

Standing Committee on the Law of Patents

Twenty-Eighth Session
Geneva, July 9 to 12, 2018

FURTHER STUDY ON INVENTIVE STEP (PART I)

Document prepared by the Secretariat

INTRODUCTION

1. At the twenty-second session of the Standing Committee on the Law of Patents (SCP), held in Geneva from July 27 to 31, 2015, the Committee discussed a study on inventive step prepared by the Secretariat (document SCP/22/3). The study addressed the definition of a person skilled in the art, methodologies employed for evaluating inventive step and the level of the inventive step. At its twenty-seventh session, held in Geneva from December 11 to 15, 2017, the SCP agreed that the Secretariat would prepare a further study on inventive step, giving a particular attention to the topics suggested in paragraph 8 of document SCP/24/3 (Proposal by the Delegation of Spain). Paragraph 8, of document SCP/24/3, lists the following topics that may be included in a study or studies by the Secretariat: (i) common general knowledge: its combination with the state of the art; (ii) combination: juxtaposition vs synergic effects; (iii) the danger of hindsight analysis; (iv) secondary indicia; (v) selection inventions; (vi) problem invention; and (vii) the assessment of inventive step in the chemical sector (Markush claims, enantiomers. etc.).

2. Consequently, the Secretariat invited Member States and Regional Patent Offices, through its Note C. 8728, dated February 9, 2018, to submit to the International Bureau examination guidelines and manuals, as well as summaries of the most important case law or interpretive decisions concerning the suggested topics for the preparation of such a study.

3. Taking into account the information submitted by the Member States and Regional Patent Offices in response to Note C.8728,¹ the Secretariat prepared a further study on inventive step, which is contained in this document. The further study submitted to the twenty-eighth session of the SCP focuses on the topics (i) to (iii) referred to in paragraph 1, above. A study or studies on the remaining topics will be submitted to the subsequent session(s) of the SCP.

4. This further study is built on the earlier study contained in SCP/22/3, and therefore, they should be read together.

COMMON GENERAL KNOWLEDGE: ITS COMBINATION WITH THE STATE OF THE ART

Person Skilled in the Art, Prior Art and Common General Knowledge

5. A claimed invention is considered to involve an inventive step, if having regard to the prior art, it is not, at the relevant date, obvious to a person skilled in the art. In general, a person skilled in the art should be presumed to be a hypothetical person having ordinary skill in the art, and being aware of or possessing common general knowledge in the art at the relevant date.² Common general knowledge is central to everything that is required of the person skilled in the art, for example, in reading and understanding the patent application or in understanding and reacting to the cited prior art.³

6. In many jurisdictions, the prior art may reside in the relevant common general knowledge, which need not necessarily be in writing and needs substantiation only if challenged.⁴ As the prior art references as a whole before the relevant date should be taken into account for the purpose of assessing the inventive step, including all the knowledge generally available to a person skilled in the art⁵, common general knowledge is important part of the relevant prior art that forms the basis of the assessment of inventive step.⁶ The laws in Australia and Papua New Guinea explicitly state that common general knowledge should be taken into account for the assessment of inventive step.⁷

7. As it is permissible to combine the teaching of two or more prior art references in considering whether a claimed invention involves an inventive step, common general knowledge in the art may be combined with the teaching of one or more documents for the purpose of assessment of the inventive step (see the section “Combination: Juxtaposition vs Synergic Effects”, below). A person skilled in the art is able to combine common general knowledge with other piece(s) of prior art by applying its ordinary or average skill in the relevant art on the relevant date.

¹ The information submitted by Member States and regional offices is available in full on the website of the SCP electronic forum at: http://www.wipo.int/scp/en/meetings/session_28/comments_received.html.

² For the definition of a person skilled in the art, see document SCP/22/3.

³ United Kingdom Intellectual Property Office (UKIPO) Manual of Patent Practice, Section 3.29. The Examination Guidelines for Patent Applications at the Intellectual Property Office of Singapore (IPOS) explains in this regard: “2.24 Possession of the common general knowledge in the art is one of the most significant aspects of the hypothetical person skilled in the art. To a large extent this can be said to be what characterises the person skilled in the art. In a purposive construction it is this knowledge that the person skilled in the art uses to construe the specification, and it is with such a background and context that the person skilled in the art reads the prior art. (See Section E, 2.25 of the Examination Guidelines for Patent Applications at IPOS).”

⁴ See Decision of the European Patent Office (EPO) Boards of Appeal, T 939/92. See also Guidelines for Examination at the African Regional Intellectual Property Office (ARIPO), Section 3.7.2.

⁵ SCP/22/3, paragraph 99.

⁶ For example, Part 3, Chapter 3, Section 4, 5 of the Examination Guidelines of the Korean Intellectual Property Office (KIPO) and Part II, Chapter 2, Section 2.2 of the Examination Guidelines of the Japan Patent Office (JPO).

⁷ Under the Australian law, it is possible to find the lack of inventive step in light of common general knowledge alone (*Minnesota Mining & Manufacturing Co v Beiersdorf (Australia) Limited* (1980) 144 CLR 253).

What is Common General Knowledge?

