

ІННОВАЦІЙНІ ТЕХНОЛОГІЇ В МЕДИЦИНІ INNOVATION TECHNOLOGIES IN MEDICINE

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INTELLECTUAL PROPERTY RIGHTS AS A TOOL IN SECURING INNOVATION

Introduction. *This article introduces the main types of legal rights, with which an intellectual property asset may be protected.*

Methods. *An analysis of literature related to laws protecting intellectual property in main world-market jurisdictions was carried out. Presented herein results are based on this analysis and generalization of own experience.*

Results. *This article explains the value of intellectual property assets in the context of innovative products and describes the main types of intellectual property rights that can be used to protect these assets.*

Conclusions. *In the context of one's innovative activity, the article further explains differentiations (protected subject-matter, registration requirements, terms, etc.) between different intellectual property rights and a benefit of their protection to a given innovation. Several examples from Philips innovation in consumer electronics and medical domains are mentioned to illustrate various strategies that can be taken in creating optimized protection by using a specific selection of the intellectual property right types.*

Keywords: *intellectual property, intellectual property rights, innovation.*

Introduction

In many fields of industry, intellectual property (IP) forms an essential part of the business assets in enabling its owner to obtain an advantage over competitors (World Intellectual Property Organization (WIPO), 2024).

There are five main types of IP, each of which is protectable in law by a corresponding intellectual property right (IPR):

1. Products of the original creative work (text, photo, software, etc.) are protected by a copyright;
2. Technical inventions can be protected by patent rights;
3. Know-how, information which has the highest value to its owner when kept secret, can be protected by a trade secret;
4. Shape or aesthetic aspects of an object, including its digital representation, can be protected by a design (industrial) right; and
5. Distinguishing signs in relation to goods or services can be protected by trademark rights.

While several IPRs, such as copyrights (in most countries) and trade secrets, do not require requesting their registration at a specialized authority, other IPRs must be registered at the corresponding national authority and once granted as a right be renewed (maintained). Registration and maintenance of the IPRs requires investment; and depending on the size of one's business activities the investment may become of a substantial size. Therefore, in conditions of a limited budget (let us be honest, these are often the most applicable conditions) it is important to understand differentiating features of one's innovation and select those IPRs, which most efficiently protect these features within the given budget.

Methods

An analysis of literature related to laws protecting intellectual property in main world-market jurisdictions was carried out. Presented herein results are based on this analysis and generalization of own experience.

Results

Copyrights. Duration of the available protection to a given IPR may vary per country. Copyright protection in most of countries lasts until at least 50 years after the author's death. Noteworthy, in the USA quite a different duration of copyright protection exists. Initiated by Disney company the copyright law in the USA was changed several times, wherein the latest change took place in 1998 with Congress passing the Sonny Bono Copyright Term Extension Act, more commonly known as the Mickey Mouse Protection Act. This Act extended copyright protection for corporations to ninety-five years from the first publication or 120 years from content creation, whichever was shorter. Thereby, enabling Disney company enjoying copyright protection over the Mickey Mouse character as depicted in "Steamboat Willie" film for almost a century. Eventually on January 1, 2024, this right expired, opening the door to a new creative usage of this character by others.

This brings us to an important aspect of an IP right: each right has an owner and usage of such a right by others requires the owner's permission. It is important to keep in mind, when working on one's own creative content, be it a preparation of the scientific manuscript or a presentation at the conference, that usage of the intellectual property of others, be it a picture from the internet or copied text, shall take place without violation of their (copy)rights.

The software code is also protected by a copyright; and if one's differentiating innovation resides in unique software solutions, copyright and trade secret (which are explained in more detail below) can be the best IPRs for protecting such innovation. However, additional attention should be paid to the usage of the open-source software and IP license conditions associated with it. In some instances, such a usage in one's own software code may result in an obligation of making said software code or other IP originating from this development available to others, thereby making your own solution potentially less exclusive.

Separate attention should be given to the usage of an output from generative Artificial Intelligence (AI) models. This output may include copyrighted work of others, who have not given their permission to have their work being used. Of course,

one should not forget that entering confidential information as an input to the generative AI model (unless one is certain about confidential conditions of the AI model provider) would potentially make this information available to others.

