

Standing Committee on the Law of Patents

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STUDY ON INVENTIVE STEP: SUMMARY

Document prepared by the Secretariat

INTRODUCTION

1. In accordance with the decision made at the twenty-first session of the Standing Committee on the Law of Patents (SCP), held in Geneva from November 3 to 7, 2014, document SCP/22/3 contains a study on inventive step prepared by the Secretariat. In particular, it contains the following three elements: (i) definition of the person skilled in the art; (ii) methodologies employed for evaluating inventive step; and (iii) the level of inventive step (obviousness).

INVENTIVE STEP – GENERAL DESCRIPTION AND HISTORY

2. The inclusion of the inventive step requirement in the patentability criteria is based on the premise that patent protection should not be given to anything that a person with ordinary skill could deduce as an obvious consequence of what is already known to the public.¹ An invention that is simply obvious in relation to the existing art would contribute very little, if anything at all, to society. The inventive step or non-obviousness may in some respects go to the heart of patentability.

3. In the early 19th century, national patent laws generally required patentable inventions to be new and useful (or industrially applicable). The origin of the modern inventive step/non-obviousness concept can be traced back to a provision contained in the French Patent Law of May 25, 1791, which provided in essence that simply changing the form or propositions of any kind was not deemed to be an invention to be protected by the Patent Law.

¹ WIPO Intellectual Property Handbook: Policy, Law and Use, paragraph 2.25.

4. A similar provision was included in the 1793 Act of the United States of America. The courts in the United States of America gradually developed the form or propositions doctrine, and later a much more complex and general rule. In *Hotchkiss v. Greenwood*, the US Supreme Court held that “every invention” must be the product of “more ingenuity and skill [...] than were possessed by an ordinary mechanic acquainted with the business”.² However, practical difficulties arose, since the lower courts had variously interpreted the vague expression “more ingenuity and skill” in *Hotchkiss*. Finally, the United States Congress enacted a statutory provision regarding non-obviousness in 1952.

5. In England, in the late 19th century, some courts started to apply a somewhat broader concept of the “novelty” requirement to cases involving a known device used in a different but analogous manner. By 1890, the courts had established a general rule that a patentable invention should not be so obvious that it would at once occur to anyone acquainted with the subject. Those developments culminated in the codification of the concept of obviousness as a requirement of inventive step in the Patents and Designs Act of 1932. Following a similar course of legal development, the inventive step requirement was also codified in other countries.

6. In general, the provisions regarding inventive step in national/regional patent laws lay down no more than a general principle applied to each specific case. Such an approach may be suitable for the application of the patentability criteria to each invention on its merits, and for accommodating future technological development that cannot be foreseen. However, it poses a particular challenge in determining the inventive step. Unlike factual comparison between a claimed invention and prior art in determining novelty, a vaguer, qualitative yardstick is used in assessing the inventive step.³ Therefore, judicial interpretation and administrative clarification of the legal provision beyond the letter of the law in each jurisdiction feed continued development of the inventive step requirement.

DEFINITION OF THE PERSON SKILLED IN THE ART (PSIA)

7. In general, the involvement of an inventive step is based on the assessment made by a “person skilled in the art”. Some national laws explicitly state that this person has “average” or “ordinary” skill. In one regional law, this person is referred to as a “person having ordinary knowledge and skill in the art”. In document SCP/22/3, the term “person skilled in the art (PSIA)” is used for the consistency in the document. The explanation of the PSIA in the PCT International Search and Preliminary Examination Guidelines at paragraph 13.11 captures a number of common elements in the interpretation of the PSIA in many national/regional jurisdictions.

8. A PSIA is a hypothetical person whose knowledge and skill will provide a basis for assessing whether the claimed invention involves an inventive step. It is not the inventor of the invention or a patent examiner who examines the application. Nor is it a prospective customer. The exact level of knowledge and skill of this fictitious character needs to be defined for each concrete individual case, depending on the nature of the claimed invention. Assessing the claimed invention from the eyes of this hypothetical person enables the objective analysis of the invention.

9. In general, a PSIA has ordinary or average skill in the relevant art on the relevant date. The relevant date is the filing date of the patent application concerned, or where priority is

² 52 U.S. 248 (1851), 267.