8. Common general knowledge is the knowledge the skilled person has in his/her specific technical field.⁸ According to the decision by the European Patent Office (EPO) Boards of Appeal, it is a knowledge an experienced man in his field is expected to have, or at least to be aware of, to the extent that he knows he can look it up if he needs it.⁹

9. Common general knowledge can come from various sources and does not necessarily depend on the publication of a specific document on a specific date. As stated above, an assertion that something is common general knowledge need only be backed by documentary evidence (for example, a textbook) if this is contested.¹⁰ In Singapore, in most cases, an assertion that certain information forms part of common general knowledge should be supported by documentary evidence.¹¹

10. Information in writing, such as basic handbooks, textbooks and monographs on the subject in question can be considered as representing common general knowledge.^{12, 13} In the EPO, the language of the book is irrelevant for its status as a general reference book.¹⁴

11. The contents of patent documents cannot normally be considered as common general knowledge, although if a particular patent is well known or one that skilled persons in a particular industry would routinely consider, it may form part of common general knowledge.¹⁵ The same applies to scientific papers.¹⁶ In special cases, however, information found in

⁸ See e.g., submission from Australia and Decision of the EPO Boards of Appeal, T932/92. In Australia, common general knowledge “involves the use of that which is known or used by those in the relevant trade. It forms the background knowledge and experience which is available to all in the trade in considering the making of new products, or the making of improvements in old, and it must be treated as being used by an individual as a general body of knowledge”; UKIPO Manual of Patent Practice, Section 3.29 states in this regard “[...] In many cases common general knowledge will include or be reflected in readily available trade literature which a man in the art would be expected to have at his elbow and regard as basic reliable information” (See also *Minnesota Mining & Manufacturing Co v Beiersdorf (Australia) Limited* (1980) 144 CLR 253); Section E, 2.25 of the Examination Guidelines for Patent Applications at IPOS defines the common general knowledge as the technical background of the skilled person.

⁹ See Decision of the EPO Boards of Appeal, T766/91.

¹⁰ See submissions of Norway to the twenty-eighth session of the SCP and Part G, Chapter VII, 3, 3.1 of the Guidelines for Examination of the EPO. The submission from Spain explains in this regard “Since a person skilled in the art is presumed to have the requisite basic general technical knowledge to make an invention in the technical field concerned, the examiner should not request for the inclusion of any citations from textbooks or other similar publications containing explanatory material that is otherwise well known.”

¹¹ Section E, 2.32 of the Examination Guidelines for Patent Applications at IPOS.

¹² See e.g., Section E, 2.25 of the Examination Guidelines for Patent Applications at IPOS, the submissions of Norway, Spain, the United Kingdom to the twenty-eighth session of the SCP and Decision of the EPO Boards of Appeal (T 171/84). The EPO Guidelines for examination explains that subject-matter appears in such books because it is already common general knowledge; it does not become so because it appears in books of this kind (Part G, Chapter VII, 3, 3.1)

¹³ In this regard the submission from Australia states that “it has been established that this is not restricted to material that might be memorised, but also includes material that is known to exist and which would be referred to routinely, such as standard texts and tertiary sources, and periodicals specific to the field (*ICI Chemicals & Polymers Ltd v Lubrizol Corp* 45 IPR 577).”

¹⁴ See Decision of the EPO Boards of Appeal, T426/88.

¹⁵ See e.g., the submissions of Australia, Norway and Spain to the twenty-eighth session of the SCP, Section 3.32 of the UKIPO Manual of Patent Practice, Part G, Chapter VII, 3, 3.1 of the Guidelines for Examination of the EPO and Section E, 2.25 of the Examination Guidelines for Patent Applications at IPOS.

¹⁶ See e.g., the submissions of Norway and Spain to the twenty-eighth session of the SCP and Part G, Chapter VII, 3, 3.1 of the Guidelines for Examination of the EPO.

scientific or patent publications may also be considered as representing common general knowledge if the invention is made within a research field which is so new that the relevant technical knowledge is not yet available in textbooks.¹⁷ Further, a set of industry standards may be considered to be part of the common general knowledge.¹⁸

12. As regards scientific papers generally, the examination guidelines of some offices refer to *British Acoustic Films* case where it was stated “[...] it is not sufficient to prove common general knowledge that a particular disclosure is made in an article, or series of articles, in a scientific journal, no matter how wide the circulation of that journal may be, in the absence of any evidence that the disclosure is accepted generally by those who are engaged in the art to which the disclosure relates. A piece of particular knowledge as disclosed in a scientific paper does not become common general knowledge merely because it is widely read, and [...] widely circulated. Such a piece of knowledge only becomes general knowledge when it is generally known and accepted without question by the bulk of those who are engaged in the particular art; in other words, when it becomes part of their common stock of knowledge relating to the art.”¹⁹

13. It is also accepted that common general knowledge does not have to be “within the conscious awareness” of the skilled person, as there would be publications that would be habitually consulted, but not memorized, but which would still be part of common general knowledge.²⁰ However, “[w]hat might be found by a diligent searcher is not the same as “common general knowledge”²¹ A skilled addressee must be able to identify the appropriate sections(s) of the reference book without this requiring any significant effort. A search of the literature covering nearly the whole state of the art is regarded as undue effort.²² Further, the information found had to be unambiguous and usable in a direct and straightforward manner without doubts or further investigation.²³

14. Under the Patents Act of Australia, common general knowledge is not restricted to such knowledge available in that country. However, in the United Kingdom, it was held by the court that matter being relied on as common general knowledge must be common general knowledge in the United Kingdom.²⁴

¹⁷ Ibid.

¹⁸ See Section 3.30.1 of the UKIPO Manual of Patent Practice and Section E, 2.32 of the Examination Guidelines for Patent Applications at IPOS.

¹⁹ See *British Acoustic Films (53 RPC 221 at 250)* cited in Section 3.32 of the UKIPO Manual of Patent Practice, Section E, 2.25 of the Examination Guidelines for Patent Applications at IPOS, as well as in the submission of Australia.

²⁰ See Section E, 2.25 of the Examination Guidelines for Patent Applications at IPOS, Section 3.32 of the UKIPO Manual of Patent Practice, and the submission of Australia to the twenty-eighth session of the SCP.

²¹ See the submission of Australia to the twenty-eighth session of the SCP citing *Aktiebolaget Hassle and Astra Pharmaceuticals Pty Limited v Alphapharm Pty Ltd* 51 IPR 375 at [72]-[73].

²² See the Decision of the EPO Boards of Appeal T171/84.

²³ See the Decision of the EPO Boards of Appeal T149/07.

