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MAIN ELEMENTS OF INTELLECTUAL PROPERTY AND ITS IMPACT ON  
RESEARCH AND DEVELOPMENT (R&D)

*Document prepared by the WIPO Secretariat*

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## I. BASIC NOTIONS OF INDUSTRIAL PROPERTY

### A. Intellectual Property

1. Industrial property forms part of the broader concept of "intellectual property."
2. The objects of intellectual property are the creations of the human mind, the human intellect hence the expression "intellectual" property. In a somewhat simplified way, one can state that intellectual property relates to pieces of information which can be incorporated in tangible objects at the same time in an unlimited number of copies at different locations anywhere in the world. The property is not in those copies but in the information reflected in those copies. Similar to property in movable things and immovable property, intellectual property, too, is characterized by certain limitations, for example, limited duration in the case of copyright and patents.

### B. The Two Branches of Intellectual Property

#### a. Copyright

3. Copyright relates to artistic creations, such as poems, novels, music, paintings, cinematographic works, etc. In most European languages other than English, copyright is called author's rights. The expression "copyright" refers to the main act which, in respect of literary and artistic creations, may be made only by the author or with his authorization. That act is the making of copies of the literary or artistic work, such as a book, a painting, a sculpture, a photograph, a motion picture. The second expression, "author's rights" refers to the person who is the creator of the artistic work, its author, thus underlining the fact, recognized in most laws, that the author has certain specific rights in his creation, for example, the right to prevent a distorted reproduction, which can be exercised only by himself, whereas other rights, such as the right to make copies, can be exercised by other persons, for example, a publisher who has obtained a license to that effect from the author.

#### b. Industrial Property

4. Industrial property is sometimes misunderstood as relating to movable or immovable property used for industrial production, such as factories, equipment for production. Typically, the creations to which industrial property relates are inventions and industrial designs. (Simply stated, inventions are solutions to technical problems, and industrial designs are aesthetic creations determining the appearance of industrial products.) In addition, industrial property includes trademarks, service marks, commercial names and designations, geographical indications (indications of source and appellations of origin) and the protection against unfair competition. Here, the aspect of intellectual creations — although existent — is less prominent, but what counts here is that the object of industrial property typically consists of signs transmitting information to consumers, in particular, as regards products and services offered on the market, and that the protection is directed against unauthorized use of such signs which is likely to mislead consumers, and against misleading practices in general.
5. The expression "industrial" property may appear not to be entirely logical because it is only as far as inventions are concerned that the main segment of economy that is interested in them is industry. Indeed, in the typical situation, inventions are exploited in industrial plants. But trademarks, service marks, commercial names and commercial designations are of

interest not only to industry but also and mainly to commerce. Notwithstanding this lack of logic, the expression “industrial property” has acquired a meaning, which clearly covers not only inventions but also the other objects just mentioned.

6. In the hall of the WIPO headquarters building, there is an inscription in the cupola whose text tries, in a few words, implicitly to define intellectual works. It also tries to convey the reasons for which intellectual works should be “property,” that is, why their creators should enjoy advantages secured by law. Finally, the inscription invokes the duty of the State in this field. Naturally, the inscription makes no claim to legal exactitude. Its intent is to stress the cultural, social and economic importance of protecting intellectual property.

### C. Inventions

7. As has already been said, inventions are new solutions to technical problems. This is not an official definition. Most laws dealing with the protection of inventions do not define the notion of inventions. However, the WIPO Model Law for Developing Countries on Inventions (1979) contained a definition which reads as follows: “‘Invention’ means an idea of an inventor which permits in practice the solution to a specific problem in the field of technology.”

#### a. Patents

8. Inventions are characteristically protected by patents, also called “patents for invention.” Every country, which gives legal protection to inventions—and there are more than 140 such countries—gives such protection through patents although there are a few countries in which protection may also be given by means other than patents, as will be seen below.

9. The word “patent” is often used in two senses. One of them is the document that is called “patent” or “letters patent.” The other is the content of the protection that a patent confers.

10. First of all, let us deal with the first sense of the word “patent,” that is, when it means a document.

11. If a person makes what he believes is an invention, he, or if he works for an entity, that entity, asks the Government—by filing an application with the Patent Office—to give him a document in which it is stated what the invention is and that he is the owner of the patent. This document, issued by a Government authority, is called a patent or a patent for invention.

12. Not all inventions are patentable. Generally, patent laws require that, in order to be patentable, the invention must be new, it must involve an inventive step (or it must be non-obvious), and it must be industrially applicable. These three requirements, sometimes called the requirements or conditions of patentability, have been incorporated in Article 27.1 of the Agreement on Trade-Related Aspects of Intellectual Property Rights (“the TRIPS Agreement”).

