

# WIPO-MOST Intermediate Training Course on Practical Intellectual Property Issues in Business

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## Topic 2: Patents

### I. Introduction to the patent system

1. What do you imagine when you hear the word “patent”? A great scientific breakthrough or an invention that has changed the world such as Edison’s electronic lighting? In fact, it is a misperception to believe that patents only apply to complex physical or chemical processes and products or are only useful to large corporations. Patents may be granted to an invention in any area of technology from paper clips to computers. There already exist thousands of patents for simple everyday products such as pens, glass bottles, textile fabrics or bicycles.

#### What is a patent?

2. A patent is an exclusive right granted for the protection of an invention. The patent provides its owner the exclusive right over the exploitation of the invention for a limited period of time in return for disclosing the invention to the public. Thus, in general, the patent owner (patentee) can prevent others from making, using, offering for sale, selling or importing for those purposes the patented invention without the patentee’s permission. This exclusive right is given for a limited period of time, generally for 20 years from the filing date, as long as annual maintenance fees are paid, and has no effect beyond the territory of the country in which the patent was granted.

3. The theory behind the patent system is that the financial reward flowing from the exclusive rights and the recognition for the inventor’s creativity would encourage innovative activities. Further, the patent system requires the disclosure of the inventions to the public, thereby promoting public dissemination of the knowledge of the inventor and further development of technology by third parties. In other words, third parties do not need to “reinvent the wheel.” This cycle of innovation would promote the technical and economic development with the obvious resultant trade advantages.

#### How does the patent system affect business?

4. The patent system provides various advantages to the business of an inventor. To name a few, patent protection may provide:

- **A strong market position** – Through the exclusive rights, the patentee is able to prevent others from commercially using the patented invention, thereby reducing competition and establishing himself in the market as the pre-eminent player.
- **Higher returns on investments** – Having invested a considerable amount of money and time in developing innovative products, the patentee could, under the umbrella of these exclusive rights, commercialize the invention enabling the patentee to obtain higher returns on investments.

- **Opportunity to license or sell the rights** – If the patentee chose not to exploit the patent himself, he may sell it or license the rights to commercialize it to another company. The patentee uses patents to earn royalty revenue by licensing the patented invention to other firms that have the capacity to commercialize them. In this way, in particular, small and medium-sized enterprises (SMEs) and research companies, which may not have sufficient marketing and commercialization capacity, could trade their innovative knowledge just like a physical product.
- **Increase in negotiating power** – If the patentee is in the process of acquiring the rights to use the patents of another company, through a licensing contract, the patent portfolio of the patentee will enhance his bargaining power. That is to say, the patents may prove to be of considerable interest to the company with whom the patentee is negotiating and he could enter into a cross licensing arrangement where, simply put, the rights to use the inventions protected by patents owned by each party could be exchanged between two parties.
- **Positive image for your enterprise** - Business partners, investors and shareholders may perceive patent portfolios as a demonstration of the high level of expertise, specialization and technological capacity. This may prove useful for raising funds, finding business partners and raising the company's market value.

5. At the latest, once patented, detailed technical and legal information about the patented invention is published by the patent Office. Since this publication is a comprehensive collection of classified technological data, it is useful for any person to keep abreast with the latest technologies. From the viewpoint of the commercial strategy, patent information would help to avoid unnecessary expenses in researching what is already known, to identify business partners, including licensing partners and to monitor activities of competitors. It could also be used to avoid possible infringement of other's patents and to oppose grant of patents wherever they conflict with one's own patent.<sup>1</sup>

#### What happens if the invention is not patented?

6. Patenting may not always be the right solution for the business to gain the maximum economic benefits from the invention. It is generally advisable to carefully weigh the costs and benefits of patent protection prior to initiating the process. The costs for obtaining and maintaining patents may include costs relating to: (i) application fees and other prosecution fees to be paid to the patent Office; (ii) the costs relating to patent attorneys; (iii) the costs of translation where an application is filed with the foreign patent Office the official language of which is different; and (iv) the costs of maintaining patents after grant. It is important, therefore, to understand what may happen if a patentable invention does not obtain a patent.