²⁴ In particular, it was stated: “The reason for this is that, whether one is concerned with the validity of a European Patent (UK), or a UK patent, one is concerned with a right in respect of the UK. It is true that the prior art may have been published anywhere in the world, but I do not think that alters the need for the skilled team to consider that art as if they were located in the UK. I do not think it matters that a fact was common general knowledge in (say) China, if it was not common general knowledge here. The position may be different if all the persons skilled in a particular art in the UK are acquainted with the position in China”. See *Generics (UK) Ltd (t/a Mylan) v Warner-Lambert Company LLC [2015] EWHC* cited in the submission from the United Kingdom.

15. In Japan and the Republic of Korea, common general knowledge refers to matter/technology generally known to a person skilled in the art, including well-known art and commonly used art.²⁵ “Well-known art” refers to technical matter generally known in the relevant technical field. For example, it includes (i) technical matter which is shown in many prior art documents or webpages; (ii) technical matter which is widely known throughout the industry; (iii) technical matter which is well-known to the extent that it is needless to present examples. Whereas “commonly used art” refers to well-known art which is used widely.²⁶

16. In some countries, unconventional knowledge is also considered to be part of the common general knowledge.²⁷

17. Over time, the growth of proprietary and specialist knowledge, i.e., knowledge known only within certain organizations or companies or known only to a few experts, makes it increasingly difficult to distinguish the common general knowledge from the state of the art. Although a feature, item or concept may be well-known to a few, it is not part of the common general knowledge unless it can be shown to be known to and accepted by the large majority of those skilled in the art.²⁸ However, depending on the nature of the technology, the common general knowledge may be possessed by a relatively few number of skilled practitioners in other cases.²⁹

18. It is also 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.³⁰

COMBINATION: JUXTAPOSITION VS SYNERGIC EFFECTS

Principle of Inventive Step and Combination

19. In principle, the invention as a whole is obvious if any item(s) of prior art or general knowledge of the person skilled in the art would have motivated or prompted that person on the filing date (or where applicable, the priority date) to reach the claimed invention by substituting, combining or modifying one or more of those items of prior art with a reasonable likelihood of success.³¹

²⁵ Chapter 2, Section 2.2 of the Examination Guidelines of the JPO further explains that “[t]herefore, the common general knowledge includes methods of experimentation, analysis and manufacture; theories of a technology, etc., as far as they are generally known to a person skilled in the art. Whether a certain technical matter is generally known to a person skilled in the art should be determined based upon not only how many documents show the technical matter but also how much attention has been given to the technical matter by such a person.”

²⁶ See Section 4.2.1 of the KIPO Patent Examination Guidelines, and Chapter 2, Section 2.2 of the Examination Guidelines of the JPO.

²⁷ In *Apimed Medical Honey Ltd v Brightwake Ltd* [2011] EWPC 2, [2011] RPC 16, the patent concerned surgical dressings for wounds comprising honey and a gelling agent. The court held that, at the priority date, there may have only been a few people working within the wound care field who would have seen a clinical future in treating wounds with honey, but that fact did not eliminate the idea from being a part of the common general knowledge. See Section 3.32 of the UKIPO Manual of Patent Practice, and 2.30 of the Examination Guidelines for Patent Applications at IPOS.

²⁸ *Beloit v Valmet* (No.2) [1997] RPC 489 Aldous L.J. cited in UKIPO Manual of Patent Practice, Section 3.33.

²⁹ 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.

³⁰ Section E, 2.26 of the Examination Guidelines for Patent Applications at IPOS.

³¹ See for example, PCT International Search and Preliminary Examination Guidelines, 13.09.

20. In considering whether there is inventive step as distinct from novelty, it is permissible to combine the teachings of two or more prior art references, for example, different published patent applications or patents, provided that such combination would be obvious to the person skilled in the art. It is also permissible to combine several teachings contained in the same prior art reference, such as one particular book, if there is a reasonable basis for the person skilled in the art to associate these parts with one another.³²

21. In some jurisdictions, the combination of prior art information is often referred to as a “mosaic”. In *ASM Assembly Automation Ltd v Aurigin Technology Pte Ltd*, the court held that “when dealing with obviousness, one is entitled to make a “mosaic” out of relevant documents if it can be put together by an unimaginative man with no inventive capability (see *Technograph v Mills & Rockely [1972] RPC 346*)”.³³ Similarly, in *J. Mitra And Co. Pvt. Ltd. vs Kesar Medicaments And Anr*, it was stated that: “97. [...] The mosaicking of individual documents or prior uses is not permissible, unless it can be shown that the skilled person, confronted with a particular citation, would turn to some other citation to supplement the information from the first. [...] When dealing with obviousness, unlike novelty, it is permissible to make a “mosaic” out of the relevant documents, but it must be a mosaic which can be put together by an unimaginative man with no inventive capacity.”³⁴

Common General Knowledge and Combination

22. For the purpose of assessing inventive step, it is possible for a person skilled in the art to combine the teaching of one or more documents with the common general knowledge in the art. For example, it would normally be obvious to combine with a prior art document a well-known textbook or standard dictionary.³⁵ Since the person skilled in the art would always have the common general knowledge in mind, it would interpret any prior art document in the light of the knowledge generally available to it at the relevant date, i.e. the filing date (or the priority date) of the invention.³⁶ In this regard, the Australian Patents Act, Subsection 7(2) explicitly states that “an invention is to be taken to involve an inventive step when compared with the prior art base unless the invention would have been obvious to a person skilled in the relevant art in the light of the common general knowledge as it existed (whether in or out of the patent area) before the priority date of the relevant claim, whether that knowledge is considered separately or together with the information mentioned in subsection (3).” Subsection 7(3) provides that such information is: (i) any single piece of prior art information; or (ii) a combination of any two or more pieces of prior art information that the skilled person could, before the priority date of the relevant claim, be reasonably expected to have combined.

