarks, service marks, and commercial names and designations;
  – protection against unfair competition,
and all other rights resulting from intellectual activity in the industrial, scientific, literary or artistic fields.

The scope of the intellectual property within the meaning of the Convention is broad enough to prevent its uniform legal protection. Therefore, there are no legal definitions of intellectual property in the national laws of the states that have signed up to it. There are different methods and rules governing the protection of literary and artistic works, related rights and inventions. I look at the intellectual property from the perspective of European and Polish lawyer. Given the lack of the legal definition of intellectual property in both Polish and EU law, I would not like to give my own but would rather precise the scope of the intellectual property. Intellectual property refers to creations of the human mind. However, the results of our intellectual work can be different and include information, materials, and knowledge of every kind and different value. Obviously, not all of them are protected by law. "Property" is a legal term and in fact is a set of rights with respect to things and between and among the owner and other persons. The things are tangible and this is what makes difficult to apply jural rules referring to the property to intangible goods like creations of our mind. However, using the term "property" always suggests that we refer to facts, which are relevant to the system of law. There would not be much logic in saying "property" on something that we have no legally protected rights to. Therefore, intellectual property means the result of intellectual effort, which is protected by law. Continuing this logic of thinking, we must first realize that originally computer programs – although they were undoubtedly the result of human intellectual work – could hardly be called intellectual property. Secondly, the scope of intellectual property may vary depending on the national law we choose to discuss.

Intellectual property law is territorial in nature. It is governed by national law, despite quite obvious observation, that both works of art and literature, as well as objects of industrial property, can move easily across the borders. Contrary to real estate, which is always in a precise location, one could always read a book printed in another country without even noticing it. This became even more actual with the appearance of the Internet, which operates worldwide.

Intellectual property crosses borders in a natural way. Therefore it needs a uniform approach more than other areas of law. Thanks to international conventions it has been largely standardized, however, it still did not lose its national character. I am not against national laws as such. Legal culture is part of the culture in general and there is no need for any country to resign from its tradition, also in the legislative area. However, there is nothing more obvious than the fact that differences in national laws hinder doing business. Therefore, the approximation of laws is desirable by all accounts.

I will try to present, what led countries to apply a uniform way of protection of computer programs and answer the question, whether the way computer programs are protected allows for knowledge sharing. Also, I will try to explain why, despite using the same concept of copyright, the scope of actual protection still varies considerably from one country to another.

2. Legal protection of computer programs – tailoring rules

The need for computer programs' protection as an object of intellectual property rights was not obvious and the subject of doubt concerning its necessity until the early 1970s (Crowcroft, 2010). Initially, an important role in raising awareness of the importance of developing uniform rules of the legal protection of computer software played the World Intellectual

Property Organisation. It pursued extensive research on the protection of computer software from 1971 to 1977, which resulted in presenting the Model Provisions on the Protection of Computer Software in 1977. The Model Provisions were not broadly implemented into national laws; however, they were the basis for further researches and discussion about methods of the legal protection of computer programs. WIPO's purpose was to contribute to the dissemination and use of computer programs in developing countries as well as to protect the software industry (Miyashita, 1991).

This resulted in resigning from the idea of patent protection for software (Azar, 2014). The preface of the Model Provisions explained: "in view of the relative difficulty of detecting misappropriations of a computer program [...] unrestricted disclosure to the public is not desirable." Also, compulsory formalities typical for the patent protection system might exclude smaller entrepreneurs from the protection, either unaware of the need to fulfil eventual formal requirements or ignoring this fact for the cost of receiving patent protection. The Model Provisions advocated the *sui generis* protection of computer software.

The next step was presenting the Draft Provision for the Protection of Computer Software in 1979. However, the Draft Provisions were finally not implemented into national laws, which were willing to choose copyright protection for their work. WIPO convened the Committee of Experts on the Legal Protection of Computer Software in November 1981, which held its session in June 1983.

Among the participants of the meeting were 30 states, members of WIPO and intergovernmental organizations and 16 international non-governmental organizations as observers. Poland did not participate in the works of the Committee, whose activity started a month before martial law was introduced in the whole country, nor in the meeting, which took place in 1983. The report adopted by the Committee of Experts (WIPO 1983) proved that there was uncertainty in respect of legal rules applicable to the protection of computer software. However, the observations of participants made during the meeting as well as the discussion, which took place earlier resulted with a general acceptance of the principle that computer programs should be protected by copyright. The idea of creating model provisions of sui generis protection of computer software was abandoned and in fact, WIPO left the question of the legal protection of computer software to national jurisdictions. The idea of choosing the idea that computer programs are subject to copyright was significantly influenced by the United States. The United States Copyright Act amended in 1980 removed doubt that computer programs are copyrightable. At the same time, processes incorporated in computer programs were considered to be patentable. The approach of the United States – software protected by copyright and the idea behind the computer program, which can be under certain conditions protected by patent – was adopted by WIPO and is generally accepted by most countries in the world at present.

