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LEGAL REGULATIONS OF SOFTWARE PROTECTION IN THE REPUBLIC OF SERBIA

Zoran Cvetković[1], Aleksandra Jovanović[2], Vladan Perišić[3]
[1] High School of Professional Studies for Traffic Management, Niš, SERBIA, e-mail: sekretarcc@yahoo.com
[2] Low Medium Business School, Niš, SERBIA
[3]Bussines Academy, Law Faculty of Economics and Law, Novi Sad, SERBIA

Abstract **-** In essence a potential creator of intellectual property can be any user. Intellectual property can be protected both in the domestic and international market. The protection is reflected in the application of rules that are called intellectual property rights with the goal of acquiring and financing of innovation and creativity that lead to the economic, cultural and social progress. Under the protection we imply boosting production and dissemination of knowledge and a wide range of products and services quality, such right creates additional value for consumers also by the guarantee of origin and quality.

Keywords – software, patent, legislation, intellectual property, protection of software.

I. INTRODUCTION

Intellectual Property) encompasses the areas of patents, trademarks, brands, models, patterns, geographical indications, origin, topographies of integrated circuits, protection from copying, trade secrets, copyright and related rights.

With intellectual property we relate five core areas [1, 2, 3, 4]:

1) patents (is the term related to the new or improved product or processes that can be applied in industry),
2) trademarks (is the term related to the identity of brands of goods and services)
3) design (is the term related to the appearance of the complete product or a part of it)
4) copyright (is the term related to protection of literary works, plays, reference books, newspapers, computer programs, databases, films, musical works, choreographic works, works of painting, prints, photography and sculpture, architecture, engineering drawings, etc..)
5) hallmarks (is the legally protected mark for labeling of goods and services).

Under the violation of copyright of software it is implied when running, copying, modifying or distributing of computer programs is done without the knowledge and permission of the author, except in the cases [5-7, 11]:

- when it is done by the owner,
- when the license or permission of the owner is present.

Misuse of software is usually reflected in the following:

- fully unlicensed use,
- excessive use,
- if one owns already assigned software license,
- sharing abuse,
- acquisition of software by fraud,
- copyright infringement,
- illegal "social" offers,
- making illegal copies of the software and the like.

In the framework of the World Intellectual Property Organization (WIPO), there has been debate in the 70's and 80's, whereupon the principle has been accepted that computer software should be protected by copyright that is to be protected by a patent.

The Law on Patents and copyright provides different types of protection.

II. INTERNATIONAL PROTECTION OF SOFTWARE

In most countries, copyright protection is determined and concerted by international treaties. Patentability of software is still not aligned in all countries, recognizing the inventions created with the help of computer software.

In 1886 the Berne Convention was adopted concerning the protection of international copyright and has been revised several times. This convention protects literary and artistic works provided that they are original. According to the TRIPS (Agreement on Trade-Related Aspects of Intellectual Property Rights) it is predicted that the computer software are protected, whether in source or object code, as literary works. Copyright law does not require the detection of the work that is revealing the program in its source code. Under the

TRIPS agreement, protection of software by the copyright lasts for the author's life and another 70 years after his death.

WIPO (World Intellectual Property Organization) is a United Nations agency that promotes the protection of intellectual property throughout the world and covers a number of agreements on intellectual property. The development of international standards and norms are its main activities. Cooperating with the WTO (World Trade Organization), TRIPS is an agreement among all WTO members and is effective from 1st January 1995. It represents the most comprehensive agreement on intellectual property in the world to date [8-10, 11].

Software patents are not the best protection of software, because it takes several years from the date of registering the patent until its publication. Not all software can be patented, because if you would include at least one algorithm that has already been published, it would not be considered an innovation, and thereat nor a patent. The phenomenon is called the hold-up and represents a slowdown, even the prevention of new inventions. On the other hand, patenting raises the cost of software, which under these conditions only large companies persist. It can help small companies protect their programs from the giant and already established companies or firms.