Combined Invention as a Whole

23. In determining inventive step, the invention claimed must normally be considered as a whole. This principle also applies to the assessment of inventive step for inventions that combine two or more prior art teachings. Therefore, even if each single prior art teaching,

³² See, for example, Guidelines for Examination in the EPO, Part G, Chapter VII-16, 6 and Manual of Organization and Examination of Applications for Invention Patents for the Industrial Property Offices of the Central American Countries and the Dominican Republic, 7.6.

³³ *ASM Assembly Automation Ltd v Aurigin Technology Pte Ltd [2009] SGHC 206*.

³⁴ *J. Mitra And Co. Pvt. Ltd. vs Kesar Medicaments And Anr. on 22 February, 2008 (Delhi High Court)*.

³⁵ See for example, PCT International Search and Preliminary Examination Guidelines, 13.13.

³⁶ Submission by Argentina for the twenty-eighth session of the SCP.

taken individually, would have been obvious to a person skilled in the art, the requirement of inventive step would be met if such combination of multiple prior art teachings could not have been expected from the person skilled in the art.³⁷

24. Consequently, care must be taken not to determine the substance of the claimed invention merely on the basis of excluding known features in the claim, as the substance of the claimed invention may lie in the particular combination of integers.³⁸ Similarly, the courts in Germany have ruled that the obviousness of an invention combining plural features is not substantiated by the obviousness of each individual feature in itself.³⁹ Therefore, the examination must be carried out in the light of the obviousness of the proposed combination and must not be limited to the evaluation of the individual features or sub-combinations.⁴⁰

Whether a Person Skilled in the Art would Combine Prior Art References

25. The central question in relation to the determination of inventive step for combination inventions may be an assessment of whether a person skilled in the art would combine two or more pieces of prior art. It should be highlighted that the question as to whether a person skilled in the art could be reasonably expected to have combined the prior art information is part of overall consideration of whether the claimed invention is obvious or not. In that sense, the general principles and tests for the assessment of inventive step or obviousness also apply to the determination of inventive step for the combination inventions.

26. In determining whether the person skilled in the art would combine two or more distinct pieces of prior art information, the practice of one patent office is that examiners should focus on the problem faced by a person skilled in the art and whether, in the light of that problem, there is a reasonable basis (or some motivation) for the person skilled in the art to combine such information.⁴¹

27. The Examination Guidelines of the European Patent Office, for example, states that in the context of the problem-solution approach, it is permissible to combine the disclosure of one or more documents, parts of documents or other pieces of prior art (e.g. a public prior use or unwritten general technical knowledge) with the closest prior art. However, the fact that more than one 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, e.g. if the claimed invention is not a mere aggregation of features.⁴²

28. In some patent Offices, examiners are guided to have regard to the various issues in determining whether it would be obvious to combine the teachings of two or more distinct prior art. Those issues include:

- (i) Whether the nature and content of the teachings are such as to make it likely or unlikely that the person skilled in the art would combine them.

³⁷ See, for example, PCT International Search and Preliminary Examination Guidelines, 13.13 and Manual of Organization and Examination of Applications for Invention Patents for the Industrial Property Offices of the Central American Countries and the Dominican Republic, 7.2.1.

³⁸ IP Australia Patent Manual of Practice & Procedure, Section 2.9.2.2.

³⁹ See *BGH, X ZR 87/65 (1968) – Betondosierer, GRUR 1969, 182; BGH, X ZR 62/79 (1981) – Kautschukrohlinge, GRUR 1981, 736; BGH, X ZR 115/96 (1998) – Stoßwellen-Lithotripter, GRUR 1999, 145. BGH, X ZB 9/79 (1980) – Tomograph, GRUR 1980, 984; BGH, X ZR 46/78 (1981) – piezoelektrisches Feuerzeug, GRUR 1981, 341; BGH, X ZR 19/79 (1981) – First- und Gratabdeckung, GRUR 1981, 732.*

⁴¹ IP Australia Patent Manual of Practice & Procedure, Section 2.5.2.5.5A.

⁴² See also the Manual of Organization and Examination of Applications for Invention Patents for the Industrial Property Offices of the Central American Countries and the Dominican Republic, 7.6, KIPO Patent Examination Guidelines, Section 7 and Guidelines for Examination at ARIPO, Section 3.7.9.

For example, whether the teachings come from similar, neighboring or remote technical fields should be taken into account for the assessment of inventive step in relation to combination inventions.⁴³

Generally speaking, it would also be obvious to combine the teachings of two documents, one of which contains a clear and unmistakable reference to the other.⁴⁴ However, such notion of “obvious to combine” does not necessarily require an express cross reference in the documents in order for an inventive step argument to be raised.⁴⁵

(ii) The amount of selection required to isolate the separate disclosures from the surrounding documentary material.⁴⁶

There is no limit to the number of pieces of information that may be combined for an inventive step objection. In general, the greater the number of features to be combined the greater the chance of there being an inventive step.⁴⁷ The fact that the large number of prior art references should be relied upon may indicate the possibility of improper hindsight.⁴⁸

(iii) Whether one piece of information has a tendency to lead away (or teach away) from combining the plural pieces of prior art information.⁴⁹

For example, if two disclosures considered as a whole could not in practice be readily combined because of inherent incompatibility in disclosed features essential to the invention, the combination of these disclosures by a person skilled in the art would not normally be regarded as obvious to combine.⁵⁰

(iv) The general technical problems of the technical field as well as the technical trend and demands in the industry.

According to the practice of one patent Office, when the examiner determines the inventive step by combining various prior arts, examiners may take into account, *inter alia*, the general technical problems of the technical field and the technical trend as well as demands in the industry.⁵¹

(v) The age of the documents.