During the WIPO meeting in 1983, Germany also opted for copyright protection, indicating that such point of view was confirmed by courts' decisions and stating that additional treaty was not needed since existing conventions are sufficient to secure international protection of computer software. The delegation of the Netherlands, Denmark, Hungary, the United Kingdom presented a similar point of view.

Some countries were open for any solution, stating, that the question needs to be further examined (e.g., Japan, France, India). The delegation of Australia presented arguments in favour of the patent law approach. This view was substantiated with several reasons. First,

patent law covers the use of technology while copyright covers mainly its reproduction. Secondly, copyright can protect computer programs as such, but not an underlying idea, while a great part of the work involved in software production is related to the idea of the computer program. Besides, copyright does not promote disclosure of works, while one of the purposes of patent protection is a disclosure of the invention. Finally, the duration of the term of protection was too long under copyright law.

Finally, there were too many different views to take one position and the Draft Treaty could not be finalized. Also, the Committee noted that the idea of protecting computer software was very strong. The development of legal norms protecting computer software was left to national legislations.

The development of law and practice connected with the protection of the computer programs was one of the subjects of the meeting of the WIPO Executive Committee of the Berne Union, which took place in Geneva in 1987 (WIPO, 1987). The report of the meeting leads to the conclusion, that the concept of copyright protection – although not unanimously accepted – started to prevail and the United States was the country which not only initiated the legal protection of computer software but also set out the path to the way how it is protected. Actively participating in WIPO's meeting, the USA strongly supported the idea of copyright as the most appropriate means for the protection of computer programs. USA delegation expressed clearly the view that their experience showed, that "copyright protection was really an efficient means for balancing various interests." It suggested that harmonization of national laws on the basis of copyright is needed. Among other countries sharing the same point of view were: Canada, Germany, Sweden, Italy, and Finland. Switzerland and the Soviet Union were open to different solutions, in particular, sui generis terms of protection.

The idea of patent protection of computer programs was given up by Australia, which in the meantime decided to protect it by copyright system. This decision was caused by recognizing strong support worldwide for the protection of computer programs as literary works, especially among Australia's trading partners like the United States, the United Kingdom, and the European Community. Other solutions "would put Australia out of step with the developments of these jurisdictions" and cause "the possibility that any unilateral action [...] might be misinterpreted by countries important to economics and trading interests as indicating a reduced commitment to the proper protection of computer programs." (Cifuentes & Fitzgerald, 1999, 2000). These arguments are worth noticing because they reflect the way the method of computer software protection was chosen by probably most countries. Despite formal freedom of creating national legal rules in this area of intellectual property, being original entailed the risk of being excluded. If a country was perceived as providing improper protection of computer programs – either higher or lower to certain standards provided by copyright – parties from other countries might be reluctant to make further investments there, and this could have serious adverse effects on this country's technological and economic development.

Finally, the basic shape of the legal protection of computer software was determined not by WIPO, but by the Agreement on Trade-Related Aspects of Intellectual Property Rights (WTO) in 1994. According to art. 10 of the Agreement, computer programs, whether in source or object code, shall be protected as literary works under the Berne Convention (1971).

TRIPS Agreement provides also for the legal protection of compilations of data or other material. Compilations of data or other material, which by reason of the selection

or arrangement of their contents constitute intellectual creations, "shall be protected as such". Such protection does not extend to the data or material itself and is without prejudice to any copyright subsisting in the data or material itself.

Similarly, the WIPO Copyright Treaty (WCT) (concluded in 1996, entered into force in 2002) provides that computer programs are protected as literary works within the meaning of Article 2 of the Berne Convention. Such protection applies to computer programs, whatever may be the mode or form of their expression (Art. 4). It also provides that compilations of data or other material, in any form, which by reason of the selection or arrangement of their contents constitute intellectual creations, are "protected as such". This protection does not extend to the data or the material itself and is without prejudice to any copyright subsisting in the data or material contained in the compilation. These provisions, in fact, are the source of sui generis protection of compilations of data or other material.