In the United States, regulation of software protection is regulated by the Decree of the patents from 1952, Article 101. USA Patent and Trademark Office (United States Patent and Trademark Office) has been focusing on patents since the seventies, when the Freeman-Walter's test was introduced for determining the patentability of mathematical algorithms underlying the software in two steps (first step - formulas and equations, the second step - a mathematical algorithm). USA Patent and Trademark Office in 1996 passed the so-called "Examination Guidelines for Computer-Implemented Inventions" (Methodology of testing computer related inventions).

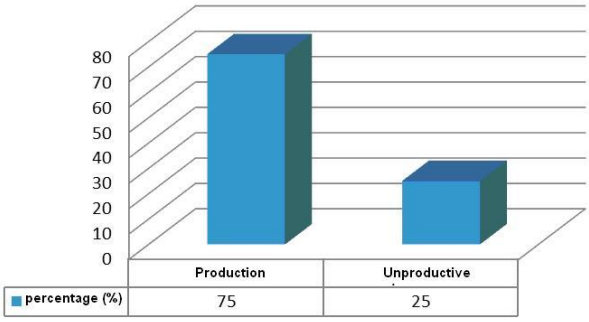
The next step in the USA was made by entering into force the so called Intellectual Property and Communications Reform Act of 1999. However, although in some professional circles, the patentability of software has not been challenged, still the question of novelty and inventiveness of these inventions has been set. In USA more than 25,000 patents for software are granted annually. Distribution of software patents by areas is shown in Graph 1 and 2.

The European Union Council issued the Directive 91/250/EEC of 14th May 1991 on the legal protection of computer programs, aimed at harmonization of regulation of its members and prevention of unauthorized use or copying. The Directive obliges Member States to protect computer programs by copyright as literary works within the meaning of the Berne Convention. It is prescribed that the author has the exclusive right to perform or give authorization to third parties to:

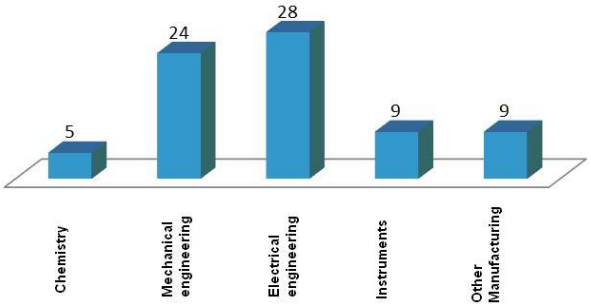
- perform reproduction of software,
- translate, adapt, adjust computer software,
- perform distribution of software or the copies or rent it.

Foreseen are punishable procedures for persons who are not authorized by the author to:

- placing on the market of illegal copy of a software,
- possession of illegal copies of software from commercial reasons,
- distribution or possession for commercial purposes of funds intended to facilitate the unauthorized removal or circumvention of technical means used to protect software.



Graph 1: Percentage ratio of manufacturing and non-manufacturing patents (software) in USA [12]



Graph 2: Percentage ratio of manufacturing patents (software) in USA [12]

By the Directive 93/98/EEC protection of computer programs by copyright lasts for the author's life and another 70 years after his death, or if there are several authors, after the death of the last of them.

To understand what are the possibilities for the protection of computer programs through the patent system in the countries of the European Union the provisions of the European Patent Convention in 1973 should be taken into account. This Convention in Article 52 prescribes the so called exemptions from patent

protection. As one of these exceptions in paragraph (c) of this Article the computer programs have been explicitly listed [12].

Figure 1 shows the criteria for determining the level of patentability in the EU.