An old specification which teaches specifically the solution of the problem which an invention seeks to overcome so that the skilled person should readily appreciate its significance can form a good basis for an obviousness objection.⁵² However, the fact that

⁴³ See, for example, the Guidelines for Examination in the European Patent Office, Part G, Chapter VII-16, 6, UKIPO Manual of Patent Practice, Section 3.43, Guidelines for Examination at ARIPO, Section 3.7.9 and PCT International Search and Preliminary Examination Guidelines, 13.12.

⁴⁴ UKIPO Manual of Patent Practice, Section 3.43; Guidelines for Examination at ARIPO, Section 3.7.9.

⁴⁵ Examination Guidelines for Patent Applications at IPOS, Section H, 4.42.

⁴⁶ UKIPO Manual of Patent Practice, Section 3.43.

⁴⁷ Examination Guidelines for Patent Applications at IPOS, Section H, 4.46.

⁴⁸ KIPO Patent Examination Guidelines, Section 7. See also the discussions on hindsight in this document.

⁴⁹ See, for example, IP Australia Patent Manual of Practice & Procedure and UKIPO Manual of Patent Practice.

⁵⁰ See, for example, EPO Guidelines Part G, Chapter VII-16, 6 and UKIPO Manual of Patent Practice, Section 3.43.

⁵¹ KIPO Patent Examination Guidelines, Section 7.

⁵² UKIPO Manual of Patent Practice, Section 3.38, referring to *Jamesigns (Leeds) Limited's Application [1983] RPC 68*.

a document is old does not, *per se*, mean that it cannot be a basis for an obviousness attack.⁵³ Each piece of prior art must be assessed as if it was being considered afresh at the relevant filing date (or priority date).

(vi) Advantageous effects.

Advantageous effects of the invention over prior art references are noted in the Examination Guidelines of some patent Offices as one of the factors in support of the existence of inventive step. For example, where the advantageous effects over the prior art satisfy the following condition (i) or (ii) and exceed what is predictable based on the state of the art, they should be considered as factors in support of the existence of an inventive step: (i) the claimed invention has an effect of the different nature from that of the prior art and a person skilled in the art is not able to expect the effect of the claimed invention on the basis of the state of the art at the time of filing; or (ii) the claimed invention has an effect of the same nature but significantly superior to that of the prior art and a person skilled in the art is not able to expect the effect of the claimed invention on the basis of the state of the art at the time of filing.⁵⁴

(vii) Whether it is a combination of features or mere aggregation of features (see the section “Combination vs Juxtaposition or Aggregation”, below).

29. Similarly, the Patent Examination Guidelines of the State Intellectual Property Office (SIPO) of the People’s Republic of China indicate that, in determining the inventive step of an invention by combination, usually, the following factors need to be taken into account: (i) whether those combined technical features functionally support each other; (ii) the difficulty or easiness of combination; (iii) any technical motivation to make the combination in the prior art; and (iv) the technical effect of the combination etc.⁵⁵

30. As to the level of certitude that the person skilled in the art would arrive at the claimed invention, the court in Germany held that while no inventive step was involved if the average skilled person too would have combined the features, an inventive step was involved if the skilled person would only potentially have arrived at the invention.⁵⁶ Inventive step was thus confirmed when a combination of two different solutions, which had proved effective in practice, was proposed and a particular advantage was achieved through it. However, an inventive step cannot be assumed if the invention merely consists of the expert addition of the effects of the features.⁵⁷

31. Furthermore, for the purpose of assessment of inventive step, since “obvious to combine” two or more teachings is determined from the perspective of the person skilled in the art, the motivation to modify the prior art teachings need not be the same as the applicant’s motivation to arrive at the claimed invention. In addition, it is not necessary that the prior art references suggest the combination that would achieve the same advantage or result discovered by the applicant. The prior art may suggest the claimed invention, but for a different purpose or to solve a different problem.⁵⁸

⁵³ UKIPO Manual of Patent Practice, Section 3.39, referring to *Brugger and others v Medic-Aid Ltd* ([1996] RPC 635).

⁵⁴ See, for example, JPO Examination Guidelines, Part III, Chapter 2, Section 2, 3.2.

⁵⁵ Patent Examination Guidelines of SIPO, Part II, Chapter 4, 4.2.

⁵⁶ *BGH, IZR 117/54 (1956) – Wasch- und Bleichmittel, GRUR 1956, 317.*

⁵⁷ Submission by Germany for the twenty-eighth session of the SCP.

⁵⁸ PCT International Search and Preliminary Examination Guidelines, 13.13.

32. In the United States of America, in *KSR International Co. v. Teleflex Inc.*, the Supreme Court reaffirmed principles based on its precedent that “[t]he combination of familiar elements according to known methods is likely to be obvious when it does no more than yield predictable results.”⁵⁹ When considering obviousness of a combination of known elements, the operative question is thus “whether the improvement is more than the predictable use of prior art elements according to their established functions.”⁶⁰

33. According to the practice in the United States Patent and Trademark Office (USPTO), one of the exemplary rationales that may support a conclusion of obviousness includes combining prior art elements according to known methods to yield predictable results.⁶¹ In applying this rationale, examiners must articulate the following:

- (i) A finding that the prior art included each element claimed, although not necessarily in a single prior art reference, with the only difference between the claimed invention and the prior art being the lack of actual combination of the elements in a single prior art reference;
- (ii) a finding that one of ordinary skill in the art could have combined the elements as claimed by known methods, and that in combination, each element merely performs the same function as it does separately;
- (iii) a finding that one of ordinary skill in the art would have recognized that the results of the combination were predictable; and
- (iv) 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.⁶²

34. Conversely, in the case of a claim to a combination, applicants may submit evidence or argument to demonstrate that: (i) one of ordinary skill in the art could not have combined the claimed elements by known methods (for example, due to technological difficulties); (ii) the elements in combination do not merely perform the function that each element performs separately; or (iii) the results of the claimed combination were unexpected.⁶³

Combination vs Juxtaposition or Aggregation

35. As a general rule, in the case of a combination claim, it is not correct to argue that the separate features of the combination, taken by themselves, are known or obvious, and therefore, the whole subject matter claimed is obvious. However, where the claim is merely an “aggregation or juxtaposition of features” and not a true combination, in order to prove that the aggregation of features does not involve an inventive step, it is enough to show that the individual features, taken separately, are obvious for a person skilled in the art.⁶⁴

⁵⁹ *KSR International Co. v. Teleflex Inc. (KSR)*, 550 U.S. 415-16, 82 USPQ2d at 1395.