- **Somebody else might patent the invention** - In most countries, where more than one applicant have filed patent applications for the same invention independently, the first applicant to apply for a patent has the right to a patent. This may in fact mean that, if you do not patent your invention, somebody else - who may have developed the same

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<sup>1</sup> For further information about patent information, reference is made to Topic 13, Importance of Using Patent Information.

or an equivalent invention later - may obtain a patent and legitimately exercise the exclusive rights to commercially exploit the invention and limit the activities of your company.

- **Competitors will take advantage of your invention** - If the product is successful, many other competitor firms will be tempted to make the same product by using your invention but without having to pay for such use. The same products are often sold at a lower price as they do not have to recoup research and development costs.
- **Possibilities to license, sell or transfer technology will be severely hindered** - Without patent rights, transfers of technology would be difficult if not impossible. Patent protection is crucial for acquiring technology through its licensing.

### III. Conditions of patentability

7. Not all the inventions can obtain patents. An invention must meet several criteria if it is to be eligible for patent protection. These include, most significantly, that the invention must consist of patentable subject matter, the invention must be capable of industrial application (useful), it must be new (novel), it must involve an inventive step (be non-obvious), and the disclosure of the invention in the patent application must meet certain standards.

#### Patentable subject matter

8. Patents are granted for inventions. In general, an invention may be described as a solution to a technical problem. For example, merely finding something that already exists in nature, which is called discovery, is not an invention. To qualify the invention, human intervention must be added. Thus, a substance extracted from a plant existing in nature may be an invention. Under many national laws, an invention within the meaning of the patent law is defined in terms of a non-exhaustive negative list, i.e., subject matter that is not regarded as inventions. They may include:

- discoveries, scientific theories and mathematical methods;
- aesthetic creations;
- schemes, rules and methods for performing mental acts, playing games or doing business, and programs for computers;
- presentations of information.

9. In principle, patents shall be available for any inventions in all fields of technology. In many countries, however, certain inventions are not considered patentable subject matter in view of the objective of the patent system and the broader public policy, i.e., to encourage innovative activities while taking into account the legitimate public interests. Depending on the national law of each country, some of the following may not be patentable subject matter:

- inventions the prevention within the territory of the commercial exploitation of which is necessary to protect public order or morality. However, such exclusion should not be made merely because the exploitation is prohibited by the law;

- diagnostic, therapeutic and surgical methods for the treatment of humans and animals;
- plants and animals other than microorganisms, and essentially biological processes for the production of plants or animals other than non-biological and microbiological processes. However, the protection of plant varieties should be provided either by patents or by an effective *sui generis* system or by any combination thereof.

### Industrial applicability (Utility)

10. An invention must be capable of being made or used in some kind of industry. This means that the invention can be applied for practical purposes, and not be purely theoretical. If the invention is a product, it should be possible to make that product. If the invention is a process, it should be possible to carry that process out or use it in practice.

11. The word “industry” is meant in its broadest sense as anything distinct from purely intellectual or aesthetic activity. Thus, industrial applicability means the possibility of the application of an invention by technical means on a certain scale.

12. The typical examples of inventions not being capable of industrial application are: (1) those which appear to be impossible to carry out because they contravene the laws of nature (for example, a perpetual motion machine); and (2) those concerning methods which could be considered to fall entirely within the private or personal sphere.

13. In some countries, instead of industrial applicability, an invention must have utility. One of those countries considers that the utility requirement is met if the applicant has asserted that the invention is useful for any particular practical purpose (i.e., it has a “specific and substantial utility”) and the assertion would be considered credible by a person of ordinary skill in the art.

### Novelty

14. An invention is new (or novel) if it does not form part of the prior art. “Prior art” is, in general, all the knowledge that existed prior to the filing date (or the priority date<sup>2</sup>) of the relevant application, whether it existed by way of written or oral disclosure. The definition of “prior art” differs from country to country. In many countries, any information made available to the public anywhere in the world in any form, for example, in written form (ex. publication), by oral communication (ex. oral presentation at a conference), by display or through use (ex. public demonstration), constitutes prior art. Today, publication on the Internet must increasingly be taken into consideration. Thus, in principle, the publication by the inventor concerning his invention in a scientific journal before the filing date of the relevant patent application can destroy the novelty of the invention, and consequently, render it not patentable.<sup>3</sup>

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<sup>2</sup> The expression “priority date” is explained in paragraph 45.

