

Standing Committee on the Law of Patents

Twenty-Second Session
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STUDY ON INVENTIVE STEP

Document prepared by the Secretariat

INTRODUCTION

1. At its twenty-first session, held from November 3 to 7, 2014, the Standing Committee on the Law of Patents (SCP) confirmed that, in accordance with the agreement made at its twentieth session, a study on inventive step would be prepared by the Secretariat and be submitted to the twenty-second session of the SCP. The Committee agreed that the study would contain the following elements: (i) the definition of the person skilled in the art; (ii) methodologies employed for evaluating an inventive step; and (iii) the level of the inventive step. The Committee also agreed that the study would be based on the information provided by Member States, and would be a collection of factual information without analysis or recommendation.

2. Pursuant to the above decision, Member States and regional patent offices were invited, through Note C. 8403, dated December 15, 2014, to submit information to the International Bureau on the above elements under the applicable law. Taking into account the submitted information,¹ the Secretariat prepared a study on inventive step, which is contained in this document.²

¹ The information submitted by Member States and regional offices are available in full on the website of the SCP electronic forum at: http://www.wipo.int/scp/en/meetings/session_22/comments_received.html.

² In accordance with the WIPO language policy, this document is available in English only. A summary of this document, SCP/22/3 SUMMARY, is available in six languages.

INVENTIVE STEP – GENERAL DESCRIPTION AND HISTORY³

3. One of the patentability criteria is that a claimed invention must exhibit a sufficient “inventive step” or must be non-obvious. The inclusion of such a 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.⁴ An invention that is simply obvious in relation to the existing art would contribute very little, if anything at all, to society. Granting the exclusive patent rights on such an invention with minor improvement to the existing art would not support the objective of the patent system. As one scholar stated, the inventive step or non-obviousness is in some respects the heart and soul of patentability, separating the truly innovative wheat from the chaff of unpatentable minor improvements.⁵

4. In the early 19th century, national patent laws generally required patentable inventions to be new and useful (or industrially applicable). However, the origin of the notion of inventive step, although vague and undefined, can be traced back to the Venetian Statute in the Middle Age. In the second half of the 15th century, Venice granted monopoly privileges for improved industrial devices developed by “skill and experience”, “pertinent thoughts and labors” or “efforts, study and ingenuity” of applicants. This notion, however, was lost when the principles of the Venetian system were transmitted to England. The Statute of Monopolies (1623) had required novelty, but not inventive step, and remained the same for more than two centuries.⁶

5. 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 is not deemed to be an invention to be protected by the Patent Law. Probably inspired by the French law, the 1793 Act of the United States of America contained a provision stating that “simply changing the form or the propositions of any machine, or composition of matter, in any degree, shall not be deemed a discovery”. The expression “form or propositions” included in the laws of those two countries, however, had developed very differently. In France, whether an invention involves substantive advancement or not had become a question of minor importance for the determination of the patentability.

6. On the contrary, in the United States of America, courts gradually developed the interpretation of the term “form or propositions”. Although the Patent Act of 1836 eliminated the statutory language barring patents on mere changes in form or propositions, the lack of a statutory provision merely resulted in allowing courts to develop the form or propositions doctrine to a much more complex and general rule.

³ The description of the historical origin of the inventive step is based on the following literatures: Paul Cole, KSR and Standards of Inventive Step: A European View, *J. Marshall Rev. Intell. Prop. L.*, Vol. 8 (2008), pp.14-46; John F. Duffy, *Inventing Invention: A Case Study of Legal Innovation*, *Texas Law Review*, Vol. 86 (1) (2007); Edmund W. Kitch, *Graham v. John Deere Co.: New Standards for Patents*, *The Supreme Court Review*, Vol. 1966 (1966), pp. 293-346; John Richards and others, *KSR v. Teleflex: The Non-Obviousness Requirement of Patentability*, *Fordham Intellectual Property, Media and Entertainment Law Journal*, Vol. 17 (4) (2007), pp. 875-914.

⁴ WIPO Intellectual Property Handbook: Policy, Law and Use, paragraph 2.25.

⁵ Elizabeth A. Richardson, *Back to the Graham Factors: Nonobviousness after KSR v. Teleflex*, in Toshiko Takenaka (ed.), *Patent Law and Theory-A Handbook of Contemporary Research* (Edward Elgar Publishing, 2008). According to the submission by the Eurasian Patent Office (EAPO), 71% of the Eurasian patents challenged under the EAPO administrative revocation procedure were revoked on the grounds of non-compliance with the inventive step requirement. For the Eurasian patents revoked by EAPO Member States, 57% of revoked patents were found unpatentable due to the lack of inventive step.

⁶ The lack of an inventive step requirement in the statute may be due to the fact that obtaining a patent in England in the 17th and 18th centuries was very difficult and expensive. See John F. Duffy, “Inventing Invention: A Case Study of Legal Innovation”, *Texas Law Review*, vol. 86(1), 2007.

7. The origin of the non-obviousness requirement in the United States of America is generally attributed to the Supreme Court opinion in *Hotchkiss v. Greenwood*. The case concerned a doorknob made of clay or porcelain as opposed to already available knobs made of wood or metal. The Supreme Court broadly held that “every invention” must be the product of “more ingenuity and skill [...] than were possessed by an ordinary mechanic acquainted with the business”.⁷ The vagueness in *Hotchkiss*, particularly the expression “more ingenuity and skill”, left courts to determine how much more ingenuity and skill was needed to obtain a patent. There decisions were not consistent. There were decisions that appeared similar to the modern understanding of non-obviousness.⁸ At the same time, there were also decisions that interpreted the test more stringently.⁹ As the various interpretations of the standard by courts created legal uncertainty and raised practical difficulties, the United States Congress finally stepped in, and enacted Section 103 of the 1952 Patent Act, which provided that a new and useful advance would be considered unpatentable if it would have been obvious at the time of the invention was made to a person having ordinary skill in the art to which said subject matter pertains.

8. Turning to England, the English courts struggled with a patentability standard that required only novelty and utility for the most of the 19th century. The concept of obviousness was initially developed in England through the writings of legal scholars aware of the legal developments in the United States of America. The gradual transition started with cases involving a device known for one particular use was applied to another closely analogous use. In deciding those cases, some English courts started to apply a somewhat broader concept of the “novelty” requirement through employing a legal fiction, i.e., applying existing technology in a different but analogous manner or to an analogous purpose did not really involve anything new.¹⁰

9. From those cases, the general conceptual framework of obviousness that encompassed all types of inventions was developed. In *Blakey v. Latham* (1889), it was stated that an invention is not to be called new “simply because that has never been seen before. To be new in a patent sense, it was necessary that the novelty must show invention”. In *Thomson v. American Braided Wire Company* (1889), the court extended the analogous use precedents to consider whether the components (not the whole) of the alleged invention were being used in ways analogous to their uses in the prior art. Following that decision, in *Williams v. Nye* (1890), the Court of Appeal invalidated a patent on a machine combining a known mincer and a known sausage filling machine, where meat mincing had previously been combined with sausage filling in a single machine. In *Vickers, Sons & Co. v. Siddell* (1890), the court held that the key question was whether “this mode of dealing with forgings [...] was so obvious that it would at once occur to anyone acquainted with the subject and desirous of accomplishing the end, or whether it required some invention to devise it”. Those developments culminated in the codification of the concept of obviousness as a requirement of inventive step in the Patents and Designs Act 1932. It required that, to be patentable, an invention should involve “an inventive step having regard to what was known or used prior to the date of the patent”.

⁷ 52 U.S. 248 (1851), 267.

⁸ In *Pearce v. Mulford*, 102 U.S. 112 (1880), the court described a patentable invention as involving “something more than what is obvious to persons skilled in the art to which it relates”. In *Atl. Works v. Brady*, 107 U.S.192 (1883), the court compared an invention which “adds to our knowledge and makes a step in advance in useful arts” with an unpatentable “trifling device, every shadow of a shade of an idea, which would naturally and spontaneously occur to any skilled mechanic or operator in the ordinary progress of manufacture”.

⁹ For example, in *Cuno Eng'g Corp v. Automatic Devices Corp*, 314 U.S. 84 (1941), the Supreme Court held that a patentable invention “must reveal the flash of creative genius, not merely the skill of the calling”.

¹⁰ No novelty was found where the new adaptation was something that naturally suggest to a person turning his mind to the subject, while patents should be awarded only to those new adaptations that require some application of thought and study (*Penn v. Bibby* (1866) 2 L.R. Ch.127, 136).

10. A similar course of legal development is also found in other countries. For example, in Germany, the Imperial Patent Act of 1877 relied on the requirements of novelty and industrial applicability to define what could be patentable. The requirement of “inventivity” and being “a technical advance in the art” stemmed from court decisions over the following decades.

11. While the history shows that the concept of non-obviousness as a prerequisite for patent grant did not develop in a linear and continuous manner, the requirement of inventive step or non-obviousness is in principle embraced by all countries. According to the data covering 101 national patent laws and five regional laws,¹¹ the vast majority of national/regional laws express this idea that the claimed invention shall involve inventive step (or be non-obvious) in the following manner or something akin to it: the invention is not obvious to a person skilled in the art, having regard to the prior art.^{12,13} Although some national laws provide additional explicit clarifications at the legislation level¹⁴, in general, the inventive step (non-obviousness) provisions in patent laws lay down no more than a general principle, which is applied to each specific case. Such an approach may be suitable for the application of the patentability criteria to each invention on its merit, bearing in mind that inventions may relate to a different field of technology. It also accommodates future technological development that cannot be foreseen.

12. On the other hand, the fact that the law only provides a general principle causes a particular challenge in determining the inventive step. Unlike factual comparison between a claimed invention and prior art in determining the novelty, a vaguer, qualitative yardstick is used in assessing the inventive step.¹⁵ Therefore, clarification or interpretation of the legal provision beyond the letter of the law and development of a methodology for assessing the inventive step in each jurisdiction feed continued development of the inventive step requirement. While judicial interpretation of law is set by jurisprudences, many patent offices issue administrative search and examination guidelines in order to ensure the objectivity and consistency of assessments made by patent examiners. They often articulate how the legal requirement could be applied to each specific case. In countries where administrative guidelines are made available to the public, they also play an important role in providing guidance to applicants and third parties. While administrative guidelines do not have the same legal status as legislations and should be careful in its use, they provide useful information for the understanding of inventive step applied in each jurisdiction.