Both TRIPS Agreement and WIPO Copyright Treaty are very general, however, they are binding for the countries, which ratified them and are important information for the investors.

3. European Union Law

Before the TRIPS Agreement was concluded, European Communities adopted the Council Directive 91/250/EEC of 14 May 1991 on the legal protection of computer programs in 1991 (OJ L 122, 17.5.1991, pp. 42–46; no longer in force, date of the end of validity: 24/05/2009). It was the first international legal act providing specific regulations in this area. The impact of a directive is much stronger than any international agreement.

Directive 91/250/EEC harmonized computer programs' protection within EEC. It was codified and replaced by the Directive 2009/24/EC of the European Parliament and of the Council of 23 April 2009 on the legal protection of computer programs (OJ L 111, 5.5.2009, pp. 16–22). As a result, all Member States protect computer programs by copyright, as literary works within the meaning of the Berne Convention for the Protection of Literary and Artistic Works.

Protection in accordance with EU law applies to the expression in any form of a computer program. EU law makes no distinction between application programs and operating programs.

Ideas and principles, which underlie any element of a computer program, including those, which underlie its interfaces, are not protected by copyright under Directive on the legal protection of computer programs. Copyright protection does not extend to procedures, methods of operation, or mathematical concepts as such. In other words, it does not go beyond the programs' literal code to their structure, sequence, and organization. The functionality of a computer program, the programming language, the format of data files and – what is often asked question – an algorithm is not protected under copyright law. This means that an algorithm is not protected by copyright.

Such approach reflects the point of view, that protection of computer software beyond their literal code might retard progress in the field of computer programming. The significant costs in computer programming, attributable to developing the structure and logic of the program are irrelevant from a legal point of view. Investment as such is not protected. The only criterion for legal protection is originality. A computer program is original in the sense

that it is the author's own intellectual creation. No other criteria can be applied to determine its eligibility for protection.

The rightholder's exclusive rights include reproduction of a computer program, the translation, adaptation, arrangement and any other alteration of a computer program and the reproduction of the results and any form of distribution to the public, including the rental, of the original computer program or of copies thereof (Art. 4 of the Directive 2009/24/EC).

The first sale in the Community of a copy of a program by the rightholder or with his consent exhausts the distribution right within the Community of that copy, with the exception of the right to control further rental of the program or a copy of the program.

The Directive (Art. 5) provides for exceptions to the exclusive rights such as the right of reproduction, any alteration and any form of distribution to the public of the original program or its copies. A lawful acquirer does not need the rightholder's authorization for such acts if they are necessary for the use of the computer program in accordance with its intended purpose, including error correction; however, this can be subject to other contractual provisions. What cannot be prevented by a contract is the right to make a back-up copy by a person having the right to use a computer program in so far as it is necessary for the use of this program.

For the avoidance of doubt, the Directive states that the person having a right to use a copy of a computer program shall be entitled, without the authorization of the rightholder, to observe, study or test the functioning of the program in order to determine the ideas and principles which underlie any element of the program if he does so while performing any of the acts of loading, displaying, running, transmitting or storing the program which he is entitled to do. Any contractual stipulation contrary to this mandatory provision is null and void.

The European Union law expressly regulates the question of decompilation, which as a rule is not allowed without the rightholder's permit. However, there are some mandatory rules, which provides for the exceptions. According to art. 6 of the Directive on the legal protection of computer programs the authorization of the rightholder is not required where the reproduction of the code and translation of its form are indispensable to obtain the information necessary to achieve the interoperability of an independently created computer program with other programs, under the following conditions:

– those acts are performed by the licensee or by another person having a right to use a copy of a program, or on their behalf by a person authorized to do so;
– the information necessary to achieve interoperability has not previously been readily available to the persons referred to above (the licensee or by another person having a right to use a copy of a program, or on their behalf by a person authorized to do so);
– those acts are confined to the parts of the original program which are necessary in order to achieve interoperability.

The information obtained in this way:
– may not be used for goals other than to achieve the interoperability of the independently created computer program;
– may not be given to others, except when necessary for the interoperability of the independently created computer program; or
– may not be used for the development, production or marketing of a computer program substantially similar in its expression, or for any other act which infringes copyright.

The provisions allowing decompilation may not be interpreted in such a way as to allow its application to be used in a manner which unreasonably prejudices the rightholder's legitimate interests or conflicts with a normal exploitation of the computer program – what is expressly said in the Directive, however, can be also interpreted from art. 9 (2) of the Berne Convention for the protection of Literary and Artistic Works (Paris text 1971).