³ W. R. Cornish, Intellectual property: Patents, Copyright, Trademarks and Allied Rights, Sweet & Maxwell, London (1999), p.192.

claimed, the priority date. Some elements characterizing the level of ordinary or average skill of the PSIA are found in a number of countries, for example:

- (i) The PSIA is presumed to have had access to all publicly available state of the art information.
- (ii) The PSIA is able to comprehend all technical matters in the relevant art. The relevant art includes adjacent art, such as technical matters in the field relevant to the problems to be solved by the inventions.
- (iii) The PSIA possesses normal/ordinary knowledge of the technology in question. The PSIA is a skilled practitioner in the relevant field of technology, who possesses average knowledge and ability in the art at the relevant date.
- (iv) The PSIA possesses ordinary skill in the technical field in question, such as ordinary workshop technique or practical skills.
- (v) The PSIA possesses common general knowledge in the relevant art. Just because something is in the public domain does not make it part of the common general knowledge.
- (vi) The PSIA has the average skill and the capacity to use prior art as is usual for the technical field in question. The PSIA is able to use ordinary technical means.
- (vii) The PSIA is availed of the normal means and capacity for routine experimentation in order to, for example, clarify ambiguities on known technology.
- (ix) If the problem prompts a search for solutions in another technical field, a PSIA in that field is the person qualified to solve the problem.
- (x) The capacities and knowledge of the PSIA can, where appropriate, correspond to those of a team of persons working in various relevant fields, such as a research or production team.

10. In many countries, the PSIA is not an automaton, nor has he inventive capacity or inventive skill. The PSIA is often regarded as a person who does not exercise inventive imagination, but is normally skilled and is capable of exercising the usual faculties of logic and reasons based on his knowledge. The exact level and subtle nuances of the PSIA's creative or reasoning capacity in each jurisdiction are not always easy to grasp. For example, in one country, the PSIA has the ability to exercise ordinary creativity in selecting appropriate materials, optimizing numerical range of the invention, and replacing the invention with equivalents etc. In another country, the PSIA is endowed with the usual faculties of logic but does not possess intuition or the skills of deduction. Yet in another jurisdiction, the PSIA has the ordinary creativity that allows him/her to be motivated by the teachings of the prior art to combine them and advance, without adding knowledge to what was known when the invention was conceived. In another country, the PSIA is not presumed to have creativity.

11. From the above, it could be deduced that the PSIA's average or ordinary skill is not the average of a layperson's and a top specialist's skills, but rather the skill expected to be possessed by an ordinary practitioner in the relevant field. Therefore, the level of the PSIA's ordinary skill depends on the technical field and nature of the invention.

METHODOLOGIES EMPLOYED FOR EVALUATING INVENTIVE STEP

12. Some offices establish a standard methodology for assessing inventive step in order to support the objectivity and consistency of such assessment by examiners, applicants and third parties. Those methodologies address a particular challenge of avoiding the use of hindsight or *ex post facto* analysis in determining the inventive step, since readers of patent applications have both the problem and the solution to hand. Since each invention is unique, no jurisdiction seems to impose a single methodology. Their use is often a “recommendation”, “guide” or “useful tool” rather than obligation. In some offices, deviation from the established methodology should be an exception. Many offices employ the so-called “problem solution approach”, although there are slight differences in that approach among the offices. Other methodologies are also found in other countries. For the purpose of this summary document, those methodologies are roughly classified and summarized below.⁴ Whichever methodology is adopted, it is important to bear in mind that while sophisticated methodologies can be elaborated, ultimately, the fundamental question is in general “was the invention obvious?”.

13. The assessment of the inventive step depends on the state of the art, the PSIA and non-obviousness. In Germany, before deciding whether the invention involves an inventive step, the following must be identified: the relevant state of the art at the filing date (priority date); the competent skilled person; and the ability/level of knowledge of the skilled person. The starting point (points) for assessing obviousness of a subject matter are derived from the PSIA’s efforts to find a better (or also just another) solution than the known solutions. In Germany, there are no single universally applicable criteria for the determination of inventive step. Certain aspects, such as overcoming technical prejudice or satisfaction of a long standing need, may be indicative of an inventive step. In the United States of America, *Graham v. John Deer* set forth the basic factual inquiries for determining obviousness as follows: (i) determine the scope and content of the prior art; (ii) ascertain the differences between the prior art and the claimed invention; and (iii) resolve the level of ordinary skill in the pertinent art. A similar methodology is used in Guatemala. In Singapore, the principles of the so-called “*windsurfing* approach” are widely used as a useful guide. It consists of: (i) identification of the claimed concept, a PSIA, and differences between the claimed invention and the prior art; and (ii) analysis of whether such differences constitute steps which would have been obvious to the PSIA.