⁶⁰ *Ibid* at 417, 82 USPQ2d at 1396.

⁶¹ Manual of Patent Examination Procedures (MPEP), §2141.

⁶² MPEP, §2143.

⁶³ MPEP, §2141.

⁶⁴ For example, see PCT International Search and Preliminary Examination Guidelines, 13.05, EPO Guidelines Part G, Chapter VII-16, 7, Manual of Organization and Examination of Applications for Invention Patents for the Industrial Property Offices of the Central American Countries and the Dominican Republic, 7.2.1 and Guidelines for Examination at ARIPO, Section 3.7.17.2.1.

36. A set of technical features is regarded as a true combination of features if the functional interaction between the features achieves a combined technical effect which is different from, e.g. greater than, the sum of the technical effects of the individual features. In other words, the interactions of the individual features must produce a synergistic effect. If no such synergistic effect exists, there is no more than a mere aggregation of features.⁶⁵ In this regard, the Supreme Court of Spain ruled that: “After analyzing the relevant reports of the case, the chamber ruled that the initial claim of the new patent (i.e. the main claim, from which the subsequent claims derive) was not merely a juxtaposition of the characteristics found in documents D1, D2 and D3, which reflect the prior art, but something qualitatively different and involving novelty and an inventive step”.⁶⁶

37. In many jurisdictions, an “interaction” or “interrelationship” among combined features and “synergistic effects” created by the combination are the essential notions for the definition of a true combination invention. A similar idea is captured by the expression “elements that cooperate to produce a unitary result” in the practice of one country.⁶⁷ As to the meaning of the term “synergy”, the EPO Technical Boards of Appeal stated that: “Two features interact synergistically if their functions are interrelated and lead to an additional effect that goes beyond the sum of the effects of each feature taken in isolation. It is not enough that the features solve the same technical problem or that their effects are of the same kind and add up to an increased but otherwise unchanged effect.”⁶⁸ Similarly, in *SABAF SpA v MFI Furniture Centres Ltd*, the judge held that before one can ask whether the invention involves an inventive step, one has to first decide what the invention is. In particular, the first step is to decide whether one is dealing with one invention or, for the purposes of assessing inventive step, two or more inventions. If two integers interact upon each other, that is, if there is synergy between them, they constitute a single invention having a combined effect and the legal provision on inventive step is applied to the idea of combining them.⁶⁹ Evidence of such synergistic effect must be provided at the time of filing. In other words, any evidence provided post-filing cannot be used to demonstrate inventiveness in this situation.

38. Furthermore, as regards the synergistic effect, in *Glaxo Group’s Patent [2004] RPC 43*, it was stated that: “If a synergistic effect is to be relied on, it must be possessed by everything covered by the claim, and it must be described in the specification. No effect is described in the present specification that is not the natural prediction from the properties of the two components of the combination.”

39. Evidence of unexpected synergy between the claimed components does not render a combination inventive, if this combination was obvious to the skilled person. In particular, if it is known to combine two categories of active agent, it is unlikely that the substitution of a newer, more effective agent of one or other category in the combined preparation be considered as inventive.⁷⁰

40. In addition, if the synergy of the combined components is no greater than the equivalent prior art combination, then this synergy does not equate to evidence of inventiveness in this combination. In T 492/99 NIPRO, it was stated that there was no advantage of the combined anti-inflammatory agent claimed in the main request over the state of the art and therefore, the claim in question did not involve an inventive step.⁷¹

⁶⁵ Idem.

⁶⁶ *ECLI: ES:TS:2010:1365: Supreme Court, Disputes Division, Madrid Section 3, Date: 25/03/2010, Appeal No. 1444/2009.*

⁶⁷ Manual of Patent Office Practice of Canada, 15.02.04.

⁶⁸ T 1054/05 of the Technical Boards of Appeal of the EPO.

⁶⁹ *SABAF SpA v MFI Furniture Centres Ltd [2005] RPC 10.*

⁷⁰ *Glaxo Group’s Patent [2004] RPC 43 and Richardson-Vicks’ Patent [1995] RPC 568.*

⁷¹ Examination Guidelines for Patent Applications at IPOS. 8.167.

41. In contrast to the true combination inventions, the claimed invention is merely a juxtaposition or association of known devices or processes, if they are functioning in their normal way and are not producing any non-obvious working interrelationships: for example, a machine for producing sausages consisting of a known meat grinder and a known filling machine sequentially put together.⁷² The court in Spain ruled that “the expert’s own explanation highlighted the fact that each of these two elements fulfills its inherent function and there is no synergy or combination of classes between them, although both of them are logically integrated or interconnected to achieve the overall operation of the product and ensure that it exhibits each and every one of the properties with which it was designed. Or put another way: Don Isaac himself confirms that it is a mere aggregation or juxtaposition of elements.”⁷³

42. Similarly, according to the practice in Canada, the subject matter of a claim is considered to be a mere aggregation if each of the elements performs its own individual function and if any one element is removed, the remaining elements would continue to perform their own individual function. When an invention is merely a juxtaposition of parts or known devices, and each part or device merely functions as would be expected if it were used on its own, the assembly is not a true combination but is a mere aggregation. An aggregation of old parts cannot form the basis of a patentable invention.⁷⁴