<sup>3</sup> Many countries provide a grace period of up to six or 12 months prior to the filing date (or the priority date) during which certain types of disclosures of the invention may be made without affecting the patentability of the invention.

15. In some other countries, non-written disclosures in foreign countries are not part of prior art. Therefore, if the invention is used only in a foreign country and there is no written material describing the invention, the novelty of the invention cannot be destroyed.

16. When assessing novelty, it is not permissible to combine separate items of prior art together. For example, if the invention concerns the combination of elements A and B, and one prior publication described only the element A and another prior publication described only the element B, the invention combining elements A and B meets the novelty requirement.

#### Inventive step (Non-obviousness)

17. “Inventive step” (also referred to as “non-obviousness”) means that, having regard to the prior art, the invention must not be obvious to a person skilled in the art. The expression “inventive step” conveys the idea that it is not enough that the claimed invention is new, that is, different from what exists in the state of the art on the filing date (or the priority date), but that the difference is significant and essential to the invention. The inclusion of such a requirement is based on the premise that patent protection should not be granted to anything that a person with ordinary skill could deduce as an obvious consequence thereof.

18. The expression “a person skilled in the art” is intended to exclude the “best” expert that can be found. It is generally recognized that such a person is a hypothetical person with general knowledge and ordinary skill in the relevant field of the art.

19. As distinct from the assessment of novelty, more than one item of prior art may be combined to determine the lack of inventive step. The claimed invention lacks inventive step if, on the filing date (or priority date), a person skilled in the art can reach the claimed invention by substituting, combining or modifying those items of prior art, in so far as such substitution, combination or modification is obvious to a person skilled in the art. This means that there existed certain teachings in the state of the art that motivated a person skilled in the art to substitute, combine or modify those items of prior art.

20. In many cases, it is useful to assess inventive step in relation to three aspects, namely, the problem to be solved, the solution to that problem and the advantageous effects of the invention with reference to the background art.

#### Disclosure of the invention

21. Another requirement concerning the patentability of the invention is whether or not the invention is sufficiently disclosed in the application. The application must disclose the invention in a manner sufficiently clear and complete for that invention to be carried out by a person skilled in the art. This means that, on the basis of the explanations in the application, a person skilled in the art can make or use the invention without undue experimentation. Since one of the functions of the patent system is to disseminate knowledge to the public, sufficiency of disclosure of the invention in the application is an important requirement to be complied with.

22. As regards inventions relating to biological material, it may not always possible to describe such an invention in a patent application so as to enable a person skilled in the art to carry out the invention without having access to that material. Therefore, in many countries,

such biological material may be deposited with one of the authorized depositary institutions. A reference to the deposited biological material in a patent application has the effect that the deposit would be taken into account when assessing the compliance with the disclosure requirement, to the extent that the material cannot be described in the application.

#### IV. How to obtain a patent?

##### Preparation and filing of a patent application

23. The first step to obtain a patent is to file a patent application with a patent Office. One needs to be familiarized with both technology and law in order to draft a patent application properly and to proceed with the application before the Office. Therefore, although it is generally possible to file a patent application without using a patent attorney, it is highly advisable to consult an experienced professional not only for drafting a patent application but also during the whole procedure before the patent Office. Some countries require that foreigners who do not have any domicile in the country be represented by a patent attorney who is authorized to practice before the Office.

24. Prior to filing a patent application, a prior art search may be conducted, as it will give an indication of whether the invention is likely to be patentable. Today, many patent Offices worldwide provide free on-line patent databases. Although this enhances the possibility for the inventors to carry out the prior art search by themselves, in order to conduct a thorough search, it is advisable to consult a professional expert.

25. As indicated in paragraph 6, in a great majority of the countries, obtaining an earlier filing date is crucial if there is more than one patent application filed in respect of the same invention. Also, it is a key date for the determination of novelty and inventive step. Further, the inventor should be careful not to disclose the invention to the public prior to the filing date of the patent application with respect to that invention, since in many countries, such a disclosure may destroy the novelty of the invention.