14. In Australia, the *welcome* test supports the use of the “problem-solution” approach, where appropriate. The test is whether the hypothetical addressee faced with the same problem would have taken as a matter of routine whatever steps might have led from the prior art to the invention, whether they be the steps of the inventor or not.

15. In some countries, the so-called problem-solution approach considers the following five elements or questions:

- (i) identify the prior art closest to the claimed invention (what is the closest prior art?);
- (ii) determine the differences between the claimed invention and the closest prior art (in terms of the claimed technical features, what is the difference between the claimed invention and the closest prior art?);
- (iii) define the technical effect caused and attributable to the differential element (what is the technical effect derived from this difference?);

⁴ This summary document provides indicative descriptions of certain methodologies. For the full description of various methodologies, the original document SCP/22/3 should be consulted.

(iv) deduce the objective technical problem (what is the objective technical problem underlying the claimed invention?); and

(v) starting from the closest prior art and objective technical problem, assess whether the claimed invention would have been obvious to the PSIA (would the PSIA, on the basis of the entire knowledge contained in the state of the art and without using any inventive skill whatsoever, recognize the problem and resolve it in the indicated manner?).

16. In some jurisdictions, the points (ii) to (iv) above are consolidated into one phase and the problem-solution approach is presented in the three phases. For example:

(i) determine the closest prior art which discloses, in one single reference, the combination of features that constitutes the most promising starting point for a development leading to the invention;

(ii) establish the objective technical problem to be solved by studying the application (or patent), the closest prior art and the differences between the claimed invention and the closest prior art (also called “the distinguishing feature(s)” of the claimed invention) in terms of structural or functional features, identifying the technical effect resulting from the distinguishing features, and then formulating the technical problem; and

(iii) starting from the closest prior art and the objective technical problem, consider whether or not the claimed invention would have been obvious to the PSIA. In other words, whether the PSIA would (not could) have arrived at the claimed invention by adapting or modifying the closest prior art, because the prior art incited him to do so in the hope of solving the objective technical problem or in expectation of some improvement or advantage.

17. In some other jurisdictions, a similar approach is taken, but emphasis is placed on the distinctive features of the claimed invention leading to its technical results. For example:

(i) identification of the closest analogue to the claimed invention (prototype);

(ii) identification of those features that distinguish the claimed invention from the prototype;

(iii) identification of the prior art solutions which coincide with the distinctive features of the claimed invention;

(iv) analysis of such solutions in order to establish the extent to which the features coinciding with the claimed invention’s distinctive features had influenced the technical result specified by the applicant.

18. According to the practice of the patent office of the Russian Federation, examiners may choose the problem-solution approach or the above distinctive features approach, as they consider appropriate, in each case.

19. In China, the governing criterion for the inventive step requirement is that, as compared with the prior art, the invention has prominent substantive features and represents a notable progress. Usually, the following three steps are taken to determine whether a claimed invention has prominent substantive features: (i) determine the closest prior art; (ii) determine the distinguishing features of the claimed invention and the technical problem actually solved by the invention on the basis of the technical effect of the distinguished features; and (iii) starting from the closest prior art and the technical problem, determine whether the claimed invention is

obvious to the PSIA. The question is whether there exists a technical motivation in the prior art, which prompts the PSIA, when confronted with the technical problem, to improve the closest prior art and reach the claimed invention. An invention representing notable progress means that the invention can produce advantageous technical effects as compared with the prior art.

20. The laws of Japan and the Republic of Korea provide that the claimed invention lacks inventive step if, prior to the filing date (priority date), a PSIA could have easily made the claimed invention based on the relevant prior art. The Examination Guidelines of the Korean Intellectual Property Office (KIPO) states that the following steps may be taken in determining the involvement of the inventive step: (i) identify the claimed invention; (ii) identify the prior art relevant to the claimed invention; (iii) select the prior art closest to the claimed invention, compare the claimed invention and the closest prior art and identify the differences; and (iv) determine whether the claimed invention could have been easily made by a PSIA in view of the relevant prior art and the common general knowledge. The Examination Guidelines of the Japan Patent Office (JPO) provides a similar methodology. One of the differences is that the JPO Guidelines recommend identification of both similarities and differences between the claimed invention and the selected prior art in step (iii) above.

THE LEVEL OF INVENTIVENESS (OBVIOUSNESS)

21. The title of this Chapter may be misleading, since the question as to whether an invention involves an inventive step (or is non-obvious) is not quantitative. A patent examiner examines not the level of inventiveness of the invention concerned, but the presence (or lack) of inventive step. Further, while obviousness is assessed in view of the state of the art, document SCP/22/3 does not touch upon the question as to what are the pertinent prior art for the determination of the inventive step.