13. The conditions of novelty and inventive step must exist on a certain date. That date, generally, is the date on which the application is filed. However, in a certain case it will not matter if the conditions no longer exist on that date. That case is regulated in the Paris Convention for the Protection of Industrial Property (“the Paris Convention”) and concerns the situation where the application of a given applicant concerning a given invention is not the first application of that applicant for that invention, but a later application by the same applicant (or his successor in title) for the same invention. For example, the first application was filed in Japan and the second in France. In such a case, it will be sufficient that the conditions of novelty and inventive step exist on the date on which the first (the Japanese) application was filed. In other words, the second (the French) application will have a priority over any applications filed by other applicants in France between the date of the first (Japanese) and the second (French) application, provided the period between the two dates does not exceed 12 months. Because of such priority, the advantage thus assured to the applicant is called “right of priority.”

14. It is customary to distinguish between inventions that consist of products and inventions that consist of processes. An invention that consists of a new alloy is an example of a product invention. An invention that consists of a new method or process of making a known alloy is a process invention. The corresponding patents are usually referred to as a “product patent,” and a “process patent,” respectively.

15. Now, to the other sense of the word “patent.” The protection that a patent for invention confers means that anyone who wishes to exploit the invention must obtain the authorization of the person who received the patent — called “the patentee” or “the owner of the patent” — to exploit the invention. If anyone exploits the patented invention without such authorization, he commits an illegal act. One speaks about “protection” since what is involved is that the patentee is protected against exploitation of the invention, which he has not authorized. Such protection is limited in time. According to Article 33 of the TRIPS Agreement, the term of protection must not end before the expiration of a period of twenty years counted from the filing date.

16. The rights (the protection) are not described in the document called a “patent.” Those rights (that protection) are described in the patent law of the country in which the patent for invention was granted. The patent laws of Members of the TRIPS Agreement have to comply with Section 5 of Part II of the said Agreement, which sets out, in its Article 28, the exclusive rights, conferred by a patent. The other provisions, relating to patents, of the said Agreement deal, *inter alia*, with patentable subject matter, conditions on patent applicants and the reversal of burden of proof in respect of process patents. The rights, usually called “exclusive rights of exploitation,” generally consist of the following:

- in the case of product patents, the right to prevent third parties from making, using, offering for sale, selling or importing the product that includes the invention; and

– in the case of process patents, the right to prevent third parties from using the process that includes the invention, and to prevent third parties from using, offering for sale, selling or importing products which were made by the process that includes the invention.

17. It has been mentioned earlier that, if anyone exploits the patented invention without the authorization of the owner of the patent for invention, he commits an illegal act. However, as already stated, there are exceptions to this principle, because patent laws may provide for cases in which a patented invention may be exploited without the patentee's authorization, for example, exploitation in the public interest by or on behalf of the government, or exploitation on the basis of a compulsory license. A compulsory license is an authorization to exploit the invention, given by a governmental authority, generally only in very special cases, defined in the law, and only where the entity wishing to exploit the patented invention is unable to obtain the authorization of the owner of the patent for invention. The conditions of the granting of compulsory licenses are closely regulated in detail in laws, which provide for them. In particular, the decision granting a compulsory license has to fix an adequate remuneration for the patentee, and that decision may be the subject of an appeal. It should be noted that the TRIPS Agreement, in particular in its Articles 27.1 and 31, establishes a number of obligations with respect to the use of a patented invention without the authorization of the owner of the patent. Members of that Agreement have to comply with these requirements, the most important of which no longer permits the grant of compulsory licenses on the ground of failure to work or insufficient working of an invention if the protected product is lawfully imported into the territory of the Member concerned.

18. In conclusion, it can be stated that, among the means by which inventions are protected, patents are by far the most important. However, protection of inventions as utility models deserves mention.

#### b. Utility Models

19. Utility models are found in the laws of a limited number (about 20) of countries in the world, and in the OAPI regional agreement. In addition, some other countries (for example, Australia and Malaysia) provide for titles of protection, which may be considered similar to utility models. They are called "petty patents" or "utility innovations." The expression "utility model" is merely a name given to certain inventions, namely — according to the laws of most countries which contain provisions on utility models — inventions in the mechanical field. Utility models usually differ from inventions for which ordinary patents for invention are available mainly in three respects: first, in the case of an invention called "utility model," either only novelty but no inventive step is required or the inventive step required is smaller than in the case of an invention for which a patent for invention is available; second, the maximum term of protection provided in the law for a utility model is generally shorter than the maximum term of protection provided for a patent for invention; and third, the fees required for obtaining and maintaining the right are generally lower than those applicable to patents. Moreover, in certain countries there is also a substantial difference in the procedure for obtaining protection for a utility model: this procedure is generally shorter and simpler than the procedure for obtaining a patent for invention.