26. In general, a patent application consists of the following elements: a request, a description, claims, drawings (if necessary) and an abstract.

27. The request contains the title of the invention and bibliographic data such as the applicant's name and his address. The description, together with the drawings, if any, provides the detailed explanation about the invention and sets out at least one mode for carrying out the invention.<sup>4</sup> The claims are the most important part of the application, since they define the subject matter for which patent protection is sought. This means that, once a patent is granted, the scope of the patent protection is determined by what is written in the claims. Therefore, the claims shall be written in a clear and concise manner. The abstract is a concise summary of the application, which should merely serve the purpose of information.

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<sup>4</sup> In some countries, the best mode known to the applicant should be provided in the description.

### Grant of the patent

28. Once an application has been received, the patent Office generally takes a series of steps prior to granting the patent. There are three main activities, namely, a formality examination, a substantive examination and the grant and publication of the patent.

29. The formality examination consists of checking whether the application contains all the relevant information from the formality point of view and whether any other necessary documents have been submitted. The applicant is given the opportunity to correct any defects identified during the formality examination, and if such defects are not corrected within a specific time, the patent Office rejects the application.

30. The aim of the substantive examination is to ensure that the application satisfies the conditions of patentability, such as novelty, inventive step and industrial applicability, before granting a patent. The applicant is given an opportunity to remove any objections raised during the substantive examination. Not all the patent Offices conduct a substantive examination. Patent Offices in a number of countries grant patents on the basis of the formality examination and the compliance with certain requirements, such as the claimed invention is not excluded from patentable subject matter. Under such a system, the actual validity of the patent and whether it meets the requirements of patentability are only verified by the courts in case of dispute.

31. When the examination process has reached a conclusion favorable to the applicant, the patent Office will grant a patent. The details of the patent are entered into the patent register, and a certificate of grant is issued to the applicant. Further, the patent Office publishes the patent for public inspection. In a number of countries, in order to ensure the earlier dissemination of the technical information contained in patent applications, patent applications are published 18 months after the filing date (or the priority date).

### Review and revocation of a patent

32. When the applicant does not agree with the final conclusion made by the Office, he may appeal to a court for a judicial review.

33. Similarly, if, for example, one finds that a patent is granted to his competitor with respect to an invention which does not meet all the patentability criteria, he may request the revocation of that patent by a court. In some countries, a quasi-judicial procedure, which is cheaper and quicker than a judicial procedure, is established before the patent Office in order to review the final decisions made by the examiners.

## VII. Exclusive rights conferred by a patent

34. Generally speaking, a patentee acquires the right, enforceable by law, to decide who shall and who shall not exploit his patented invention. The patentee can prevent others from making, using, offering for sale, selling or importing for those purposes the patented invention without the patentee's permission. He retains this right for a limited period of time, generally for 20 years from the filing date, provided any necessary maintenance fees are paid. This exclusive right of the patentee has two main applications in practice, namely protection

against infringement, and the possibility of assigning or licensing the right, in part or in whole.<sup>5</sup>

35. An infringement of the patentee's exclusive right involves the unauthorized exploitation of the patented invention by a third party. The initiative for enforcing a patent rests exclusively with the patentee. Thus it is he who is responsible for detecting infringements and for bringing them to the infringer's attention. The remedies which may be available to the patentee are usually provided in the patent law and included generally civil and criminal sanctions. Civil sanctions normally available include the award of damages, the grant of an injunction, or any other remedy provided under the law such as the seizure and destruction of the infringing products or the tools used for the manufacture of those products. The usual forms of criminal sanction are punishment by imprisonment or by a fine, or both.<sup>6</sup>

36. The national laws of most countries provide limited exceptions to the exclusive rights conferred by a patent. These exceptions are provided carefully so that they do not unreasonably conflict with the normal exploitation of the patent and do not unreasonably prejudice the legitimate interests of the patentee, taking account of the legitimate interests of third parties. Depending on the national law, they include, for example:

- the acts of exploiting the patented invention for the sole purpose of personal use;
- the acts of exploiting the patented invention for the sole purpose of scientific research and experiment;
- the acts of exploiting the patented invention forming part of vessels, aircrafts or land vehicles which temporarily or accidentally enter the country concerned;
- the acts of exploiting the patented invention by a third party who started making or using patented invention before the filing date of the patent application concerned, and who has the right to continue to make or use that invention;
- the acts of exploiting the patented invention under a non-voluntary license or under the authorization granted by the government under certain conditions.