These rules cannot be changed by parties' agreement and any eventual contractual stipulations contrary to the exceptions above are null and void.

Legal protection of computer programs is harmonized within the European Union and we should be able to expect a similar level of protection in every member state. EU law strongly influenced national jurisdictions. Implementation of the Directive on the protection of computer programs set certain standards, which became part of national laws. However, this does not mean that national laws lost their individuality and legal traditions.

Let's refer to Polish law as an example, where European model was introduced into Polish copyright law in 1994 (Law On Copyright And Related Rights of 4.02.1994, Journal of Law No. 24, position 83; uniform text: Journal of Law 6.06.2019 position 1231), ten years before Poland became EU member. The Polish copyright system is a dualistic system, where a clear distinction is drawn between economic rights and moral rights. Computer programs' protection rules are specific provisions in relation to the general regulations of copyright law. Specific regulations take precedence over general regulations (lex specialis derogat legi generali). One of the examples of specific provisions is the scope of the author's moral rights, which are drastically limited comparing to other copyright-protected works, which results with doubt about conformity of Polish law with the Berne Convention. A programmer's moral rights are limited to the right to claim authorship and to sign the work with the author's name or pseudonym, or to make it available to the public anonymously. Some moral rights are explicitly excluded, like the right to control the manner of using the work. Others, like the right to have the contents and form of the author's work inviolable and properly used and to decide about making the work available to the public for the first time, are considered to be economic rights. Bearing in mind that the author's claims in the world of the dual system of copyright are different depending on whether the moral or economic rights are infringed, such provisions significantly change the position of the rightholder.

The European Union copyright system is a proprietary system. Copyright – or rather, to be exact, the author's right, is a subjective right similar to a property right. However, there are two important differences between them. The first one is the object of rights, which is tangible in case of property rights and intangible in case of copyright. The second one results from specific claims, distinct for copyright and property right.

Historically, the justification for providing legal protection for computer software was promoting the development and utilization of computer software (Phillips, 1992). One of the solutions for providing legal protection for computer programs, which was discussed, was patent protection. A patent is an exclusive right to produce, sell or import the invention, granted in exchange for disclosing to the public the technical information about the invention. In contrast to a patent, copyright does not depend on disclosing any information, quite contrary, the distribution right and right of communication to the public, especially for the first time, are exclusive author's rights.

In 1980, US Congress amended the Copyright Act to provide computer programs the same copyright protection as literary works (Oman, 2018) (Computer Software Copyright

Act of 1980, Public Law No. 96–517, § 10, 94 Stat. 3015, 3018, 1980). It was the first national legislation providing specific protection for computer programs (Keplinger, 1981). European Communities (1991), World Trade Organization (1994), World Intellectual Property Organization (1996), following this example, applied the same solution and adopted a rule that computer programs shall be protected as literary works under the Berne Convention. Computer programs were subjected in this way to copyright principles – including the author's right to keep copyright protected work unpublished.

Both TRIPS Agreement and WIPO Copyright Treaty contain a general rule, which is left to the interpretation by member countries. Copyright law is territorial in its nature and subjecting computer programs' protection to the national jurisdictions on the protection of literary works does not mean that computer programs receive the same protection.

There is a difference between international agreements and European Union law. The first Directive on the legal protection of computer programs 91/250/EEC was codified and replaced by Directive on the legal protection of computer programs 2009/24/EC. EU held the position, that differences in the legal protection of computer programs offered by the Member States had direct and negative effects on the functioning of the internal market. The purpose of both computer program Directives was to remove existing differences, which adversely affect the functioning of the internal market, leaving legislative freedom for the Member States in other aspects of national legislation. European Union law harmonizes national laws and provides specific rules for the protection of computer software. However, these rules are different in many respects from the rules applicable to literary works in national laws. Taking as an example the Polish law, it would not be possible to implement EU law and provide legal protection of computer programs identical to the protection of literary works. EU is competent in the area of economic rights and that is how Directive is understood in countries with dual copyright systems, where the rules are different for moral and economic rights. Moral rights – like the right to object any distortion or modification of the work, protect the relationship between the author and his or her work. They are unlimited in time, inalienable rights, which cannot be waived. The economic rights are limited in time, transferable and heritable. According to EU law, the exclusive rights of the rightholder include to do or to authorize the translation, adaptation, arrangement and any other alteration of a computer program. Taking the view, that EU Directive provides for common rules in the area of economic rights, as relevant for the functioning of the internal market, the right to do or to authorize the translation, adaptation, arrangement and any other alteration of a computer program is an economic right, transferable to the successor of the transferor. Such a solution is economically justified and allows software development. Should we apply rules on the protection of literary works, the right to alter computer programs would be intransferable and last with the author, understood as the factual creator of the work, usually a natural person who wrote a source code.