#### D. Industrial Designs

20. Generally speaking, an industrial design is the ornamental or aesthetic aspect of a useful article. Such particular aspect may depend on the shape, pattern or color of the article. The design must appeal to the sense of sight. Moreover, it must be reproducible by industrial means; this is the essential purpose of the design, and is why the design is called "industrial."

21. In order to be protectable, an industrial design must, according to some laws, be new and, according to other laws, original. The requirements of novelty or originality have been incorporated in Article 25.1 of the TRIPS Agreement.

22. Industrial designs are usually protected against unauthorized copying or imitation. Under Article 26.3 of the TRIPS Agreement, the duration of protection available shall amount to at least 10 years. Members of the said Agreement are also obliged to ensure that requirements for securing protection of textile designs, in particular in regard of any cost, examination or publication, do not unreasonably impair the opportunity to seek and obtain such protection.

23. The document, which certifies the protection, may be called a registration certificate or a patent. If it is called a patent, one must, in order to distinguish it from patents for invention, always specify that it is a patent for industrial design.

#### E. Intellectual Property in Respect of Integrated Circuits

24. The question of the type of protection to be given to the layout-design, or topography, of integrated circuits is relatively new. Although prefabricated components of electrical circuitry have been used for a long time in the manufacture of electrical equipment (for example, radios) large-scale integration of a multitude of electrical functions in a very small component became possible only a few years ago as a result of advances in semiconductor technology. Integrated circuits are manufactured in accordance with very detailed plans or "layout-designs."

25. The layout-designs of integrated circuits are creations of the human mind. They are usually the result of an enormous investment, both in the terms of highly qualified experts, and financially. There is a continuing need for the creation of new layout-designs, which reduce the dimensions of existing integrated circuits and simultaneously increase their functions. The smaller an integrated circuit, the less the material needed for its manufacture, and the smaller the space needed to accommodate it. Integrated circuits are utilized in a large range of products, including articles of everyday use, such as watches, television sets, washing machines, automobiles, etc., as well as sophisticated data processing equipment.

26. Whereas the creation of a new layout-design for an integrated circuit involves an important investment, the copying of such layout-design may cost only a fraction of that investment. Copying may be done by photographing each layer of an integrated circuit and preparing masks for the production of the integrated circuit on the basis of the photographs obtained. The high cost of the creation of such layout-designs and the relative ease of copying, are the main reasons for the protection of layout-designs.

27. Layout-designs of integrated circuits are not considered industrial designs in the sense of the laws providing for the registration of industrial designs. This is because they do not determine the external appearance of integrated circuits, but, rather, the physical allocation, within the integrated circuit, of each element having an electronic function. Moreover, layout-designs of integrated circuits are not normally patentable inventions, because their creation usually does not involve an inventive step, although it requires a great amount of work by an expert. Further, copyright protection may not apply if it is determined, under national law, that layout -designs are not copyrightable subject matter. Due to the uncertainty surrounding the protection of layout -designs, national, regional, and international efforts focused on the question of what type and scope of protection would be appropriate.

28. On May 26, 1989, under the auspices of WIPO, the Treaty on Intellectual Property in Respect of Integrated Circuits was adopted at Washington, D.C., United States of America. The Treaty has not entered into force but its substantive provisions have, to a large extent, been adopted in the TRIPS Agreement. The main features of the protection mandated under the Treaty can be summarized as follows.

29. A layout -design is defined in the Treaty as the “three-dimensional disposition, however expressed, of the elements, at least one of which is an active element, and of some or all of the interconnections of an integrated circuit, or such a three -dimensional disposition prepared for an integrated circuit intended for manufacture.” Such a layout -design is considered protectable under the terms of the Treaty if it is the result of its creator’s own intellectual effort and is not common place among creators of layout -designs and manufacturers of integrated circuits at the time of its creation.

30. The protection required under the Treaty, as modified in the TRIPS Agreement, is the prohibition, for a period of at least ten years, of the performance of the following acts, without the authorization of the holder of the right:

- (i) reproducing, whether by incorporation in an integrated circuit or otherwise, a protected layout -design in its entirety or any part thereof, except the act of reproducing any part that does not comply with the requirement of originality; and
- (ii) importing, selling or otherwise distributing for commercial purposes, a protected layout -design or an integrated circuit in which a protected layout -design is incorporated.

31. The manner in which these rights in a layout -design are to be secured is not mandated by the Treaty. Thus, a Contracting Party is free to implement its obligations under the Treaty through a special law on layout -designs (a solution which is more and more frequent), or its law on copyright, patents, utility models, industrial designs, unfair competition or any other law or a combination of any of those laws.