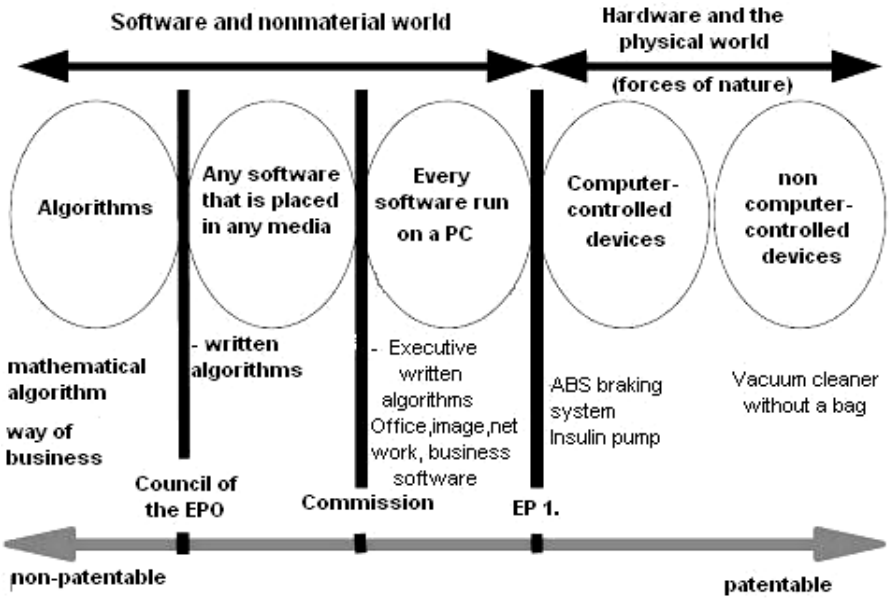


Figure 1: Display of criteria for determining the degree of patent protection in the EU [12]

According to Article 5 and Article 25 of the Chinese Patent Law, the following items are not patentable in China [15-20]

- any invention-creation that is contrary to the laws of the State or social morality, or is harmful to the public interest;
- scientific discoveries;
- rules and methods for mental activities;
- methods for the diagnosis or treatment of diseases;
- animal or plant varieties;
- substances obtained by nuclear transformation;
- genetic resources violating the provisions relating to laws and regulations;
- two-dimensional images, colors or a combination of the two that are mainly used as indicators.

China enjoys the reputation of the country where piracy is tolerated, so that the software used is mainly illegal. According to the Business Software Alliance 92 percent of software used in China is pirated.

AmCham-China Chamber of Commerce represents more than 800 U.S. companies operating in China. The researchers point out the belief prevailing among American businessmen is that the Chinese government by using its own technology standards severely limits trade between the two countries. More than half of respondents reported that Chinese standards and certificates are just ordinary forgeries [15-20].

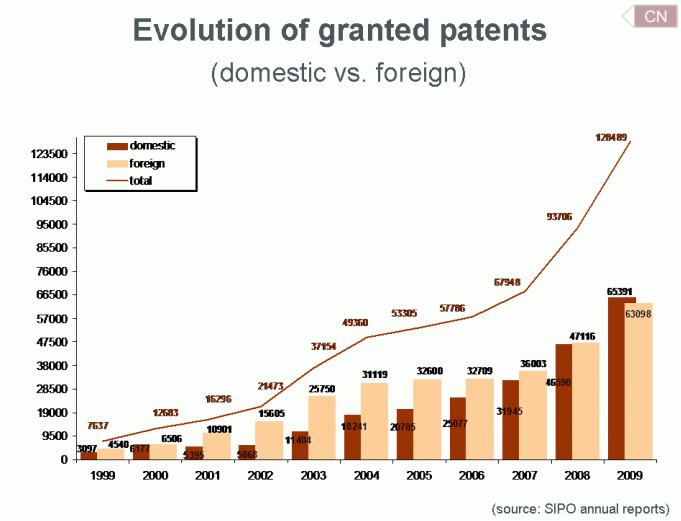


Figure 2: Display of approved software in China [18]

III. LEGAL REGULATION IN SERBIA

In the Law of patents a patent represents the right granted for an invention in any field of technology, which is new, with the level and is industrially applicable and the invention subject may be: device, substance, composition, biological material or a process for obtaining a product. Unlike the U.S.A and the EU, the duration of the patent in the Republic of Serbia is 20 years.

The right of commercial use of a patent and of preventing the exploitation by a third party without the consent is provided for in Article 52:

- making, offering, putting on the market or using the product made according to the protected invention, or importing or storing the product for such purposes;
- applying the procedure protected by the patent;
- offering a process that is protected by the patent;
- making, offering, putting on the market, using, importing or storing for those purposes the product directly obtained by the patented process [22].