¹¹ Certain Aspects of National/Regional Patent Laws: Inventive Step
(see http://www.wipo.int/scp/en/annex_ii.html).

¹² The exceptions are found in the laws of Japan and the Republic of Korea (a person skilled in the art “would have been able to easily make the invention” based on prior art) and China (“compared with prior art, the invention has prominent substantive features and represents a notable progress”). The applicable law of Viet Nam states that an invention shall be considered involving an inventive step if, based on the prior art, it “constitutes an inventive progress and cannot be easily created by a person with average knowledge in the art”.

¹³ The definition of prior art (or the state of the art) relevant to the assessment of the inventive step under national laws is outside the scope of this document. On this subject, see document SCP/6/INF/2 in which responses to the questionnaire concerning the definition of prior art is summarized.

¹⁴ For example, the laws of Australia and Papua New Guinea explicitly states that common general knowledge is taken into account for the assessment of inventive step. In the United States of America, the law explicitly states that, to be obvious from the prior art, the subject matter as a whole would have been obvious before the effective filing date of the claimed invention. The Patents Act of India, in Section 2(1)(j)(a), states that an “inventive step” means a feature of an invention that involves technical advance as compared to the existing knowledge or having economic significance or both and that makes the invention not obvious to a person skilled in the art.

¹⁵ W. R. Cornish, Intellectual property: Patents, Copyright, Trademarks and Allied Rights, Sweet & Maxwell, London (1999), p.192.

DEFINITION OF THE PERSON SKILLED IN THE ART (PSIA)

13. In general, the determination of the involvement of an inventive step is based on the assessment made by a “person skilled in the art”.¹⁶ Some national laws explicitly state that this person has “average”¹⁷ or “ordinary”¹⁸ skill, while many jurisdictions interpret the level of the required skill in a similar manner without explicitly prescribing it in their laws (see below). The Agreement Revising the Bangui Agreement of March 2, 1977, on the Creation of an African Intellectual Property Organization (OAPI) refers to a “person having ordinary knowledge and skill in the art”. In this document, the term “person skilled in the art (PSIA)” is used as a representative term for the consistency within the document.

14. Beyond the expressions above, no national/regional law explains or defines the term. In some countries, jurisprudences or administrative guidelines provide guidance on the meaning of the term.

15. As a starting point, the explanation of the expression “person skilled in the art” in the PCT International Search and Preliminary Examination Guidelines, paragraph 13.11 may be highlighted as an illustrative example:

“13.11 The person skilled in the art should be presumed to be a hypothetical person having ordinary skill in the art and being aware of what was common general knowledge in the art at the relevant date. He should also be presumed to have had access to everything in the “prior art,” in particular, the documents cited in the international search report, and to have had at his disposal the normal means and capacity for routine experimentation. If the problem on which the invention is based and which arises from the closest prior art prompts the person skilled in the art to seek its solution in another technical field, the person skilled in the art in that field is the person qualified to solve the problem. The assessment of whether the solution involves an inventive step must therefore be based on that specialist’s knowledge and ability. There may be instances where it is more appropriate to think in terms of a group of persons, for example, a research or production team, than a single person. This may apply, for example, in certain advanced technologies such as computers or telephone systems and in highly specialized processes such as the commercial production of integrated circuits or of complex chemical substances.”

16. It captures a number of common elements in the interpretation of the term “person skilled in the art” in many national/regional jurisdictions.

Hypothetical person

17. A PSIA is a hypothetical person. It is a fictitious 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, purchaser or contractor of the claimed subject matter¹⁹.

18. 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, based on the

¹⁶ The laws of a small number of countries (Algeria, Sudan, Zambia) do not explicitly provide by whom the claimed invention is considered obvious.

¹⁷ For example, the applicable laws of Argentina, Chile, Colombia, Costa Rica, Ecuador, Israel, Panama, Peru, the Syrian Arab Republic and Viet Nam.

¹⁸ For example, the applicable laws of Bahrain, Barbados, El Salvador, Ghana, Japan, Jordan, Malaysia, Mauritius, the Republic of Korea, Saudi Arabia, Sri Lanka, Thailand, the United States of America, GCC Patent Office and OAPI.

¹⁹ German Federal Court of Justice, 17 November 2009 -X ZR 49/08 – Hundefutterbeutel.

applicable jurisprudence. Therefore, a PSIA could be anyone from a tradesman in some arts to a highly qualified scientist in others depending on the nature of the problem.²⁰ In *Hughes Aircraft Company v. The State of Israel*, CA 345/87, (2.7.1990), the US Supreme Court stated that a PSIA is a fictional figure that may possess different knowledge in different professional or scientific fields, depending on their technical or research nature.²¹

19. Assessing the claimed invention from the eyes of a hypothetical person enables the objective analysis of the invention. An examiner or a person assessing inventive step should attempt to place himself/herself in the shoes of the PSIA.²² On the basis of training and experience, a person should be able to put himself/herself in the position of the PSIA in determining the involvement of inventive step.²³

The level of skill in the relevant art

20. In many countries, a PSIA is deemed to have 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 claimed, the priority date. In order to maintain the objectivity of the obviousness assessment, it is important to resolve the level of ordinary or average skill of a PSIA.²⁴

21. The PSIA is not the “mechanician of genius nor [...] the mechanical idiot”.²⁵ This is a typical professional possessed of the knowledge common to such professionals.²⁶ In many countries, the PSIA is deemed to have “average” skill. According to the Guidelines used in many Latin American countries, the PSIA “refers to a person with average knowledge, not someone who is specialized”, and thus the level of PSIA’s knowledge, skill and abilities is considered higher than those of the general public, but do not exceed those expected from a duly qualified person.²⁷ In Viet Nam, a person with average skill in the art means a person who has ordinary technical practice skills and is acquainted with publicly available general knowledge in the art.²⁸

22. The PSIA’s knowledge of the state of the art is only what is expected of an average professional knowledge, and his level of knowledge depends on the very nature of the relevant technology.²⁹ In the United States of America, factors that may be considered in determining the level of ordinary skill in the art may include: (i) type of problems encountered in the art; (ii) prior art solutions to those problems; (iii) rapidity with which innovations are made; (iv) sophistication of the technology; and (v) educational level of active workers in the field. In a given case, every factor may not be present, and one or more factors may predominate. In

²⁰ See the submission by Australia.

²¹ *Hughes Aircraft Company v. The State of Israel*, CA 345/87, (2.7.1990)). Similarly, the submission by the Slovak republic notes that the level of knowledge and professional skills of the fictitious person skilled in the art differs in individual cases, notably in regard to the technical field to which the invention pertains.

²² See the submission by Singapore.

²³ See the submission by Spain, referring to a court decision of May 9, 2008.

²⁴ *Ryko Mfg. Co. v. Nu-Star, Inc.*, 950 F.2d 714, 718, 21 USPQ2d 1053, 1057 (Fed. Cir. 1991).

²⁵ *Van der Lely NV v Bamfords Ltd* [1961] RPC 296 (see the submission by Singapore).

²⁶ Decision of the Barcelona Commercial Court No.4, dated January 7, 2014 (Spain).

²⁷ The Manual for Examination of Applications for Patents for Inventions in the Industrial Property Offices of the Countries of the Andean Community (Andean Manual) and the Manual for the Organization and Review of Patent Applications of the Industrial Property Offices of the Countries of Central America and the Dominican Republic (Central American Manual).

²⁸ Point 23.6.a of the Circular No. 01/2007/TT-BKHCHN OF February 14, 2007 of the Ministry of Science and Technology guiding the implementation of the Government’s Decree No. 103/2006/ND-CP of September 22, 2006.

²⁹ See the submission of the OAPI.

some countries, to identify the PSIA, the starting point must be the technical problem that the invention aims and claims to solve.³⁰

23. From the above, it could be deduced that the PSIA's average or ordinary skill is not the average of a layperson's skill (the minimum knowledge and skill) and a top specialist's skill (the maximum knowledge and skill), but rather the skill expected to be possessed by an ordinary, duly qualified practitioner in the relevant field.

24. In India, the Intellectual Property Appellate Board (IPAB) pointed out the difference in the words "a person skilled in the art" used in the legal provision with respect to the requirement on inventive step and the words "a person who has average skill and average knowledge" used in the provision concerning the enabling disclosure requirement.³¹ While the IPAB did not articulate the difference between those two expressions, it stated that a person skilled in the art relevant to the assessment of the inventive step "has read the prior art and knows how to proceed in the normal course of research with what he knows of the state of the art. He does not need to be guided along step by step. He can work his way through. [...] he is neither picking out the 'teaching towards passages' like the challenger, nor is he seeking out the 'teaching away passage' like the defender."³²

25. In practice, there are many common or similar elements that characterize the level of skill of the PSIA across the jurisdictions. These elements may be summarized as follows.

(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.

26. In some countries, the PSIA is presumed to be able to comprehend all technical matters in the field relevant to problems to be solved by the inventions.³³ The relevant art includes adjacent art, such as technical matters in the field relevant to the problems to be solved by the inventions.³⁴

(iii) The PSIA possesses normal/ordinary knowledge of the technology in question.

27. The PSIA is a skilled practitioner in the relevant field of technology, who possesses average knowledge and ability in the art at the relevant date³⁵ or general knowledge in the relevant field³⁶.

(iv) The PSIA possesses ordinary practical skill in the technical field in question.

28. The PSIA is presumed to be well acquainted with workshop technique³⁷, ordinary technical practice skills³⁸ or know-how in the technical field of the invention³⁹.

³⁰ The EPO Boards of Appeal, T 422/93 and the decision of the Barcelona Commercial Court No.4, dated January 7, 2014 (Spain).

³¹ Enercom vs Aloys Wobben, ORA/08/2009/PT/CH (Order No. 123 of 2013).

³² Ibid, referring to Sankalp Rehabilitation Trust vs Hoffman-Roche, OA/8/2009/PT/CH.