32. Contracting Parties are free to provide that registration of a layout -design is a prerequisite to protection.



33. The rights in layout -designs provided for under the Treaty are subject to three exceptions. Firstly, a third party is able to perform any act with respect to a layout -design for the purposes of evaluation, analysis, research, or teaching. Secondly, a third party may copy a layout -design or part thereof in order to prepare a second, original, layout -design. According to the Treaty, such a second layout -design is not to be regarded as infringing rights held in the first layout -design. Thirdly, a third party may perform any act in respect of a layout -design that was independently created.

#### F. Trademarks

34. Any sign, or any combination of signs, capable of distinguishing the goods or services of one undertaking from those of other undertakings, shall be capable of constituting a trademark. Such signs, in particular words including personal names, letters, numerals, figurative elements and combinations of colors as well as any combination of such signs, shall be eligible for registration as trademarks (TRIPS Article 15.1). Most countries require that trademarks for which protection is desired be registered with a government authority. The protection that laws give to a trademark consists essentially of making it illegal for any entity other than the owner of the trademark to use the trademark or a sign similar to it, at least in connection with goods for which the trademark was registered or with goods similar to such goods without the authorization of the owner. The TRIPS Agreement sets out, in its Article 16, the rights conferred on the owner of a trademark and the protection to be given in respect of well -known marks.

35. The TRIPS Agreement also deals, *inter alia*, with the protectable subject matter, the term of protection, the requirements of use as well as licensing and assignment.

#### G. Trade Names

36. Another category of objects of industrial property is “commercial names and designations.”

37. A commercial name or trade name — the two expressions mean the same thing — is the name or designation, which identifies the enterprise. In most countries, trade names may be registered with a government authority. However, under Article 8 of the Paris Convention for the Protection of Industrial Property, a trade name must be protected without the obligation of filing or registration, whether or not it forms part of a trademark. Protection generally means that the trade name of one enterprise may not be used by another enterprise either as a trade name or as a trademark or service mark and that a name or designation similar to the trade name, if likely to mislead the public, may not be used by another enterprise.

## H. Geographical Indications

38. Finally, among commercial designations there are also geographical indications.

39. The TRIPS Agreement (Articles 22 to 24) establishes certain obligations as regards the protection of geographical indications, which are defined therein, for the purposes thereof, as “indications which identify a good as originating in the territory of a Member, or a region or locality in that territory, where a given quality, reputation or other characteristic of the good is essentially attributable to its geographical origin.” The notions of “indications of source” and of “appellation of origin,” which are used in the Paris Convention, encompass geographical indications as defined by the TRIPS Agreement.

40. An indication of source is constituted by any denomination, expression or sign indicating that a product or service originates in a country, a region or a specific place (for instance, “made in...”). As a general rule, the use of false or deceptive indications of source is unlawful.

41. An appellation of origin is constituted by the denomination of a country, a region or a specific place which serves to designate a product originating there, the characteristic qualities of which are due exclusively or essentially to the geographical environment, in other words to natural and/or human factors. The use of an appellation of origin is lawful only for a certain circle of persons or enterprises located in the geographical area concerned and only in connection with the specific products originating there (for instance, “Bordeaux”).

## I. Protection against Unfair Competition

42. The last object of the protection of industrial property is the protection against unfair competition. Such protection, required under Article 10 *bis* of the Paris Convention, is directed against acts of competition that are contrary to honest practices in industry or commerce. The following in particular constitute acts of unfair competition in relation to industrial property: all acts of such a nature as to create confusion with the establishment, the goods or the industrial or commercial activities of a competitor; false allegations in the course of trade of such a nature as to discredit the establishment, the goods or the industrial or commercial activities of a competitor; and indications or allegations the use of which in the course of trade is liable to mislead the public as to the characteristics of goods.

43. The protection against unfair competition supplements the protection of inventions, industrial designs, trademarks and geographical indications. It is particularly important for the protection of know-how, that is: technology or information which is not protected by a patent but which may be required in order to make the best use of a patented invention.

44. The TRIPS Agreement contains, in its Article 39, provisions on the protection of undisclosed information (trade secrets). In the course of ensuring effective protection against unfair competition as provided in Article 10bis of the Paris Convention, Members of the TRIPS Agreement are required to provide natural and legal persons the possibility of preventing information lawfully within their control from being disclosed to, acquired by, or used by others without their consent in a manner contrary to honest commercial practices so long as such information:

- (a) is secret in the sense that it is not, as a body or in the precise configuration and assembly of its components, generally known among or readily accessible to persons within the circle that normally deal with the kind of information in question;
- (b) has commercial value because it is secret; and
- (c) has been subject to reasonable steps under the circumstances, by the person lawfully in control of the information, to keep it secret.

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