#### VIII. Who has the right to a patent?<sup>7</sup>

37. In many countries, an inventor or his successor in title has the right to a patent. Therefore, any natural person or legal entity may be entitled to the right to a patent by virtue of transfer of the right from the inventor, such as through assignment, donation, inheritance, bankruptcy and the like.

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<sup>5</sup> As regards the details concerning licensing of intellectual property rights, reference is made to Topic 20, Licensing of Intellectual Property Rights.

<sup>6</sup> As regards further information concerning enforcement of intellectual property rights, reference is made to Topic 11, Effective Enforcement of IPRs.

<sup>7</sup> As regards further information concerning ownership of intellectual property rights, reference is made to Topic 19, Ownership of IP Assets.



38. The question becomes more complicated where an invention was made by an employee or a work was commissioned to, for example, an independent consultant. The answer to the question concerning ownership under these situations vary significantly from one country to another, depending on the national law and on the facts and circumstances of a particular employer-employee relationship.

39. In many countries, the employer owns an invention made by his employee if the invention was made in the performance of the employment contract, unless the employment contract stipulates otherwise. In other countries, conversely, the right belongs in principle to the employee inventor, unless otherwise agreed. In some countries, the employee inventor may retain the right to exploit the invention, but the employer is often given a non-exclusive right to use the invention for its internal purposes. Further, in some countries, the employee inventor has the right to a fair and reasonable remuneration for his invention if the employer takes rights to his invention.

40. In the great majority of countries, where applications concerning the same invention have been filed by more than one inventor who independently invented the invention, the applicant who first filed a patent application has the right to a patent (first-to-file system). In the United States of America, under this situation, the person who first invented the invention has the right to a patent (first-to-invent system).

## IX. How to protect an invention abroad?

### Why do we need a patent abroad?

41. The rights conferred by a patent are “territorial rights”. This means that a patent granted in one country is enforceable only in that country. For example, a patentee who has obtained a patent with respect to a certain invention in France cannot sue a third party who is using that invention without his consent in the United States of America for the infringement of his patent, unless the patentee has an equivalent patent granted by the patent Office of the United States of America. This is why it may be worth considering filing a patent application not only in the domestic country, but also abroad. The desirability of protecting the invention abroad may be considered carefully in view of the costs and time necessary for protecting the invention abroad, the nature of the invention, the international dimension of the business activity etc.

42. In certain regions, some countries have established regional patent Offices for obtaining patent protection within the region with a single application.<sup>8</sup> A regional patent can be considered as a “bundle of patents”, since it has the effect of a national patent in the member States designated in the application<sup>9</sup> or in each of the member States of the regional agreement.<sup>10</sup> The regional patent, however, is not a supranational title of protection.

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<sup>8</sup> African Regional Industrial Property Office (ARIPO) [<http://aripo.wipo.net/>], African Intellectual Property Office (OAPI) [<http://oapi.wipo.net/>], Eurasian Patent Office (EAPO) [<http://www.eapo.org/>] and European Patent Office (EPO) [<http://www.european-patent-office.org/>].

<sup>9</sup> This system applies to ARIPO, EAPO and EPO.

<sup>10</sup> This system applies to OAPI.

Therefore, the enforcement of rights should be sought for in each member States, and the invalidation of the patent has effect only in the member States concerned.

#### How to obtain a patent abroad?

43. There are essentially two procedures for applying for patent protection in foreign countries. One option is to file patent applications with each national/regional patent Office of the country/region in which patent protection is sought. Another option is to file an international application under the Patent Cooperation Treaty (PCT) which simplified the procedure for simultaneously seeking patent protection in a large number of countries, provided an applicant is a national or a resident of the Contracting State of that Treaty.<sup>11</sup>

44. The preparation and prosecution of patent applications in foreign countries can be very costly and time consuming. Each application may have to be translated into a prescribed language of each country. Financial resources should be available since fees need to be paid to each national/regional Office. It may be necessary to engage a patent attorney in each country to prosecute the applications. Therefore, in order to facilitate the filing of patent applications abroad, the Paris Convention for the Protection of Industrial Property (Paris Convention) established a mechanism called “right of priority.”