³³ See the submissions by Japan, Switzerland and France (Cf. in particular the Court of Cassation, Civil Division, Commercial Division dated November 20, 2012 N.11-18.440).

³⁴ See the submission by Bulgaria and the Japanese Examination Guidelines, Part II, Chapter 2, 2.2.

³⁵ EPO Technical Boards of Appeal decisions, T 4/98, T 143/94 and T 426/88. See also the submission of Mexico and the decision of the Court of Cassation, Commercial Division dated October 17, 1995 and November 20, 2012 in France.

³⁶ See the submission of Turkey and Viet Nam.

³⁷ See the submission by Singapore.

³⁸ See the submission by Viet Nam.

(v) The PSIA is aware of or possessing common general knowledge in the relevant art at the relevant date.

29. The PSIA is also able to combine information disclosed in cited documents with common general knowledge in their technical field, for instance with a well-known technical teaching of a handbook.⁴⁰ Depending on the nature of the technology, the common general knowledge may be possessed by a relatively few number of skilled practitioners in certain cases, while it is not considered part of the common general knowledge unless it is possessed by a larger number of those skilled practitioners in other cases.⁴¹ According to French case law, a person skilled in the state of the art does not possess any professional knowledge with regard to an area of specialization other than his own.⁴² It however admits that a PSIA may possess knowledge that is more general in nature and not necessarily linked to the specific field in question, or knowledge of neighboring fields posing identical or similar technical problems.

30. It is important to distinguish common general knowledge from public knowledge – just because something is in the public domain does not make it part of the common general knowledge. The submission by Singapore noted that in most cases, an assertion that certain information forms part of common general knowledge should be supported by documentary evidence.⁴³ A description in standard textbooks will provide a strong indication of being the common general knowledge.⁴⁴ It may also be assumed that a scientific paper that is widely cited has entered into the common general knowledge. Further, a set of industry standards may be considered to be part of the common general knowledge. As confirmed by a court decision,⁴⁵ in Singapore, it is not expected that a PSIA would know the information, but rather that he would know where to find the relevant information.

(vi) The PSIA has the average skill and the capacity to use prior art as is usual for the technical field in question.

31. The PSIA, having access to all prior art information, has the average skill and capacity to use that prior art information as is usual for the technical field in question.⁴⁶ The PSIA is able to use ordinary technical means for R&D.⁴⁷

(vii) The PSIA is availed of the normal means and capacity for routine experimentation in order to, for example, clarify ambiguities on known technology.

32. The PSIA is dispose of the usual means, ability and experience to perform routine experimentation.⁴⁸ The PSIA, who is in disposal of normal tools and skills, is expected to

[Footnote continued from previous page]

³⁹ See the submission by Mexico.

⁴⁰ See the submissions by, for example, Australia, China, Colombia, Finland, the Republic of Moldova and the Russian Federation.

⁴¹ See the submission of Singapore. According to the decision of the EPO Boards of Appeal, T 475/88, however, a single publication cannot normally be considered as common general knowledge.

⁴² Decision of the Court of Cassation, Commercial Division, dated February 26, 2008.

⁴³ Similarly, the EPO Guidelines for Examination in the EPO, Part G, Chapter VII-2, 3.1 states that an assertion that something is common general knowledge need only be backed by documentary evidence (for example, a textbook) if this is contested.

⁴⁴ See also the EPO Boards of Appeal, T 171/84.

⁴⁵ Nokia v Ipcor [2010] EWHC 3482.

⁴⁶ See the submissions by, for example, Finland and Turkey.

⁴⁷ See the submissions by Japan and the Republic of Korea.

⁴⁸ See the submissions by, for example, Argentina, Finland, Morocco, Spain and the EPO.

perform experiments in order to clarify ambiguities on known technology, without employing inventiveness.⁴⁹

(viii) If the problem prompts a search in another technical field, a PSIA in that field is the person qualified to solve the problem

33. If the problem prompts the PSIA to seek its solution in another technical field, the specialist in that field is the one qualified person to solve the problem. The assessment of the inventive merit of the solution should therefore be based on knowledge and skill in such specialist.⁵⁰ The PSIA has a long lasting experience in the relevant field of technology and has an average overview on the present and continuing developments in that field.⁵¹ Therefore, he may be expected to look for suggestions in neighboring and general technical fields or even in remote technical fields, if prompted to do so.⁵² In order that the skilled person would find the solution in the technology areas that do not belong to his own area of technology, and nor do belong to neighboring fields of technology, he shall be led to find the solution there through, for example, an instruction or another for it to be considered obvious.⁵³

(ix) The PSIA may be a team of persons working in various relevant fields.

34. 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. This is the case in, for example, certain advanced technologies such as computer systems or network and in highly specialized processes such as the commercial production of integrated circuits or of complex chemical substances.⁵⁴ Medical technology (such as X-ray devices) that needs the knowledge of physics and medicine may be another example.⁵⁵

35. In order for a skilled person to be considered a team, it should be evident that the specialist in the main field of the invention is dealing with a technical problem that cannot be solved with his technical knowledge only and that he would have considered to get assisted by a specialist from another field.⁵⁶ To be the PSIA, a group of experts would under normal conditions solve the presented task together⁵⁷, or a person skilled averagely in an art would seek the support of another person skilled averagely in another art⁵⁸.

Limited capability of the PSIA

36. The PSIA is not an automaton, nor has he full inventive capacity or inventive skill. The PSIA is proficient in the details of the relevant field but does not have inventive capabilities.⁵⁹ While a "mosaic" of the relevant prior art documents is permitted for the assessment of inventive step, it must be a mosaic which can be put together by an unimaginative man with no inventive

⁴⁹ See the submission by Sweden.

⁵⁰ See the submissions of, for example, Argentina, China and Norway.

⁵¹ See the submission by Austria and the EPO Boards of Appeal, T 774/89 and T 817/95.

⁵² EPO Boards of Appeal, T 560/89. See also the submission by Morocco and Sweden.

⁵³ PRV Guidelines for Search and Examination (Sweden), RL B5:2.5.2.

⁵⁴ See the submissions of, for example, Argentina, Croatia, Norway and Sweden.

⁵⁵ See the submission by Turkey.

⁵⁶ See the submission of Israel. If the problem to be solved refers to a second technical field, it can be expected that a specialist is consulted or becomes part of the team (German Federal Court of Justice, September 15, 1977 – X ZR 60/75 - Börsenbügel - GRUR 1978, 37)3).

⁵⁷ See the submission of the Slovak Republic.

⁵⁸ See the submission of Turkey.

⁵⁹ The decision of the Supreme Court of Israel. See also the EPO Boards of Appeal, T39/93, OJ EPO 1997, 134 and the decision of the Barcelona Commercial Court No.4, dated January 7, 2014 (Spain)

capacity.⁶⁰ Furthermore, the PSIA does not question the established views regarding the relevant technology.⁶¹

37. 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 person skilled in the art is able to solve technological tasks, duties or problems based on his experience, knowledge and the principles of logical, rational reasons and decisions.⁶² In Singapore, a PSIA is “assumed to be of standard competence at his work without being of an imaginative or inventive turn of mind”⁶³, and is “the normally skilled but unimaginative addressee in the art at the priority date”.⁶⁴

38. The exact level and subtle nuances of the PSIA’s creative or reasoning capacity in each jurisdiction are not always easy to grasp. In the Republic of Korea, the PSIA has the ability to exercise ordinary creativity in selecting appropriate materials, optimizing a numerical range of the invention, and replacing the invention with equivalents etc. Similarly, in Japan, a PSIA is able to exercise ordinary creativity in selecting materials and changing designs. In Switzerland, the PSIA is endowed with the usual faculties of logic but does not possess intuition or the skills of deduction. He does not have any associate skills, nor is he creative. The Guidelines for Patent Examination of China, in Part II, Chapter 4, Section 2.4, states that the PSIA is not presumed to have creativity.

39. In the United States of America, a PSIA is a person of ordinary creativity, not an automaton. In many cases, he will be able to fit the teachings of multiple patents together like pieces of a puzzle and would, of necessity have the capability of understanding the scientific and engineering principles applicable to the pertinent art.⁶⁵ Similarly, according to the Guidelines for Patent Examination and Registration Procedures of Chile, the PSIA has the ordinary creativity expected of every person skilled in the relevant technical field. The ordinary creativity may refer to his ability 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.

40. The Intellectual Property Appellate Board (IPAB) of India stated that a PSIA is not a dullard and has certain modicum of creativity.⁶⁶ It further clarified in *Enercon vs Alloys Wobbens* that “we do not intend to visualize a person who has super skills, but we do not think we should make this person skilled in the art to be incapable of carrying out anything but basic instructions.”

⁶⁰ *Peng Lian Trading v Contour Optik* [2003] 2 SLR 560 (Singapore), referring to the English case of *Technograph Printed Circuits Ltd v Mills & Rockley (Electronics) Ltd* [1972] RPC 346. In addition, *Prakash J in Ng Kok Cheng v Chua Say Tiong* [2001] SGHC 143 (Singapore) summed up the essential indicators of a person skilled in the art as a person who: (i) possesses common general knowledge of the subject matter in question; (ii) has a practical interest in the subject matter of the patent or is likely to act on the directions given in it; and (iii) whilst unimaginative is reasonably intelligent and wishes to make the directions in the patent work. (Singapore)

⁶¹ See the submission of Sweden.

⁶² See the submission of Austria.

⁶³ *General Tire & Rubber Co v Firestone Tyre & Rubber Co Ltd & Ors* [1972] RPC 457.

⁶⁴ *Windsurfing International Inc. v Tabur Marine (Great Britain) Ltd* [1985] RPC 59 (referred to in *Institut Pasteur & Anor v Genelabs Diagnostics & Anor* [2000] SGHC 53).

⁶⁵ See the submission by the United States of America,

⁶⁶ *Sankalp Rehabilitation Trust vs Hoffman-Roche*, OA/8/2009/PT/CH (Order No.250/2012).

METHODOLOGIES EMPLOYED FOR EVALUATING AN INVENTIVE STEP

41. 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. 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. 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.