Inventions are considered (under Article 5):

- discoveries, scientific theories and mathematical methods;
- aesthetic creations;
- plans, rules and methods for performing intellectual activities, for playing games or doing business;
- computer programs;
- presentation of information. [22]

Also, according to Article 7, not protected are the inventions whose publication or use is contrary to public order or morality, inventions relating to surgical or diagnostic procedures, treatment that is applied directly on the human or animal body and vegetable varieties and animal breeds or essentially biological process for the production of a plant or animal.

Legal protection of inventions is implemented in administrative proceedings conducted by the Intellectual Property Office [22].

Software-implemented inventions are:

- patentable if they belong to the field of technology and
- include three patentability criteria: novelty, inventive step and industrial application [13].

These findings are treated like other inventions, but with a strong focus on the ability to be integrated into the technical field and have the technical substance.

Software implemented patents are:

- inventions that involve the use of a computer, computer network or other programming device in which one or more of the technical features of the invention are fully or partially covered by one or more computer programs, so that they are considered to be patentable. [13]

Relevant examples patentable inventions are:

- Inventions at computer-controlled systems;
- Inventions of network software, e.g. software protocol;
- Inventions of software stored on a computer readable medium;
- Inventions of software used in the network, for example, interactive software games downloaded from the web server [13].

Relevant examples of non-patentable software are:

- Software for matrix multiplication, linear and nonlinear equations solving;
- Software for playing chess;
- Software for modeling of physical phenomena. [13]

Patentable products and processes include:

- Inventions in the field of computer software have to have as the subject matter the product or process;
- Product - programmed computer, a programmed computer network or other devices;
- Procedure - for performing one or more computer programs [13].

Inventions in the area of software have the technical substance if the solved problem of the invention is of technical nature and has been used for solving technical problems, where there should be a dominant technical feature.

According to the practice and the Law on Patents (Article 5) of the Republic of Serbia, there are two types of patent claims for the product and process:

- Product requirements:
  - Patent claims for machines, apparatus, devices, equipment, systems that are controlled by computer software;
  - Requirements dedicated to internal function controlled by a software of known computer;
  - The requirements for the software product;
  - Requests for data holders;
  - Requirements for the signals.
- Patent Claims for the procedure:
  - Listed are the levels (steps) of the procedure;
  - Requirements for external procedures that are computer controlled;
  - Requirements for internal computer procedures.

The patent application under the Law on Patents (Article 23) of the Republic of Serbia includes: request for patent registration, the description of the invention (the name of the invention, the technical field to which the invention relates, technical problem, the state of the technique, the essence of the invention, a brief description of the draft images, a detailed description of the invention and the manner of industrial and other applications of the invention), one or more patent requirements for protection of an invention by the patent, or petty patent (up to three patent applications), the draft referred to in the description and requirements

and abstract [22].

The procedure for the grant of a patent consists of:

1) Submission of the application,
2) Examination of formal orderliness of the application (application secrecy is guaranteed until its publication),
3) Publication of the complete application in GIS (Journal of Intellectual Property Rights). Since then, temporary rights are ongoing, that is since the moment of the application publication the applicant may sue the third party for damages for violation of his rights from the application,
4) The substantive examination of the application (novelty, inventive level, industrial applicability)
5) Decision on granting i.e. on refusal.