45. The right of priority means that, on the basis of a regular application filed by a given applicant in one of the Contracting Parties of the Paris Convention, the same applicant (or his successor in title) may, within 12 months, apply for patent protection in all the other Contracting Parties.<sup>12</sup> These later applications will then be regarded as if they had been filed on the same day as the earliest application. The filing date of the earliest application is called the “priority date.” Hence, these later applications enjoy a priority status with respect to all applications relating to the same invention filed after the priority date. They also enjoy a priority status with respect to all acts accomplished after that date which would normally be apt to destroy the novelty or inventive step of the invention.

46. The right of priority offers great practical advantages to applicants desiring patent protection in foreign countries. The applicant is not required to present all applications at home and in foreign countries at the same time, since he has 12 months at his disposal to decide in which countries to request patent protection. The applicant can use this priority period to organize the steps to be taken to secure patent protection in the various countries of interest in each particular case.

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<sup>11</sup> International applications under the PCT can be considered as a “bundle of national/regional applications,” since a single international application has the same effects as relevant national/regional applications. As regards details concerning the PCT, reference is made to Topic 6, The Patent Cooperation Treaty (PCT) and Its Importance for Developing Countries.

<sup>12</sup> As of July 15, 2003, 164 States are Contracting Parties to the Paris Convention. In accordance with Article 2.1 of the Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS Agreement), Members of the WTO shall also recognize the right of priority of the nationals and residents of other Members of the WTO.

## X. Alternatives to patent protection

47. In many countries, the economic and social value of an invention can be protected not only by patents but also by other titles of intellectual property protection. In particular, utility models and trade secrets may be worth mentioning. Costs and benefits of each title of protection should be evaluated carefully on a case by case basis.

### Utility models or similar titles of protection

48. In some countries, inventions may also be protected by utility models, which are also known as “innovation patents,” “utility innovations” or “short-term patents.”

49. The procedural and substantive requirements concerning utility models differ significantly from one country to another. In general, however, the main differences between utility models and patents may be described as follows:

- The requirements for acquiring a utility model are less stringent than for patents. While the requirement of “novelty” is always to be met, that of “inventive step” or “non-obviousness” may be much lower or absent altogether. In practice, protection for utility models is often sought for innovations of a rather incremental character which may not meet the patentability criteria.
- The term of protection for utility models is shorter than for patents (usually between 7 and 10 years without the possibility of extension or renewal).
- In most countries where utility model protection is available, patent offices do not examine applications as to substance prior to registration. This means that the registration process is often significantly simpler and faster.
- Utility models are much cheaper to obtain and to maintain.
- In some countries, utility model protection can only be obtained for certain fields of technology and only for products but not for processes.

50. In essence, the features of utility models is a quick, simple and cheap procedure with shorter term of protection. The utility model registration system is therefore more suitable than the patent system if the protection is required for a product with a short life cycle or an invention which may not merit patent protection (for example, minor improvement), but nevertheless is worth being protected by an intellectual property title.

51. Some countries allow filing both a patent application and a utility model application at the same time so that the applicant can reap and enjoy the fruit of the invention first while he is still waiting for the usually longer process of patent grant. But if there is a decision to grant a patent, laws generally require applicants to select only one of the two titles of protection for that same invention.

Trade secrets

52. An invention may involve confidential business information which may be protected by trade secrets.<sup>13</sup> On the one hand, trade secret protection does not require any registration, and its term of protection is unlimited as long as the information remains confidential. On the other hand, the information protected under trade secret protection cannot prevent a third party, who independently developed the invention involving the same information, from obtaining a patent for that invention. Since, in general, information protected under trade secrets are not made available to the public, they cannot be part of the prior art under patent law. Further, that third party may independently decide to disclose that same information to the public. Once such a disclosure is made, the value of the trade secret will be lost.

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<sup>13</sup> As regards details concerning trade secrets, reference is made to Topic 1, Trade Secrets.