42. 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,⁶⁷ deviation from the established methodology should be an exception. Whichever methodology is adopted, it is important to bear in mind that while sophisticated methodologies can be developed and elaborated, ultimately, the fundamental question goes back to the legal requirement under the applicable law: “was the invention obvious?”⁶⁸

43. The assessment of the inventive step depends on the state of the art, the PSIA and non-obviousness. Since the assessment of obviousness of the claimed invention is based on the relevant prior art from the perspective of a person skilled in the art, identification of the claimed invention, relevant prior art and a PSIA as well as comparison between the claimed invention and the relevant prior art are the inherent elements of such assessment. Therefore, those elements are found in common in all methodologies.

44. The following paragraphs describe various methodologies applies in Member States. While a great amount of commonalities are found in those methodologies, a particular attention may be drawn to the following aspects:

- as a starting point, which prior art should be compared with the claimed invention;
- how to identify the closest prior art or the most suitable prior art;
- how to evaluate the differences between the claimed invention and the prior art;
- if the technical problems or effects play an important role in the assessment of an inventive step, how to assess the non-technical elements in the claimed invention.

Germany

45. 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. In Germany, a decision as to whether a claimed invention involves the inventive step depends on the concrete circumstances of each individual case. Decisions in comparable cases can only serve as guidelines. There is no case law as to single universally applicable criteria that would allow drawing compelling conclusions about the presence of inventive step in other cases. In the case “Fischbissanzeiger”, the German Federal Court of Justice ruled that the “closest” prior art

⁶⁷ The Office of Industrial Property and Commerce of Morocco and the EPO.

⁶⁸ Jacob LJ noted in *Angiotech Pharmaceuticals v Conor Medsystems* 4.16 [2007] EWCA Civ 5 that the threshold question is a relatively simple one: “[...] one can over-elaborate a discussion of the concept of —obviousness so that it becomes metaphysical or endowed with unwritten and unwarranted doctrines, sub-doctrines or even sub-sub-doctrines. In the end the question is simply —was the invention obvious?”. However, it should be noted that in a small number of national laws, the term “obvious” is not explicitly used to characterize the inventive step.

cannot always be taken as the sole starting point for assessing obviousness of a subject matter protected by a patent.⁶⁹ Rather, the choice of the starting point (or also of several starting points) requires a particular justification which, as a rule, shall be derived from the skilled person's efforts to find a better – or also just another – solution for a certain purpose than that provided by the state of the art.

46. Certain secondary indicia, such as overcoming technical prejudice or satisfaction of a long standing need, may be indicative of an inventive step (see the next Chapter regarding the secondary considerations).

Guatemala and the United States of America

47. In the United States of America, the assessment of the inventive step is made on a case-by-case basis as appropriate, taking into account the relevant facts. The framework for the objective analysis for determining obviousness under 35 U.S.C. Section 103 is stated in the Supreme Court case, *Graham v. John Deere Co.* 383 U.S. 1, 148 USPQ 459 (1966). Obviousness is a question of law based on underlining factual inquiries. The factual inquiries are enunciated by the Court 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.

When assessing the obviousness, relevant objective evidence must be evaluated. Such evidence, sometimes referred to as “secondary considerations” may include evidence of commercial success, long identified but unmet needs, failure of others and unexpected results. The Graham factors, including secondary considerations when present, were reaffirmed and relied upon by the US Supreme Court in its consideration and determination of obviousness in the fact situation presented in *KSR International Co. v. Teleflex Inc.*⁷⁰

48. A similar methodology is used in Guatemala. According to Article 117, paragraph 3 of the Industrial Property Law (Decree No. 57/2000) the question of whether an invention is unpatentable for lack of novelty or inventive step is settled on a case-by-case basis as appropriate, taking into account the relevant facts, for example:

- (i) the scope and content of the prior art;
- (ii) differences between the current state of the art and the claim;
- (iii) the level of ordinary skill in the relevant art; and
- (iv) appropriate secondary factors such as commercial success, long identified but unmet needs, failure of others and unexpected results.

Singapore (*Windsurfing* approach)

49. In Singapore the test set out in *Windsurfing International Inc. v Tabur Marine (Great Britain) Ltd* 4.18[1985] RPC 59 has been adopted in a number of Singapore Court decisions, and wherever possible, the principles of the so-called "*Windsurfing* approach" should be

⁶⁹ German Federal Court of Justice, June 18, 2009 - Xa ZR 138/05 - Fischbissanzeiger - GRUR 2009, 1039.
⁷⁰ *KSR International Co. v. Teleflex Inc.*, 550 U.S. 398, 82 USPQ2d (2007).

followed in patent examination. It consists of the following four steps to reduce the risk of hindsight:

- (i) identify the claimed inventive concept;
- (ii) assume the mantle of the normally skilled but unimaginative addressee in the art at the priority date and to impute to him what was, at that date, common general knowledge of the art in question;
- (iii) identify what, if any, differences exist between the matter cited as being "known or used" and the alleged invention;
- (iv) decide, without any knowledge of the alleged invention, whether these differences constitute steps which would have been obvious to the person skilled in the art or whether they require any degree of invention.

50. The "inventive concept" in step (i) is concerned with the identification of the core of the invention. It is "the idea or principle, of more or less general application (see *Kirin-Amgen*, [2005] RPC 169 paras 112-113) which entitles the inventor's achievement to be called inventive. The invention's technical contribution to the art is concerned with the evaluation of its inventive concept—how far forward has it carried the state of the art? The inventive concept and the technical contribution may command equal respect but that will not always be the case."⁷¹ The Examination Guidelines for Patent Applications at the Intellectual Property Office of Singapore (IPOS) clarify that the matters known or used referred to in the third step of the *Windsurfing* test should be read as "the state of the art" set out in Section 14(2) of the Singapore Patents Act.

51. When formulating an inventive step objection, examiners may also use the modified *Windsurfing* test, i.e., Pozzoli approach.⁷² The differences between the two approaches are essentially in form rather than substance. The court recognized that, while the *Windsurfing* test remains a useful guide, it is merely a manifestation of judicial inventiveness on how to pragmatically interpret and elucidate the requirement under the Patents Act.

Japan and the Republic of Korea

52. The applicable 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.⁷³

53. The Examination Guidelines of the Korean Intellectual Property Office (KIPO) states that the examiner shall make efforts to consider the overall state of the art that a person skilled in the art would consider at the time of filing and, at the same time, shall thoroughly consider the purpose, technical structure, and advantageous effects of the invention while paying attention to the description, drawings and the opinion of the applicant, comprehensively determining whether the claimed invention has the inventive step in consideration of its specific purpose and effectiveness, and focusing on the difficulty of the technical structure of the claimed invention. The examiner shall determine the inventive step by considering whether, from the point of view of one of ordinary skilled in the art, the claimed invention has any advantageous effects over a cited prior art while mainly focusing on whether the cited prior art provide any motivation to a person skilled in the art to reach the subject matter of the claimed invention or whether the

⁷¹ *Generics (UK) Limited v H Lundbeck A/S* [2009] UKHL 12.

⁷² *Pozzoli SPA v BDMO SA* [2007] EWCA Civ 588.

⁷³ Article 29(2) of the Japan Patents Act and the Korean Patents Act, respectively.

difference between the subject matter of the prior art and that of the claimed invention can be considered as a mere exercise of ordinary creativity.

54. According to the Examination Guidelines of the KIPO,⁷⁴ 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, even though there is a difference between the claimed invention and the cited prior art.

In step (iii), the examiner shall take into consideration the structural combination of the elements of an invention. More specifically, structurally combined elements of an invention shall be compared as one integrated unit (without being separated) with their corresponding elements in the cited prior art.

55. The Examination Guidelines of the Japan Patent Office (JPO)⁷⁵ provides a similar methodology. The determination of the presence of an inventive step is based on whether it could be reasoned that a person skilled in the art is able to easily arrive at the claimed invention based on the prior art, by constantly considering the process the person skilled in the art may take, based on the understanding of the technical field of the claimed invention as of filing. More specifically, the following approach is taken:

- (i) identify the claimed invention;
- (ii) identify one or more prior art relevant to the claimed invention;
- (iii) select the prior art most suitable for providing reasons for denying the presence of an inventive step, compare that prior art and the claimed invention, and find the correspondences and differences between the matters that specify the selected prior art and the claimed invention; and
- (iv) determine the reasons for denying the presence of the inventive step of the claimed invention, based on the details of the selected prior art or other relevant prior art (including well known and commonly used arts) and the common general knowledge.

The specificity of the JPO methodology may be found in step (iii) where both correspondences and differences between the selected prior art and claimed invention are identified and taken into account for the analysis of inventive step.

Austria

56. In Austria, where the following questions are answered negative, it indicates that the invention concerned involves an inventive step:

⁷⁴ Examination Guidelines of KIPO, Part 3 Chapter 3, Section 4, 5.

⁷⁵ Part II, Chapter 2, Section 2.4 of the Examination Guidelines of the JPO.

- (i) Would the person skilled in the art have classified/chosen the proposed technological invention to solve the technological tasks/duties/problems of the application as self-evident?
- (ii) Is the chosen technology method of the solution within the possible solution space/solution portfolio of the person skilled in the art in this specific technological field?
- (iii) Would the person skilled in the art be able to find/invent the chosen technology method of the disclosed solution of the application easily/without circumstances by the principles of logical, rational reasons and decisions based on his/her experience and knowledge?

The above methodology suggests that certain emphasis is put on the solution to the technical problems brought by a claimed invention, as it is the case in the problem-solution approach (see below). At the same time, step (iii) provides that whether a person skilled in the art would “easily” arrive at the claimed invention is a relevant indicator. That element seems to show certain similarity to the methodologies found in the Guidelines of the JPO and KIPO.

Australia (*Wellcome* test)

57. In Australia, the test for obviousness was set by the High Court of Australia, Aickin J in *Wellcome Foundation Ltd v VR Laboratories (Aust) Pty Ltd*⁷⁶ as follows: “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.” Consistent with *Wellcome*, more recently the High Court in *Aktiebolaget Hässle v Alphapharm Pty Ltd*⁷⁷ approved the “reformulated Cripps question” posed by Graham J in *Olin Mathieson Chemical Corporation v Biorex Laboratories Ltd*⁷⁸: “Would the notional research group at the relevant date in all the circumstances ... directly be led as a matter of course to try [the invention claimed] in the expectation that it might well produce a useful [result or alternative]?”