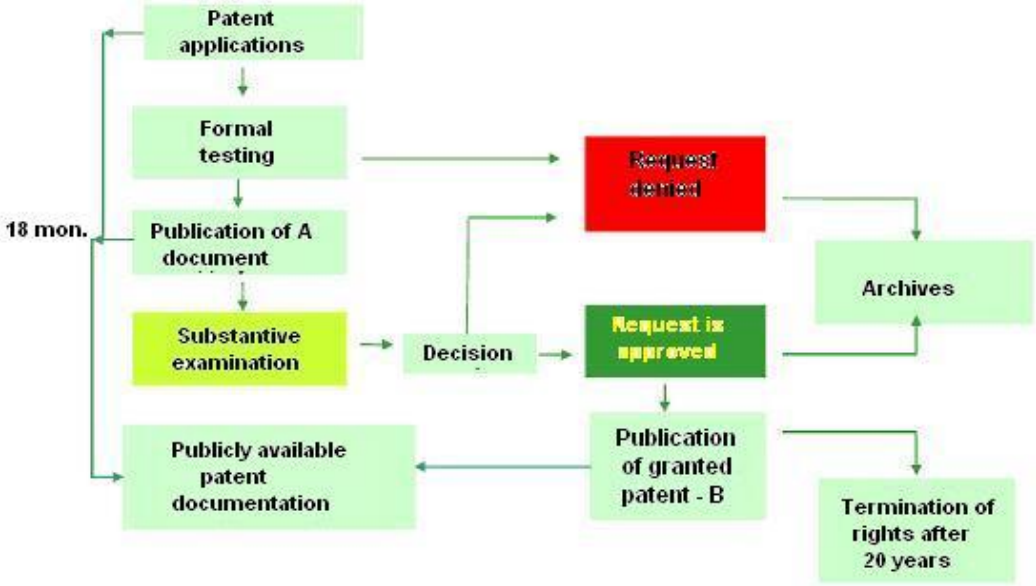
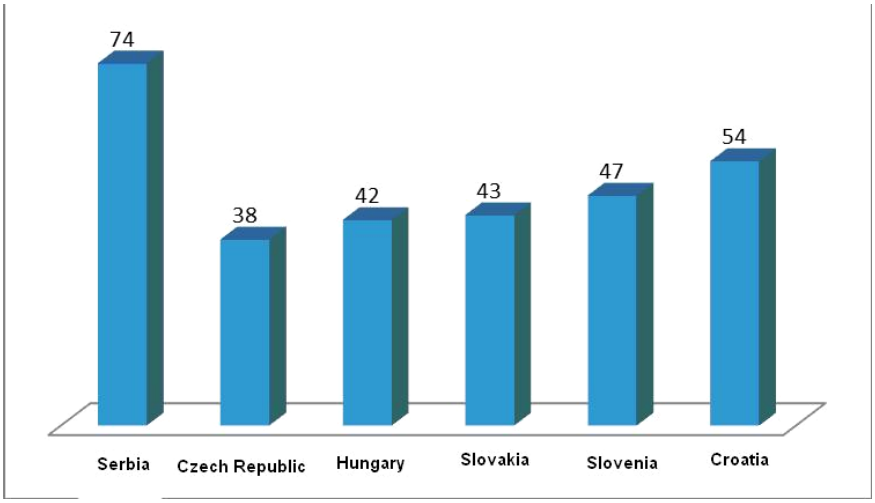


Figure 3: The procedure for granting of a patent in the Republic of Serbia [14]

The four main obstacles to potential patent applicants in Serbia are:

1. They are unaware of the importance of patent protection;
2. They are satisfied only with copyright protection;
3. General feeling that the software is not patentable;
4. Patent application and administrative procedures for application are complex and expensive from their point of view [13].

The rate of software piracy in Serbia during 2008 amounted to 74% and among the highest in the region of Central and Eastern Europe. The lowest rate of piracy in the region have the Czech Republic (38%), Hungary (42%), Slovakia (43%), Slovenia (47%) and Croatia (54%). Reducing the piracy rate is one of the preconditions for Serbia joining the European Union (Graph 3) [21].



Graph 3: The rate of software piracy in some European countries

IV. CONCLUSION

The Republic of Serbia is becoming a significant exporter of software. It is very important that the law and practice in Serbia in recent years are in compliance with European practice and the European Patent regulations Convention, the only thing is that it is not applied in practice to a great extent. The Intellectual Property Office of the Republic of Serbia is a member of the EPO, wherein all of the guidelines and recommendations of EPO patents related to computer or inventions (software) are accepted.

In the world two models of software protection are present, a traditional representation and protection of software by patents. The jurisdictions of protection of software or patent are differed in many countries. Invention or patent is related to copyright protection and enables and brings new approaches in the future.

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