22. In many countries, an invention does not involve an inventive step if, having regard to the prior art, it is obvious to a PSIA, or in his judgement, it resulted from the prior art in an evident or obvious manner. Therefore, the pertinent question might be: what is meant by “obvious” to a PSIA? While some national laws do not use the term “obvious” in relation to the inventive step requirement, many countries adopt similar lines of reasoning and logic for the determination of inventive step.

23. At a very high level, the concept of “obvious” in many countries encompasses the idea that the claimed invention does not go beyond the normal progress of technology that would be made by a PSIA and merely follows plainly or logically from the prior art. In other words, the progress found in the claimed invention does not involve the exercise of any skill or ability beyond that expected of a PSIA. In relation to the problem-solution approach, obviousness is often described along the following lines: the claimed invention is obvious if there is any teaching in the prior art as a whole that would prompt or motivate a PSIA, faced with the technical problem, to modify or adapt the closest prior art, thus arriving at something falling within the terms of the claim and achieving what the invention achieved.

24. In considering obviousness, the question is not whether the difference between the prior art and the claimed invention is obvious, but whether the claimed invention as a whole would have been obvious. Furthermore, the prior art references as a whole – including all the knowledge generally available to a PSIA such as well-known technique and common general knowledge – should be taken into account. Mere simplicity of the invention does not deprive it of inventiveness.

25. In general, the claimed invention is considered obvious if any item(s) of the prior art as a whole would have motivated or prompted the PSIA on the relevant date to reach the claimed

invention by substituting, combining, selecting or modifying the teachings of one or more items of prior art with a reasonable likelihood of success. The mere fact that the separate features of the claimed invention are known or obvious does not signify the obviousness of the claimed invention combining those features that mutually support each other in their effects. However, if there is no functional relationship between separate features of the claimed invention, it is merely a juxtaposition of features that renders the claimed invention obvious, unless any other grounds supporting the presence of non-obviousness are found.

26. In assessing obviousness, it is permissible to combine the teachings of two or more pieces of prior art, but only where the contents of those pieces of prior art would likely lead the PSIA to combine them: for example, there is a reasonable basis that the PSIA would associate them with each other or they are reasonably pertinent to the problem with which the invention is concerned. Whether the pieces of prior art come from technical fields similar to that of the claimed invention or from neighboring fields may also be taken into account.

27. In their administrative guidelines, many countries provide exemplary reasoning or rationales that may support or deny the presence of obviousness. Those examples, however, are for illustrative purposes and are intended to be mere guides for examiners or patent experts in general. Some guidelines include the following cases as examples of lack of inventive step: (i) simple substitution of a known element for another to obtain predictable results; (ii) replacement by an equivalent means; (iii) simple and direct extrapolation of known facts, such as a change of size, form or proportion, without any unexpected effect; (iv) applying a known technique or workshop modification to a known product ready for improvement to yield predictable results; and (v) selection from a number of alternative possibilities without any unexpected effect. Furthermore, technical advantages of the claimed invention over the prior art are generally also taken into consideration. In some countries, the administrative guidelines include additional examples and explanations about the determination of obviousness in a specific technical field.

28. In addition, many countries have developed a number of other indicators that may be taken into account for the positive assessment of the obviousness. Those other indicators that are found in more than one country include the following:

- the claimed invention solved a long felt need;
- other inventors had tried to solve the problem, but were not successful, or the claimed invention overcame technical difficulties not solvable by other means;
- the claimed invention has a particular commercial success (some countries indicate that, in order to be an indicative of inventive step, commercial success must derive from the technical features of the claimed invention);
- the prior art "taught away" a PSIA from the claimed invention, or the inventor overcame a technical prejudice;
- the originality of the solution brought by the claimed invention, which departs from the beaten path and opens a new path;
- the claimed invention produced unexpected technical effects or results;
- the claimed invention offers a surprisingly simple solution;
- a significant amount of time had elapsed between the recognition of the problem and the realization of the invention that solved the problem;

- the claimed invention is particularly complex and not readily carried out;
- the claimed invention is copied by others in preference to the prior art.

29. Furthermore, document SCP/22/3 briefly touches upon how additional data and evidential information submitted by the applicant in order to support the alleged inventiveness of the claimed invention could be taken into account in determining inventive step.

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