Patents and trade secrets. Innovative solutions having technical character and susceptible of industrial application may be protected by either patent rights or trade secrets. It is worth mentioning that trade secret protection is also available for non-technical know-hows, which will not be covered by this article. The choice of the most suitable IPR for protecting one's technical innovation may depend on a specific character of said innovation that shall be combined with the legal obligations imposed by the IPR chosen for the protection.

Patents are exclusive rights granted by an authority to an inventor for their invention. Having a patent implies making a deal: the right to exclude others from exploiting the invention (during a limited period) versus the obligation to disclose the invention in detail to support technical progress. While specific details of invention's eligibility to a patent protection may differ from one country to another, there is one main criterion which is the same in all countries: an invention shall be novel (not forming a part of the prior art). Invention not forming a part of the prior art means that nowhere in the world such an invention has been: (i) described in any document; or (ii) disclosed orally (for example, at the conference or workshop); or (iii) used in any way. Only after meeting a condition of novelty the invention can be further assessed on its patentability. The requirement of the detailed invention disclosure in the patent makes patents to be the best choice of protection of those inventions, which when implemented in a product (thus, made available to the public) can be reproduced by others. In case of an unauthorized invention usage taking place (in legal terms called infringement), the patent owner can use its patent, protecting said invention, to stop others from using it.

On the other hand, trade secret protection shall be used for the innovations which have the highest value to their owner, when kept secret. In principle, all inventions, irrespective of whether they can be reproduced from the product or not, can be protected by a patent, provided they pass the patentability criteria. However, in some instances a contribution of the invention to the product may be too complex for one's ability to detect (and thereby potentially reproduce) the presence of the invention in said product. In this case, the best choice for protection of this sort of inventions is a trade secret. Choosing for a patent protection may not be wise, because of an obligation of providing a detailed disclosure of one's invention in a patent. Why teach the public about your invention, if eventually it cannot be derived from the product it is implemented in? The infringement of patents protecting this sort of inventions may be hard to prove, making it hard to stop others from using your innovation. Of course, another important differentiator between patent and trade secret protections is their durations. In most countries, patent protection term is 20 years from the moment of filing a request for it, while trade secrets have unlimited term of protection as long as they are kept secret.

A nice example of choosing the most appropriate IPR for protecting a given innovation depending on one's business model was an approach taken by Philips and Sony in the optical recording technology used in compact discs (CDs). In the late 70s both Philips and Sony independently were working on an alternative to vinyl and compact cassette technologies to create a higher density and more compact solutions for audio recording medium (de Haan, & Luxon, 2022). While CDs offered benefits of brining audio content of a higher sound quality on a physical carrier almost insensitive to dust and scratches, convincing the whole music and record industry to switch to a new audio standard not only required good innovation but also a "simple" to potential customers business model enabling return on the innovation investments made by its owners. Therefore, Philips and Sony joined forces and together defined specifications for a CD standard. These technical specifications were described in a series of books that became known as the "Rainbow Books", while the inventions enabling the optical storage technology meeting the described technical specification were protected with patents. As a result for this standardization, whoever wished to make a CD, which would meet the standard specifications and therefore be suitable for an audio recording and be readable by an installed base of CD reading systems, had to use the inventions enabling this standard and protected by the corresponding patents. In this business model, whether the usage of inventions could have been derived from an examination of CD or not no longer mattered, because by being compliant with the standard one had to accept that the patents protecting the CD technology were used. The companies received a return on their optical recoding technology investment by collecting license revenue from the sales of the CDs as well as the CD reading hardware (Lengova, 2024).

In some instances, one's business model may not be based on making the developed technology standardized and the competitive advantage of this technology can be achieved by keeping it secret. Realizing trade secret protection, in contrast to majority of other IPRs, does not involve its formal registration at the authorities but requires implementing reasonable trade secret protection measures, measures which assure that limited number of people have access to the secret information and are legally bound to keep it secret. An example of a such technology can be Philips Azurion. It is a high-performance image-guided therapy system that allows teams of interventional clinicians to perform complex cardiac interventions. This system uses trade secret technologies to delivery clarity of the medical images obtained at a lower dose of the X-ray exposure that is superior to any other system.

Designs and trademarks. Finalizing the explanation of specific benefits of each IPR type in a "toolbox" available for the IP asset protection let us focus on the remaining two types of legal IP rights: designs and trademarks. In most cases when products with embedded innovation are introduced to the market, they take either physical or digital (such as software) appearance. These aesthetic aspects of the products, when they are new and original, can be protected with design rights.