58. The *Wellcome* test above supports the use of the “problem-solution” approach, where appropriate, when considering whether a claimed invention is obvious in light of the common general knowledge in the art alone, or in combination with the prior art base. The “problem-solution” approach in Australia is based on the question of whether the claimed invention would have been obvious to a person skilled in the relevant art when faced with a particular problem. The approach is the preferred one to apply when considering inventive step, as it reduces the risk of *ex post facto* analysis. Such approach also ensures that the examiner’s consideration of whether a claim lacks an inventive step is valid and sustainable, and identifies all the issues relevant to establishing lack of inventive step.⁷⁹

Problem-solution approach – closest prior art, technical effect and objective technical problem

(a) Problem-solution with five stages (five questions)

59. Decision 486 of the Andean Community, 2000, in Article 28(c) states that a description of the invention should be made in such a way that the technical problem and the solution provided by the invention may be understood, explaining the differences and possible advantages with respect to previous technology. In Colombia, the guidelines provide that in

⁷⁶ *Wellcome Foundation Ltd v VR Laboratories (Aust) Pty Ltd* (1981) 148 CLR 262 at page 286.

⁷⁷ *Aktiebolaget Hässle v Alphapharm Pty Ltd* [2002] HCA 59 at [51]-[53]; 212 CLR 411.

⁷⁸ *Olin Mathieson Chemical Corporation v Biorex Laboratories Ltd* [1970] RPC 157 at 187.

⁷⁹ Sections 2.5.1.5 and 2.5.1.6A of the Patent Manual of Practice & Procedure of Australia.

order to minimize subjectivity and prevent a retrospective analysis (“hindsight” or “*a posteriori*”), the examination must relate the invention with the solving of a technical problem, through the “problem-solution method.”⁸⁰ It consists of the following five stages:

- (i) identifying the state of the prior art closest to the claimed invention;
- (ii) determining the difference between the invention and close prior art;
- (iii) defining the technical effect caused and attributable to the differential element;
- (iv) deducing the objective technical problem; and
- (v) assessing whether, starting from the close prior art and objective technical problem, the claimed invention, would have been obvious to a person of ordinary skill in the art.

If the answer is yes, the invention is considered obvious and therefore it is concluded that there is no inventive step.

60. Such an approach is also used by the patent office of Morocco.

61. Similarly, the Patent Guidelines issued by the patent offices of Chile, Portugal and Spain recommend its examiners to use the problem-solution approach consisting of the following five questions:⁸¹

- (i) What is the closest prior art?
- (ii) In terms of the claimed technical features, what is the difference between the claimed invention and the closest prior art?
- (iii) What is the technical effect derived from this difference?
- (iv) Consequently, what is the objective technical problem underlying the claimed invention?
- (v) Would a person skilled in the art, 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?

62. In step (i), the greatest number of common features, elements and technical effects between the claimed invention and the prior art should be taken into account in selecting the closest prior art. In step (ii), the technical characteristics, either structural or functional, which make the difference between the claimed invention and the closest prior art should be specified.

63. Regarding step (iii), the effect or result that is directly attributable to the characteristics that distinguish the claimed invention should be specified. An effect to the new elements cannot be assigned arbitrarily in isolation, but the claim as a whole should be studied. It is possible that certain characteristics that are considered new have no technical effect, being merely of ornamental nature or correspond to results that are not comparable with the prior art. In such a case, those characteristics should be excluded from further analysis. In case where it is not

⁸⁰ Informative Review of Form and Content of Patent Applications and Utility Models of SIC. PI02-I06,,2.13.5.1 Problem-solution method.

⁸¹ INAPI Guidelines for Patent Examinations and Registration Procedures, Part XVIII, 3.1; OEPM Patent Guidelines, 6.6.1.

possible to determine a technical effect or such effect is unclear, such situation is addressed in step (iv).

64. In step (iv), it is required to formulate the objective technical problem from the technical function that has been attributed to the new features. The objective technical problem may coincide with the problem indicated by the applicant (subjective technical problem). If it is not possible to formulate a technical effect from the new features or that the effect is not clear, it is assumed that the objective technical problem is a new alternative to the known art.

65. As to step (v), the question is whether the prior art as a whole had led a person skilled in the art to adapt, modify or combine the closest prior art, allowing to achieve the same effects and the same way as the claimed invention. It is divided into two sub-questions. The first question is whether a person skilled in the art has recognized the same objective technical problem. The first question focuses on determining whether the entire state of the art, including the closest prior art, intended to solve the same objective technical problem is revealed. If there is no document that meets the same objective technical problem, it is understood that the invention is not obvious. The second question is whether a person skilled in the art would have solved the same objective technical problem in the manner indicated in the application. In other words, on the basis of the closest prior art and the objective technical problem, whether there is some teaching, suggestion or motivation in the prior art as a whole that had led a person skilled in the art to adapt, modify or combine the closest prior art to achieve the technical effects achieved by the claimed invention. If such teaching, suggestion or motivation exists, the claimed invention is considered obvious, and therefore without an inventive step.

(b) Problem-solution with three stages

66. In some countries, the stages (ii) to (iv) of the five-stage problem-solution approach are consolidated to a single stage. Consequently they apply a three-stage problem-solution approach, which is, in essence, the same as the five-stage problem-solution approach. For example, the EPO applies the following methodology:⁸²

- (i) determine the “closest prior art”;
- (ii) establish the “objective technical problem” to be solved; and
- (iii) consider whether or not the claimed invention, starting from the closest prior art and the objective technical problem, would have been obvious to the skilled person.

67. In step (i), the closest prior art is one single reference that discloses the combination of features which constitutes the most promising starting point for a development leading to the invention. In selecting the closest prior art, the first consideration is that it should be directed to a similar purpose or effect as the invention or at least belong to the same or a closely related technical field as the claimed invention. In practice, the closest prior art indicates a similar use of the features and requires the minimum of structural and functional modifications to arrive at the claimed invention.⁸³

68. In step (ii), the technical problem to be solved should be established in an objective way 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 (either structural or functional)

⁸² The Guidelines for Examination, Chapter G-VII, 5.

⁸³ EPO Boards of Appeal, T 606/89.

between the claimed invention and the closest prior art, identifying the technical effect resulting from the distinguishing features, and then formulating the technical problem.

69. As to step (iii), the question to be answered is whether there is any teaching in the prior art as a whole that would (not simply could, but would) have prompted the skilled person, faced with the objective technical problem, to modify or adapt the closest prior art while taking account of that teaching, thereby arriving at something falling within the terms of the claims, and thus achieving what the invention achieves. In other words, the point is not whether the skilled person "could" have arrived at the invention by adapting or modifying the closest prior art, but whether he "would" have done so 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.⁸⁴

70. The similar three-step problem and solution approach is found in, for example, Croatia, Denmark, Finland, France, Latvia, Moldova, Norway, Poland, Sweden, Switzerland, Turkey, Viet Nam and ARIPO.

71. In Switzerland, the problem-solution approach of the EPO forms the basis of the Swiss doctrine used to assess inventive step.⁸⁵ In principle, Switzerland adheres to the jurisprudence of the EPO and does not move away from it without reason. According to Swiss jurisprudence, it is necessary to examine whether, starting from the closest state of the art (first step) and possibly by arguing according to a second document, a person skilled in the art could have solved (the "could" approach) the objective problem (second step) with the aid of the usual resources at his disposal or according to an extraordinary development within his reach or even further by displaying little intellectual activity, on the basis of simple experiments with regard to what is done in the appropriate field of research. This "could" approach is supplemented by a "would" approach. According to the Swiss Federal Tribunal, it is then necessary to examine whether the state of the art "contains information which would cause the person skilled in the art, when confronted by this technical problem, to modify or adapt the state of the art in order to arrive at the same result as the invention".

72. As a member of the European Patent Convention (EPC), the problem-and-solution approach is predominantly accepted in Turkey in order to assess inventive step in an objective and predictable manner. Such approach has been applied by specialized IP courts throughout Turkey in many decisions, which have been approved by the 11th Civil Chamber of the Supreme Court.⁸⁶

73. While following the same problem-solution approach, the Guidelines established by the patent office of Sweden further elaborate the steps to be taken for the assessment of an inventive step.⁸⁷ Those steps are:

- (i) *Determine the problem or problems which the applicant indicates in the application*

The first step, i.e., stating the problem according to the applicant, is a preamble to a discussion of inventive step, but is not a part of the problem-solution approach.

- (ii) *Determine the closest prior art as it appears after the novelty search*

⁸⁴ EPO Boards of Appeal, T 2/83.

⁸⁵ Federal Tribunal of July 18, 2013, Liquid collection device I + II, 2/2004, pg. 111 ss.

⁸⁶ For example, the decision in which the "problem-and-solution approach" is applied by Istanbul 4th Civil Court of Intellectual and Industrial Property Rights is approved by 11th Civil Chamber of the Supreme Court's decision dated December 15. 2011, No 2009/15129 E., 2011/17113 K.

⁸⁷ PRV Guidelines for Search and Examination, RL B5:2.5.2.

The crucial question is whether the skilled person would have chosen the document as its starting point to reach the solution to the stated problem. If there are multiple documents, where each one individually could constitute closest prior art, it is often appropriate to test each of them with the help of problem-solution method.

(iii) *Determine what the difference is between the claimed subject matter and the closest prior art*

It is important that all differences are taken up, although not all will be able to contribute to the formulation of the objective problem.

(iv) *Analyze and put forward technical effects achieved with the help of these differences;*

The technical effect has to be derived from the application, either directly or via the common knowledge of the skilled person.

(v) *Formulate the objective problem, namely, the problem solved by the difference between what is specified in the claim and what appears in the closest prior art*

If the differences between the claim and the closest prior art do not entail any additional effects, in addition to that of the closest prior art, the problem is formulated as finding an alternative solution.

(vi) *If the solution to that objective problem is found in another document, explain why it considered obvious for the skilled person to combine the two documents*

The solution, or a suggestion of the solution need not be in the closest prior art. It might as well be in another document or in the common knowledge of the skilled person. If the solution to the problem is in another document, why the skilled person would combine the two documents should be explained. If the two documents belong to the same or related fields of technology, it is enough to note just that. The farther apart the documents are, in terms of technology, the more important it is that the reasoning is clear and detailed.