Another difference is the prohibition of reverse engineering. This shows how far we went from the idea of making software patentable. The protection not only is granted without any need to disclose information about the computer program but, what is more important, the law gives the rightholder a tool to keep information about computer program secret. According to EU law, the user cannot modify, reverse engineer, disassemble or decompile the software without rightholder permission. On the other hand, reproduction of the code and translation of its form do not need authorization if they are indispensable to obtain the necessary information to achieve the interoperability of an independently created program with

other programs. An objective of this exception is to make it possible to connect all components of a computer system, including those of different manufacturers so that they can work together (Directive 2009/24/EC). Obviously, such rules would never apply to literary works, which are presented to the public in full, without hidden contents.

4.   Conclusions

Considering the above, it is clear that computer programs are not another kind of literary work. The rules of the legal protection of literary works are subject to national laws, which are different in every country. The rule that computer programs are protected by copyright, as literary works within the meaning of the Berne Convention for the Protection of Literary and Artistic Works means, that only the expression of a computer program is protected, whereas ideas and principles underlying a computer program are not. The only criterion of protection is originality and no other formal requirements are allowed. Computer software cannot be subject to any requirements of registration or deposit. The legal protection is automatic and is not granted in return for public disclosure of the innovation. On the contrary, the prohibition of reverse engineering, as well as other specific provisions in some national laws, proves that computer software is protected in a similar way as a trade secret.

Legal protection limited to the expression of a computer program opens the door for knowledge sharing. The broad scope of patent protection would have a detrimental effect on software development. The spectacular development of the computer industry that we face at present proves, that the prohibition of reverse engineering within the EU is not an obstacle for software producers.

The legal protection of computer programs is still territorial in nature, despite the fact that it has been largely standardized by international conventions. European Union harmonized national laws of Member States in this area, thus largely contributing to the development of the common market in Europe. Nevertheless, a different approach to copyright is still strongly present and can be clearly seen in contracts whose parties come from different jurisdictions, especially in the case when parties to the contract are from the United States and Europe. There are various problems, which require understanding before making investment and entering into an agreement by the parties originating from different legal cultures.

A good example of a problem, which is often misunderstood for parties coming from different legal cultures, is a question of moral rights. Within the EU, copyright has two main objectives. The first one is to protect the relationship between the author and his or her work, which is considered an emanation of the author's personality. Moral rights capture the artist's relation to the original work (McClean, 2010). The second objective is to enable authors to exploit their works economically and thus earn income from their endeavours (Opinion of Advocate General Szpunar delivered on 25 October 2018 Case C-469/17 Funke Medien NRW GmbH v Federal Republic of Germany, ECLI:EU:C:2018:870). These objectives apply also to the protection of computer programs. A typical situation in case of computer software involves many rightholders – employees, who hold moral rights, and employer, who holds economic rights. As far as economic rights are concerned, it is possible to change it contractually. However, moral rights are inalienable and cannot be waved. Another example is the question of transfer of copyright – in some countries, like Poland, there are mandatory

rules on contractual stipulations, which must be involved in the contract (e.g., "fields of exploitation"). Ignoring such mandatory requirements may result in certain situations with a contract being null and void. Entering into an agreement, one must remember, that legislations based on the Berne Convention tend to interpret the doubtful contractual stipulations in favour of the factual author (who is always a natural person), not of the investor.

Bearing in mind, that the result can be a contractual stipulation, which is null and void, or a contract, which is impossible to execute, existing differences can have a disruptive impact on relations and trust between software market participants. Particularities of national legal systems at present, although undesirable from an economic point of view, are unlikely to be eliminated soon. The attachment to different legal cultures, which developed through the centuries, is too strong. I do not think diversity is bad. Quite opposite – we can draw and be inspired by the experiences of other countries. Globalization will hopefully continue to contribute to the approximation of national laws. I also believe, judging from my own experience as a lawyer, that it is possible to conclude an agreement satisfactory for both parties, which complies with national laws, although it requires extensive experience in the field of copyright and understanding the economics of the software market.

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