The term of the design protection varies from 15 to 25 years across different countries, wherein most of the European countries offer 25 years of the design protection.

It is important to realize that potential customers will get their first impression of the product from its appearance. Thus, if part of one's business model lies in creating a differentiating exterior look of the product offer, it is advisable to register a corresponding design protection to be able to use it against any future unauthorized copies of the product.

Coming back to the CD example, Philips developed an iconic CD holding case, which consisted of a three-piece package made of polystyrene, with a hinged top and a plastic tray that held the disc in place with a central hub. The story of the CD case creation and its designer's consideration into giving the case a perfect high-tech look that resulted in the name the "jewel case" has been described by many sources. An interesting part of this innovation is that the case did not only have features aesthetically attractive to the consumers but also solved specific technical problems of an automatic assembly (essential for mass production), good grip on a CD and its easy removal. The technical aspects of the "jewel case" were protected by the patents. Billions of "jewel cases" have been produced since 1982 at some point reaching an output of as many as eight billion a year. Thereby creating a large return on the investment made for registering patent and design rights for this technology (de Haan, & Luxon, 2022).

Until recently an overall trend in industry for design protection was to focus on designs of physical products. However, in nowadays digital age a rising need in protecting innovation embedded in a digital content resulted in increased number of design rights registrations for user interface features. An example of such a trend can be Philips design registration filed for a character of the elephant, Ollie the Elephant, used in Philips Pediatric Coaching solution, which deploys gamification to help children better prepare for their MRI scan by means of interacting with one of the characters. An alternative or complementary IP protection for such a character may be a trademark registration, applicable in the event when the character is used as a graphical differentiator for one's goods or services.

One advantage of a trademark right over other already discussed registered rights is that as long as the registration is regularly renewed (in most countries every 5 to 10 years) and used (some authorities have a proof of use requirement) the right remains in force and virtually offers an "indefinite" protection. On this note, let us conclude with the Mickey Mouse example the article started with, while the copyright to its earliest version expired, Disney company still holds trademark registrations for the Mickey Mouse name and plurality symbols associated with this character.

Discussion and conclusions

This article explains the value of the IP assets in the context of the innovative products and describes an IP protection "toolbox", which includes the main types of legal rights that may be used to protect these IP assets to maintain products advantage over a competition. Good understanding of differentiations (protected subject-

matter, registration requirements, terms, etc.) of the IP right types and their applicability to the distinguishing features of the products enables one selecting the most optimal protection from the IP "toolbox" for a given innovation. Several examples from Philips innovation in consumer electronics and medical domains are mentioned to illustrate various strategies in creating an optimized protection by means of a specific selection of intellectual property rights.

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ПРАВА ІНТЕЛЕКТУАЛЬНОЇ ВЛАСНОСТІ ЯК ІНСТРУМЕНТ ЗАХИСТУ ІННОВАЦІЙНОЇ ДІЯЛЬНОСТІ

Вступ. У багатьох галузях промисловості інтелектуальна власність є важливою частиною бізнес-активів, що дозволяє її власнику отримати перевагу над конкурентами.

Методи. Проведено аналіз літератури, що стосується законодавства про захист інтелектуальної власності в основних юрисдикціях світового ринку. Представлені тут результати базуються на цьому аналізі та узагальненні власного досвіду.

Результати. У цій статті пояснюється цінність активів інтелектуальної власності в контексті інноваційних продуктів та описуються основні типи прав інтелектуальної власності, які можуть бути використані для захисту цих активів.

Висновки. Добре розуміння відмінностей (предмет захисту, вимоги до реєстрації, терміни тощо) між типами інтелектуальної власності прав та їх особливостей застосування до відмінних ознак продукції, дозволяє вибрати найбільш оптимальний захист з існуючого "набору інструментів" для даної інновації. Також наведено декілька прикладів інновацій Філіпсу в галузі побутової електроніки та медицини, щоб проілюструвати різні стратегії створення оптимізованого захисту за допомогою певного набору прав інтелектуальної власності.

Ключові слова: інтелектуальна власність, права інтелектуальної власності, інновації.

Член організаційного комітету А. Велігура заявляє про відсутність конфлікту інтересів та невтручання в процес оцінювання цієї статті відповідно до міжнародних стандартів публікаційної етики. Спонсори не брали участі в розробленні дослідження; у зборі, аналізі чи інтерпретації даних; у написанні рукопису; в рішенні про публікацію результатів.

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