43. In the same token, in discussing circumstances in which a patent might be determined to be obvious, the United States Supreme Court in *KSR* noted two previous cases that illustrate the combination of known elements that does no more than yield predictable results. In *Anderson’s-Black Rock, Inc. v. Pavement Salvage Co.*, the Court stated that the two pre-existing elements in combination did no more than they would in separate, sequential operation.⁷⁵ In *Sakraida v. AG Pro, Inc.*, the Court derived the conclusion that when a patent simply arranges old elements with each performing the same function it had been known to perform and yields no more than one would expect from such an arrangement, the combination is obvious.⁷⁶

44. In some countries, in general, juxtaposition or mere aggregation of known inventions is not an invention within the meaning of their patent law. For example, Section 3(f) of the Patents Act of India states that the mere arrangement or re-arrangement or duplication of known devices each functioning independently of one another in a known way is not an invention. For example, merely placing side-by-side old integers so that each performs its own function independently of the others is not a patentable combination.⁷⁷ When two or more features of an apparatus or device are known, and they are juxtaposed without any interdependence on their functioning, they should be held to have been already known.⁷⁸ However, where the old integers when placed together have some working interrelation, producing a new or improved result, then there could be a patentable subject matter in the working interrelation brought about by the collection of the integers. In *Lallubhai Chakkubhai v. Shamaldas Sankalchand Shah*, the court ruled that a new combination may be the subject matter of a patent although every part of

⁷² PCT International Search and Preliminary Examination Guidelines, 13.14(c), EPO Guidelines Part G, Chapter VII-24, 2.1 and submission by Spain for the twenty-eighth session of the SCP.
⁷³ *ECLI: ES:APM:2012:22629: Provincial Court of Madrid, Section 28, Ruling No. 392/2012, Date of Ruling 17/12/2012, Appeal No. 720/2012.*
⁷⁴ Manual of Patent Office Practice of Canada.
⁷⁵ *Anderson’s-Black Rock, Inc. v. Pavement Salvage Co.*, 416-17, 82 USPQ2d at 1395.
⁷⁶ *Sakraida v. AG Pro, Inc.*, 417, 82 USPQ2d at 1395-96.
⁷⁷ Guidelines for Search and Examination of Patent Applications of Indian Patent Office, Section 3.
⁷⁸ *Rampratap v. Bhabha Atomic Research Center*, 1976 IPLR 28 P. 35.

the combination *per se* is old, for the new article is not the parts themselves but the assembling and working of the parts, together. The merit of a new combination very much depends upon the result produced. Where a slight alteration turns that which was practically useless into what is useful and important, it is fit subject matter for a patent.⁷⁹

45. Similarly, the laws of Costa Rica, the Dominican Republic, Honduras and Mexico state that juxtaposition of known inventions or mixtures of known products, or alteration of the form, dimensions or materials thereof is not patentable, except where in reality, they are so combined or merged that they cannot function separately, or where their particular qualities or functions have been modified so as to produce an industrial result not obvious to a person skilled in the art. For example, in the Dominican Republic, inventions referring to mixtures of known products are considered to be within the exclusions from patentability, because they are considered a juxtaposition of known inventions. Such a mixture can be characterized by the mere sum of the properties of each material, and does not demonstrate a synergy or a benefit not disclosed in the state of the art or does not achieve an industrial result that is not obvious for a person skilled in the art. Conversely, inventions referring to combinations of two known active principles will be considered inventive when the combined elements produce a new technical effect, greater than the mere sum of the individual effects of each of the active ingredients.⁸⁰

46. In Australia, inventions which are mere admixtures cannot be patented. Under the Patents Act 1990, Section 50(1)(b), if the invention is a substance which is capable of being used as a food or medicine (whether for human beings or animals and whether for internal or external use) and is a mere mixture of known ingredients, or a process producing such a substance by mere admixture, the Commissioner may refuse to accept the application or to grant a patent. A mere mixture of known ingredients is taken to mean a mixture exhibiting only the aggregate of the known properties of the ingredients. Regardless of any potential interworking relationship between the integers, a mere admixture may mean that there is no inventive step if it would be obvious to combine the integers and the combination is simply “the predictable use of prior art elements according to their established functions”⁸¹ without a synergistic effect. Conversely, if there is synergy, a potential working interrelationship or some other non-obvious advantage in combining the integers, then the admixture will not be obvious.⁸²

DANGER OF HINDSIGHT ANALYSIS

The Problem of Hindsight in General

47. Hindsight bias can be described as a mental bias present in the evaluation of past decisions or events where the evaluator knows the outcome of those decisions or events, particularly when judging the likelihood, foreseeability, or predictability of a past event from an *ex ante* perspective.⁸³ Hindsight bias is reported to be present in many areas of law where evaluators, such as judges and juries, must look back in time and judge decisions made in the past,⁸⁴ including negligence, malpractice, corporate law and patent law.

⁷⁹ *Lallubhai Chakkubhai v. Shamaldas Sankalchand Shah*, AIR 1934 Bom 407.

⁸⁰ Submission by the Dominica Republic for the twenty-eighth session of the SCP.

⁸¹ *KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 417.

⁸² Submission by Australia for the twenty-eighth session of the SCP.

⁸³ See Zachary Quinlan, *Hindsight Bias in Patent Law: Comparing the USPTO and the EPO*, Fordham International Law Journal, Volume 37, Issue 6, 2014, Article 3.