(vii) *Describe how the skilled person would go about solving the objective problem starting from the closest prior art*

(c) Problem-solution with four stages

74. In some countries, the stages (ii) and (iii) of the five-stage problem-solution approach are consolidated to a single stage. Consequently they apply a four-stage problem-solution approach, which is essentially the same methodology taken by the five-stage or three-stage problem-solution approach. For example, the patent examination manual established by the Andean Community⁸⁸ indicates that in order to determine whether the claimed invention is obvious, the problem-solution approach is applied whenever possible. It comprises with the following steps:

⁸⁸ Section 10.2 of the Andean Manual. Further, and paragraph 13.2.g of the Manual indicates the following procedures: (i) define the closest prior art. This determination would take place base on any prior art resolving the same problem, and in its absence, the prior art sharing the highest number of technical characteristics; (ii) identify the characteristics that are different from those found in the closest prior art; (iii) assess whether the existence of the different technical characteristics to solve the problem is evident for a person skilled in the art; and (iv) assess whether there is an indication in another document that suggests the person skilled in the art the possibility of combining the teaching of the closest prior art with the second one in order to arrive at the proposed solution.

- (i) define the closest prior art;
- (ii) identify the technical characteristics of the claimed invention which are different from those found in the closest prior art;
- (iii) define the technical problem to be solved, based on the closest prior art;
- (iv) starting from the closest prior art and the technical problem, evaluate whether the claimed invention results obviously for a person skilled in the art.

75. In step (iii), the difference between the claimed invention and the closest prior art in terms of technical characteristics represent the solution to the technical problem. Therefore, the question is which problem resolves the technical differences between the closest prior art and the claimed invention.

76. Regarding step (iv), the question to answer is if taken the prior art as a whole, whether there is any indication that might lead the person skilled in the art to modify or adapt the closest prior art to resolve the technical problem, in a way that he could arrive to a result that might be included in the tenor of the claimed invention.

77. The manual states that, in sum, the examiner must consider the following questions: Does a person skilled in the art be able to (i) consider the problem? (ii) resolve the problem in the way the claimed invention did? (iii) anticipate the result? If the answer is affirmative for those three questions, the claimed invention does not involve an inventive step.

78. Likewise, the Manual for Organization and Examination of Applications for Patents for Inventions in the Industrial Property Offices of the Countries of the Central America and the Dominican Republic provides the same methodology regarding the determination of inventive step.⁸⁹

(d) Problem-solution approach in Mexico

79. According to the submission by Mexico, in practice, its patent office evaluates inventive step using the problem-solution approach. The methodology applied in Mexico is as follows:

- (i) determine the elements of the invention, i.e., its essential components and technical characteristics, and assess the technical contribution of the invention to the knowledge of the technical field and the technical solution to the problem raised;
- (ii) identify the technical field of the invention and in so doing, establish the identity of the person skilled in the art;
- (iii) Identify the document(s) composing the closest prior art, i.e., those that disclose the majority of the essential characteristics of the invention or those closest to it;
- (iv) identify characteristics undisclosed by the closest prior art, i.e., those which grant novelty to the invention;
- (v) determine whether the persons skilled in the art could directly deduce the foregoing characteristics from the information in the prior art, using his normal professional skills.

⁸⁹ Central American Manual, 7.2.1.

Distinguishing features

80. In some jurisdictions, a similar approach is taken, but the emphasis is placed on the distinctive features of the claimed invention leading to its technical results. For example, Belarus,⁹⁰ the Russian Federation, and the Eurasian Patent Office (EAPO)⁹¹ apply the following methodology:

- (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 distinguishing features of the claimed invention;
- (iv) analysis of such prior art solutions in order to establish the extent to which the features coinciding with the claimed invention's distinguishing features had influenced the technical result specified by the applicant.

81. Consequently, an invention is considered to involve an inventive step if a person skilled in the art cannot identify known solutions having features which coincide with the distinguishing features of the invention. Further, an invention is also considered to involve an inventive step if corresponding known solutions are identified, but the knowledge of the effect of the distinguishing features for the technical result claimed by the applicant is not confirmed.

82. According to the EAPO Guidelines, if a solution is known, it shall additionally be assessed, from the perspective of a PSIA, how obvious it is to use that known solution to solve a particular problem formulated in the application. In addition, a single or multiple sources of information may be used to confirm that the influence of the distinguishing features of the claimed invention on the technical result claimed by the applicant is known. Arguments based on common general knowledge in the technical field shall be permissible, without specifying the information sources.

83. In the patent office of the Russian Federation, in addition to the above distinguishing features methodology, the problem-solution methodology is also used. Its examiners have the right to choose the most appropriate method of examination.

China

84. In accordance with Article 22.3 of the Patent Law of the People's Republic of 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" which means that the invention can produce advantageous technical effect .

85. The phrase "an invention has prominent substantive features" means that the claimed invention is non-obvious as compared with the prior art. Usually the following three steps are followed by patent examiners to determine whether a claimed invention is obvious as compared with the prior art.⁹²

⁹⁰ Paragraph 469 of Chapter 40 of the Regulation on the Procedure of Filing an Application for an Invention Patent, Carrying Out on its Examination and Making Decision on the Examination Results.

⁹¹ Paragraph 5.8 of the Rules for Compiling, Filing and Examining Eurasian Applications at the Eurasian Patent Office.

⁹² Part II, Chapter 4, Section 3 of the Guidelines for Patent Examination of China.

(i) Determining the closest prior art

86. The closest prior art refers to a technical solution in the prior art that is the most closely related to the claimed invention. It may, for example, be an existing technology in the same technical field as the claimed invention, and its technical problem to be solved, technical effects or intended use are the closest to the claimed invention and/or it has disclosed the greatest number of technical features of the claimed invention. The closest prior art may also be in an existing technology which, despite being in a different technical field from the claimed invention, is capable of performing the function of the invention and has disclosed the greatest number of technical features of the invention. When determining the closest prior art, account shall be first taken of the prior art in the same or similar technical fields.

(ii) Determining the distinguishing features of the invention and the technical problem actually solved by the invention

87. The examiner shall objectively analyze and determine the technical problem actually solved by the invention. For this purpose, the examiner shall first determine the distinguishing features of the claimed invention as compared with the closest prior art, and then determine the technical problem that is actually solved by the invention on the basis of the technical effect of the distinguishing features. The technical problem actually solved by the invention, in this sense, means the technical task in improving the closest prior art to achieve a better technical effect.

(iii) Determining whether or not the claimed invention is obvious to a person skilled in the art

88. At this step, the examiner shall make a judgment, starting from the closest prior art and the technical problem actually solved by the invention, as to whether or not the claimed invention is obvious to a person skilled in the art.

Claims comprising technical and non-technical aspects

89. Since some methodologies put emphasis on technical effects and technical problems, some patent offices applying such methodologies provide guidance on assessment of inventive step for inventions involving both technical and non-technical features. In general, in examining the inventive step of an invention containing technical and non-technical features (for example, calculation rules, schemes for performing mental acts), the entire subject matter must be assessed, since non-technical characters may have a contribution to technical effects.⁹³ It is not admissible to subdivide the subject matter of an invention and to restrict the examination of inventiveness to the part consisting of the technical features.⁹⁴

90. In some countries, inventive step, however, can be based only on technical features defined in the claim. Non-technical contents shall not be considered where they do not have any technical connection and do not even indirectly contribute to outlining a technical feature of the claimed subject matter.⁹⁵ For the assessment of inventive step, only those instructions that determine or at least influence the solution of the technical problem by technical means should be taken into account.⁹⁶

⁹³ See the submissions of Germany and Turkey.

⁹⁴ German Federal Court of Justice, February 4, 1992 - X ZR 43/91 - Tauchcomputer - GRUR 1992, 430.

⁹⁵ German Federal Patent Court, 24 May 2004 - X ZB 20/03 - Elektronischer Zahlungsverkehr - GRUR 2004, 664.

⁹⁶ German Federal Court of Justice, 26 October 2010 - X ZR 47/07 – Wiedergabe topografischer Informationen - GRUR 2011, 125. See also the Guidelines for Patent Search and Examination (Croatia), Part B7.7.

91. The Guidelines for Examination in the EPO provide how the problem-solution approach is applied to such type of claims, in particular for computer-implemented invention, as follows:

- (i) the non-technical aspects of the claim are identified. A “requirements specification”⁹⁷ is derived from the non-technical aspects set out in the claims and description so that a person skilled in the art is informed of the non-technical concept;
- (ii) the closest prior art is selected on the basis of the technical aspects of the claimed subject matter and the related description;
- (iii) the differences from the closest prior art are identified:
 - (a) if there are none (not even non-technical differences), an objection under Article 54 [novelty] is raised;
 - (b) if the differences are not technical, an objection under Article 56 [inventive step] should be raised. The claimed subject matter cannot be inventive if there is no contribution to the art;
 - (c) if the differences include technical aspects, first, the objective technical problem is formulated, taking into account the requirements specification. The solution of the objective technical problem must comprise the technical aspects of the identified differences. Second, if the solution of the technical problem is obvious to the person skilled in the art, an objection under Article 56 [inventive step] is raised.

THE LEVEL OF THE INVENTIVE STEP

92. 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. The determination of inventive step is a wholly objective qualitative test. A patent examiner examines not the level of inventiveness of the invention concerned, but the presence or lack of inventive step.

93. This document addresses the high-level conceptual principles that might assist the understanding of an inventive step. In order to consistently apply such high-level concepts to each specific case, courts and patent offices have developed a number of indicators, exemplary rationales or reasoning which may be used by patent examiners and others to demonstrate the presence or lack of inventive step. Due to the complexity of the issue, in this document, such indicators, rationales or reasoning are discussed in a non-exhaustive manner without going into details. Furthermore, some countries have elaborated guidelines for certain types of inventions (for example, selection inventions), certain types of claims (for example, independent and dependent claims or different categories of claims) or inventions in certain technical fields (for example, biotechnology, pharmaceuticals or computer-implemented inventions). Those specific issues are not addressed in this document.

⁹⁷ Where aspects of a claim define an aim to be achieved in a non-technical field and thus do not contribute to the technical character of the invention, this aim may legitimately appear in the formulation of the objective technical problem in the form of a "requirements specification" (i.e., a complete description of the behavior of the system to be developed) provided to the person skilled in a technical field as part of the framework of the technical problem that is to be solved, in particular as a constraint that has to be met. If no such objective technical problem is found, the claimed subject-matter does not satisfy at least the requirement for an inventive step because there can be no technical contribution to the art, and the claim is to be rejected on this ground. See the Guidelines for Examination in the EPO, G-VII 5.4.1.

“Obvious” or “evident”

94. 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.⁹⁸ In a small number of countries, although the definitions of an inventive step do not use the term “obvious” or “evident”, in practice, the concept of obviousness is in the center of the assessment of an inventive step. For example, while the governing criterion⁹⁹ for the inventive step requirement in China is that, as compared with the prior art, the invention “has prominent substantive features” and “represents a notable progress”¹⁰⁰, the Guidelines for Patent Examination clarify that the phrase “the invention has prominent substantive features” means that, having regard to the prior art, it is non-obvious to a person skilled in the art. In the Nordic countries,¹⁰¹ the inventive step requirement is defined in their legislations that an invention differs essentially from the state of the art. In practice, however, those countries use the problem-solution approach under which whether the claimed invention would have been obvious to a PSIA is assessed. Consequently, the pertinent question in determining lack or presence of an inventive step in the great majority of countries may be: what is meant by “obvious” to a PSIA?

95. 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.¹⁰² 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. For example, in Austria, non-obviousness is observed where an invention deviates from the broad path of possible technological solutions or is a change of paradigms in the specific technological field and treads a new path beyond the ordinary ways which would have been found and selected by a PSIA. The question of obviousness cannot be answered in the affirmative merely because the teaching of the invention could have been developed by a PSIA: the PSIA must have had a motive for the invention.¹⁰³ This concept is also adopted in the PCT International Search and Preliminary Examination Guidelines.¹⁰⁴

96. 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. There must be a direct link between the technical problem to be addressed with the invention and the proposed solution to this problem.¹⁰⁵ For

⁹⁸ In many countries, the lack of inventive step is defined in the following manner, applying the concept of obvious or evident: “resulted from the prior art in evident or obvious manner” (Brazil); “can be deduced by a person skilled in the art in an evident manner” (Argentina, Uruguay); “resulting obvious or derived in evident manner from the prior art” (Bolivia, Chile, El Salvador, Nicaragua, Panama); “result from the state of the art in an evident manner” (Spain, Switzerland); “obviously arisen from the prior art” (Latvia); “The invention shall result from an inventive activity. The inventive activity means the creative process the results of which are not obviously deducible from the state of the art by a technical expert in the field” (Mexico); “result of the inventive activity which does not derive in an obvious manner from the state of the art” (Algeria, Netherlands).

⁹⁹ Article 22.3 of the Patent Law of the People’s Republic of China.

¹⁰⁰ The phrase “the invention represents a notable progress” means that the invention can produce advantageous technical effect as compared with the prior art. For example, the invention has overcome the defects in the existing technology, or has provided a different technical solution to solve a technical problem.

¹⁰¹ Denmark, Finland, Iceland, Norway and Sweden.

¹⁰² Information Review of Form and Content of Patent Applications and Utility Models of SIC (Colombia), 2.13.3. See also the Guidelines of Denmark, Portugal and Spain, EPO as well as the submission of Morocco.

¹⁰³ (German Federal Court of Justice, 30 April 2009 - Xa ZR 92/05 - Betrieb einer Sicherheitseinrichtung - GRUR 2009, 746).

¹⁰⁴ PCT International Search and Preliminary Examination Guidelines, 13.03.

¹⁰⁵ Guidelines for Patent Examination and Registration Procedures of Chile.

example, the Examination Guidelines of China indicate that in the course of inventive step judgment, what is to be determined is whether or not there exists a technical motivation in the prior art as to apply the distinguishing features to the closest prior art in solving the existing technical problem (that is, the technical problem actually solved by the invention), where such motivation would prompt a person skilled in the art, when confronted with the technical problem, to improve the closest prior art and thus reach the claimed invention. If there exists such a technical motivation in the prior art, the invention is obvious and thus fails to have prominent substantive features.

97. In many countries, a number of indicators have been developed by courts or patent offices in order to clarify the concept of obviousness (see below).

Invention as a whole

98. 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.¹⁰⁶ It is not sufficient to draw the conclusion that a claimed invention is obvious merely because individual parts of the claim, taken separately, are known or found to be obvious.¹⁰⁷

Prior art reference as whole

99. While a discussion of what constitutes prior art for the inventive step assessment goes beyond the scope of this study, the prior art references as a whole before the relevant date – including all the knowledge generally available to a PSIA such as well-known technique and common general knowledge – should be taken into account in determining the relevant prior art.

Hindsight and *ex post facto* analysis

100. It is important to avoid hindsight in assessing the lack or presence of inventive step. Patent examiners conduct prior art search and examination after a new invention is created. Therefore, when assessing the claimed invention, an examiner has the information about both a new invention and the state of the art in front of him/her. In many instances, a new invention is improvement of the inventions that have already existed. Therefore, a new invention can often be shown theoretically how it might be arrived at, starting from something known, by a series of apparently easy steps. Such *ex post facto* analysis must be avoided in assessing the obviousness of the claimed invention. Examiners should make the intellectual efforts to place himself/herself in the situation that a PSIA has had to face when the invention was unknown. The teaching or suggestion that drives the PSIA to arrive at the claimed invention must be found in the prior art and common general knowledge made available to the public before the filing date (priority date). Such suggestions or teaching shall not be based on the applicant's disclosure.

101. Mere simplicity of the invention does not deprive it of inventiveness.¹⁰⁸ Moreover, the particular circumstances by which the inventor developed the invention are not relevant to the assessment of the inventive step. The inventor developed an invention in a field which is remote from his own field of expertise or the fact that a researcher has developed an invention

¹⁰⁶ Andean Manual; Manual of Patent Examining Procedure (MPEP) (United States Patent and Trademark Office).

¹⁰⁷ India Manual of Patent Office Practice and Procedures 08.03.03.

¹⁰⁸ See the submissions by, for example, Israel, the Kyrgyz republic and Singapore

with no knowledge of particular prior art would not affect the assessment of the inventive step.¹⁰⁹

Combination of prior art teachings

102. Unlike the determination of novelty, 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. It is not permissible to combine teachings of two or more documents except where one of these directs the reader to study the other.¹¹⁰ 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.¹¹¹

103. 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.¹¹²

104. A reasonable number of cited documents may be combined in order to prove non-obviousness of the claimed invention. The more publications needed to be combined to arrive to the claimed subject matter, the less evident is the obviousness of the claimed invention.¹¹³ According to the Guidelines for Examination in the EPO, the fact that more than one prior art disclosure must be combined with the closest prior art in order to arrive at a combination of features may be an indication of the presence of an inventive step, for example, if the claimed invention is not a mere aggregation of features.

105. The Examination Guidelines of Israel states that the motivation to combine the teaching of different prior art publications in order to solve the problem posed may be demonstrated in the following cases, among others: (i) a prior art publication provides explicit reference to another publication; (ii) a prior art publication provides hint to a certain element of the claimed invention that is missing in it but is disclosed in another publication; or (iii) a prior art publication discloses in general terms a subject-matter which is similar to the claimed invention but the missing element is specifically disclosed in another publication.

106. In the United States of America, to resolve the *Graham* factual inquires, the following findings must be articulated:

- (i) a finding that there was some teaching, suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skilled in the art, to modify the reference or to combine reference teachings;
- (ii) a finding that there was reasonable expectation of success; and

¹⁰⁹ See the submission by Singapore.

¹¹⁰ Institut Pasteur & Anor v Genelabs Diagnostics & Anor [2000] SGHC 53.

¹¹¹ The Guidelines for Examination in the EPO explain that a set of technical features is regarded as a combination of features if the functional interaction between the features achieves a combined technical effect which is different from (for example, greater than) the sum of the technical effects of the individual features.

¹¹² See, for example, the Andean Manual, the Central American Manual and the Guidelines for Patent Search and Examination (Croatia).

¹¹³ See the submission by Israel.

(iii) whatever additional findings based on the *Graham* factual inquiries may be necessary, in view of the facts of the case under consideration, to explain a conclusion of obviousness.

The rationale to support a conclusion that the claim would have been obvious is that “a person skilled in the art would have been motivated to combine the prior art to achieve the claimed invention and whether there would have been a reasonable expectation of success in doing so”.¹¹⁴

107. In *KSR International Co. v. Teleflex Inc. (KSR)*, 550 U.S. 398, 82 USPQ2d 1385 (2007), 41(I), the Supreme Court set forth a flexible approach to providing reasons for a finding of obviousness and changed the earlier standard that an express reason to modify the prior art was required to combine multiple prior art references so that they would describe all the elements of a claim. The approach described in *KSR*, instead, does not require a “specific hint or suggestion in a particular reference” to justify combining multiple art references, but instead it only requires a reasoned explanation that avoids conclusory generalizations.

108. Several issues arise in determining whether a claim is obvious or non-obvious under the *KSR* analysis. One is whether a reference relied on by the examiner is from analogous or nonanalogous art.¹¹⁵ For a reference to be properly used in an obviousness rejection under 35 U.S.C. 103, the reference must be analogous art to the claimed invention. The examiner must determine what is “analogous prior art” for the purpose of analyzing the obviousness of the subject matter at issue. Under the analysis, any need or problem known in the field of endeavor at the time of the invention and addressed by the patent can provide a reason for combining the elements in the manner claimed. This does not require that the reference be from the same field of endeavor as the claimed invention, in light of the Supreme Court's instruction in *KSR* that “[w]hen a work is available in one field of endeavor, design incentives and other market forces can prompt variations of it, either in the same field or a different one.” In short, a reference is analogous art to the claimed invention if: (i) the reference is from the same field of endeavor as the claimed invention (even if it addresses a different problem); or (ii) the reference is reasonably pertinent to the problem faced by the inventor (even if it is not in the same field of endeavor as the claimed invention).

109. Similarly, the Guidelines for Examination in the EPO clarify that, in determining whether it would be obvious to combine two or more distinct disclosures, the examiner should have regard in particular, to the following: (i) whether the content of the disclosures makes it likely that the person skilled in the art, when faced with the problem solved by the invention, would combine them; (ii) whether the disclosures come from similar, neighboring or remote technical fields; (iii) the combining of two or more parts of the same disclosure would be obvious if there is a reasonable basis for the skilled person to associate these parts with one another. It would normally be obvious to combine the teaching of one or more documents with the common general knowledge in the art. Generally speaking, it should also be obvious to combine two documents one of which contains a clear and unmistakable reference to the other.¹¹⁶

110. In sum, many countries adopt similar lines of reasoning and logic for the determination of inventive step, which are, at the higher level, captured by the PCT International Search and Preliminary Examination Guidelines as follows: 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

¹¹⁴ MPEP 2143.G.

¹¹⁵ MPEP chapter 2141.01(a).

¹¹⁶ See also the Patent Examination Guidelines of Viet Nam.

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.¹¹⁷

Exemplary reasoning or rationales

111. In applying the statutory inventive step (obviousness) requirement to each specific case, national courts have developed a number of rationales to support a conclusion of obviousness or non-obviousness. In addition, in their administrative guidelines, many countries provide non-exhaustive exemplary reasoning or indicators, along with technical examples (either real or hypothetical examples) showing how such reasoning or indicators may be used to support a finding of obviousness/non-obviousness. They are, however, for illustrative purposes and are intended to be mere guides for examiners or patent experts in general.

112. While the detailed explanations about such exemplary reasoning or rationales go beyond the scope of this document, some guidelines provide the following rationales as examples of reasoning that may be used to demonstrate the lack of inventive step:

- (i) simple substitution of a known element for another to obtain predictable results or interchange of material with another known material having analogue effects;
- (ii) use of known technique to improve similar products, processes or devices in the same way;
- (iii) mere replacement by an equivalent means;
- (iv) simple and direct extrapolation of known facts, such as a change of size, form or proportion, without any unexpected effect;
- (v) applying a known technique or workshop modification to a known product ready for improvement to yield results that are predictable to a PSIA; and
- (vi) selection from a number of alternative possibilities without any unexpected effect.

113. Furthermore, technical advantages of the claimed invention over the prior art are generally also taken into consideration in many countries.¹¹⁸

114. A number of Guidelines provide more concise explanations with respect to particular types of inventions. For example, with respect to new use of known technical solutions, the Guidelines of Bulgaria indicate that “the application of already known technical solutions in given technical art has an inventive step when it exhibits new properties for its use in a new purpose and such use is possible only through its proper unobvious adjustment.”¹¹⁹ Similarly, the courts in Israel have ruled that a new use of the known product which involves overcoming special difficulties may be supportive of inventive step, provided that it is not analogical to a known use.¹²⁰

115. As another example, in relation to inventions relating to compounds, the Guidelines of some countries provide that the following inventions comply with the inventive step requirement: (i) a method for obtaining known individual compounds (class or group) with a definite structure, where it is based on a new reaction for the class or group of compounds or on a known reaction

¹¹⁷ PCT International Search and Preliminary Examination Guidelines, 13.09.

¹¹⁸ For example, Bulgaria; Croatia, Japan, Portugal; Republic of Korea, Singapore and the EAPO.

¹¹⁹ Art 53(6) of the Guidelines for Drafting, Filing and Examination of the Patent Application of Bulgaria.

¹²⁰ L.M. Lipski Inc vs. Nathan Manor, CA 314/77; Lamplast Ltd. Vs. Eliezer Berckman, CA 804/89 (11.3.1002).

for the class or group of compounds the conditions of which are not known; (ii) a composition consisting of at least two known ingredients providing a synergistic effect, which is not possible to achieve from the prior art (i.e., exhibiting the properties of both ingredients, but the qualitative indicators of at least one of the properties in question exceed the indicators of the properties of the individual ingredients); (iii) an individual compound, falling within the general structural formula of a group of known compounds, but not described as specifically obtained or researched, and at the same time exhibiting new, unknown, qualitative and/or quantitative group properties.¹²¹

Secondary indicators

116. Many countries have developed a number of indicators that may be taken into account for the positive assessment of the obviousness. The weight to be given to those indicators is made on a case-by-case basis, and the mere fact that an applicant has presented evidence does not mean that the evidence is dispositive of the issue of obviousness.¹²² They may merely in individual cases give an incentive to particularly critically consider the obviousness of inventions.¹²³

117. Those indicators that are found in more than one country include the following:

- the claimed invention solved a long felt need (other inventors must have also tried to solve the needs);¹²⁴
- other inventors had tried to solve the problem, but were not successful, or the claimed invention overcame technical difficulties not solvable by other means;¹²⁵
- the claimed invention has a particular commercial success or the claimed invention shows a significant economic importance;¹²⁶
- the prior art "taught away" a PSIA from the claimed invention, or the inventor overcame a technical prejudice;¹²⁷
- the originality of the solution brought by the claimed invention, which departs from the beaten path and opens a new path;¹²⁸
- the claimed invention produced unexpected technical effects or results;¹²⁹

¹²¹ See, for example, the Rules of Processing an Application for Invention and an Application for Utility Model of Ukraine, Part 6.5.3 and the EAPO Rules for Compiling, Filing and Examining Eurasian Applications at the Eurasian Patent Office, paragraph 5.8.

¹²² MPEP 2141, II.

¹²³ See the submission by Germany.

¹²⁴ For example, Australia, Bulgaria; China, Croatia, the Dominican Republic, Ecuador, Germany, Guatemala, Israel, the Republic of Korea, Singapore, the United States of America, the EAPO and the EPO. See also the Andean Manual and the Central American Manual.

¹²⁵ For example, Australia, Germany, Guatemala, Slovakia and the United States of America. See also the Andean Manual and the Central American Manual.

¹²⁶ For example, Austria, Bulgaria, China, Croatia, Guatemala, Israel, Japan, the Republic of Korea, Singapore, the United States of America, EPO and EAPO. The Guidelines of China, Japan, the Republic of Korea and the EPO indicate that in order to be an indicative of inventive step, commercial success must derive from the technical features of the claimed invention.

¹²⁷ For example, China, the Dominican Republic, Ecuador, France, Germany, Israel, Japan, the Republic of Korea, Singapore, Slovakia and the EAPO. See also the Andean Manual and the Central American Manual.

¹²⁸ For example, the Dominican Republic and Ecuador. The pioneering nature of the claimed invention is taken into account in the EAPO. See also the Andean Manual and the Central American Manual.

¹²⁹ For example, China, the Dominican Republic, Ecuador, Guatemala, Israel, the United States of America and the EPO.

- the claimed invention offers a surprisingly simple solution;¹³⁰
- the claimed invention offers a simpler low-cost way of manufacture;¹³¹
- a significant amount of time had elapsed between the recognition of the problem and the realization of the invention that solved the problem;¹³²
- the claimed invention is particularly complex and not readily carried out;¹³³
- the claimed invention is copied by others in preference to the prior art.¹³⁴

Inventions easily conceived by a PSIA

118. In some countries, a criterion to determine inventiveness is whether a PSIA could have easily conceived the invention described in the claims by exercising ordinary creativity or based on motivation induced from the invention.¹³⁵ While the term “obvious” is not used, it appears that the underlining concept of an inventive step in those countries shows a number of common aspects with the countries applying the “obviousness” test.

119. For example, in the Republic of Korea, examiners mainly focus on whether the cited prior art provide any motivation to a person skilled in the art to arrive at the subject matter of the claimed invention or whether the difference between the subject matter of the prior art and that of the claimed invention can be considered as a mere exercise of ordinary creativity of a person skilled in the art. In addition, any advantageous effects over the prior art should be also considered. Consequently, replacement with equivalents, workshop modification of a design in applying a specific technology, partial removal of technical features, simple change and limitation of use of the invention, and general application of known art fall into the category of ordinary creativity of a person skilled in the art. Therefore, when the differences between the claimed invention and the prior art fall only under these categories, generally, the inventive step of the claimed invention can be denied unless there is another ground for assessing the inventive step.

120. Similarly, the Examination Guidelines of the JPO note that reasons for denying the presence of an inventive step of the claimed invention are sought based on the details of the cited prior inventions, including well-known and commonly used arts, and the common general knowledge. Such reasoning may be conducted from various and broad viewpoints. They include, for example, whether the claimed invention is selection of optimum materials, workshop modification or mere aggregation, or whether the contents of the cited invention could be a cause or motivation of the claimed invention. In addition, an advantageous effect demonstrated by the claimed invention is taken into consideration as grounds for positively presuming the presence of the inventive step.

Additional data and evidential information

121. In their submission, a small number of countries indicated how additional data and evidential information submitted by the applicant could be taken into account in determining

¹³⁰ For example, the Dominican Republic, Ecuador, Germany, and the EAPO. See also the Andean Manual and the Central American Manual.

¹³¹ For example, Germany and Israel.

¹³² For example, France, Israel, Singapore, Slovakia and the EAPO.

¹³³ For example, Australia and the EAPO.

¹³⁴ For example, Australia and the United States of America.

¹³⁵ See the applicable laws of Japan, the Republic of Korea and Viet Nam.

inventive step. For example, the Guidelines of Bulgaria states that “the applicant may provide additional data, examples and other kind of information as a proof of inventive step presence. Additionally presented information should be taken into account in assessing inventive step, but not considered as a part of the description.” The Guidelines for Patent Search and Examination of Croatia states that where new effects in support of inventive step are referred to in arguments and evidence submitted by the applicant during the examination process, such new effects can only be taken into account if they are implied by or at least related to the technical problem initially suggested in the originally filed application.¹³⁶ While these issues are particularly relevant in the fields of unpredictable technology, such as chemistry, they might go beyond the scope of this document.

[End of document]

¹³⁶ The same explanation is found in the Guidelines for Examination in the EPO. See the EPO Boards of Appeal, T 386/89 and T 184/82.