⁸⁴ See Hal R. Arkes & Cindy A. Schpani, *Medical Malpractice v. the Business Judgment Rule: Differences in Hindsight Bias*, 73 OR. L. REV. 587, 589–90 (1994) (comparing the prevalence of hindsight bias in medical malpractice decisions with the business judgment rule, which protects business executives from hindsight bias); LaBine & LaBine, *Determinations of Negligence and the Hindsight Bias*, 20 LAW. HUM. BEHAV. 501,

[Footnote continued on next page]

Hindsight Bias in Patent Law

48. In patent law, hindsight bias is an important issue when determining whether an invention involves an inventive step, since it is a particularly subjective judgment that can be influenced by the evaluator's perceptions of the past. Hindsight bias arises in inventive step analysis, because patent examiners and judges conduct examination of a claimed invention after the invention has been disclosed in a patent application. In other words, when assessing the claimed invention, such an evaluator has the information about a new invention and how it works in comparison to the known devices and methods (i.e. state of the art). Thus, the examiners, who have already known the content of the invention, more likely think that the invention is obvious and underestimate the inventive step.

49. As technical advances often occur through incremental steps toward the solution, these marginal advances in retrospect may seem deceptively simple and self-evident, particularly when retracing the path already blazed by the inventor. Thus, evaluators can be easily misled by a line of reasoning that involves working forward from the stated problem in a succession of easy steps when they know the desired solution.

50. Such hindsight or *ex post facto* analysis in assessing the obviousness of the claimed invention is not permitted under most patent systems. In particular, patent examination guidelines of various offices as well as case law expressly warn against an *ex post facto* approach when assessing inventive step.^{85, 86} The proper analysis requires that one avoids looking at a prior art reference under the influence of the patent or patent application in question: he/she should attempt to place himself/herself in the situation that a person skilled in the art had faced when the invention was unknown. However, this is necessarily an artificial position, since the patent or patent application presents both the solution (the invention) as well as the problem.⁸⁷

Only the Level of Knowledge at the Filing Date (Priority Date) is Relevant

51. The general rule in evaluating the inventive step requirement is that it should be evaluated from the perspective of a person skilled in the art at the time of filing a patent application (or the priority date), without knowledge of how invention works. Thus, an important consideration in evaluating the inventive step is that an examiner should attempt to visualize the overall state of the art confronting the skilled person before the applicant's disclosure of the invention in a patent application.⁸⁸ Only the level of knowledge at the filing date (priority date) can be attributed to the skilled person. All specialist knowledge that was created after that date shall be disregarded.⁸⁹ In a comparison with the state of the art, knowledge gained from the invention must not be interpreted as part of the state of the art.

[Footnote continued from previous page]

510 (1996), at 506–10 (discussing how the presence of an injured party makes potential jurors more likely to find negligence in a professional negligence case), *cited in* Zachary Quinlan, *ibid*.

⁸⁵ See, e.g., Chapter 15 of the Manual of Patent Office Practice of Canada; Part II, Chapter 4, Section 6.2 of the Guidelines on Examination of Patents of SIPO; Section 2.13.6.3 of the Guidelines for the Examination of Patent Applications in Colombia; Part III, Chapter 2 Section 2, 3.3 of the Examination Guidelines for Patent and Utility Model in Japan; Section 4C of the Examination Guidelines for Patent Applications at IPOS; Section 3.10 of the Manual of Patent Practice of the UKIPO; Section 6.5.3.5 of the Patent Examination Guidelines of the Spanish Patent and Trademark Office; MPEP §2141; and Chapter VII(8) of the Guidelines for Examination of the EPO.

⁸⁶ See, e.g., the Case Law of the Boards of Appeal of the European Patent Office, Eighth Edition, July 2016, page 184.

⁸⁷ Section 3.10 of the Manual of Patent Practice of the UKIPO.

⁸⁸ See the submission from Norway to the twenty-eighth session of the SCP.

⁸⁹ See the submission from Germany to the twenty-eighth session of the SCP.

52. In this regard, for example, the Manual of Patent Examination Procedures (MPEP) of the United States Patent and Trademark Office (USPTO) states that the requirement “at the time the invention was made” is to avoid impermissible hindsight. It recognizes the difficulty of intellectual effort involved in putting the examiner’s mind to the time the invention was made:

“It is difficult but necessary that the decision maker forget what he or she has been taught . . . about the claimed invention and cast the mind back to the time the invention was made (often as here many years), to occupy the mind of one skilled in the art. . . .”^{90 91}

53. Similarly, the Supreme Court of Spain stated, “[f]irst, the impugned ruling appears to have assessed prior art based on the existing state of the art and general knowledge of the skilled person at the wrong time – i.e., based on the date on which the trial took place or when the ruling was issued, rather than the filing date of the patent application. Accordingly, it engaged in *ex post facto* analysis”.⁹² The Guidelines on Examination of Patents of SIPO states in that regard “[...] the examiner shall always bear in mind that, in order to reduce and avoid the influence of subjectivity, the evaluation shall be presumed to be made by a person skilled in the art on the basis of comparison between the invention and the prior art before the filing date thereof.”

Reducing the Risk of Hindsight

54. Some offices establish standard methodologies for assessing the inventive step, for example, the problem-solution approach or the *Windsurfing* approach, as described in document SCP/22/3. They not only support the objectivity and consistency of the assessment of inventive step, but also reduce the risk of hindsight or *ex post facto* analysis in determining the inventive step. For example, the Boards of Appeal of the EPO stated in several occasions that correct application of the problem-solution approach avoids inadmissible *ex post facto* analysis which draws on knowledge of the invention.⁹³ Or in Singapore, the principles of the so-called “*Windsurfing* approach” should be followed in patent examination to minimize the danger of hindsight.^{94,95}

⁹⁰ 2141 Examination Guidelines for Determining Obviousness Under 35 U.S.C. 103 [R-08.2017], available at: <https://www.uspto.gov/web/offices/pac/mpep/s2141.html>.

⁹¹ The discussion of rebutting applicants’ arguments that a rejection is based on hindsight is provided in MPEP § 2145 which states: “Applicants may argue that the examiner’s conclusion of obviousness is based on improper hindsight reasoning. However, “[a]ny judgment on obviousness is in a sense necessarily a reconstruction based on hindsight reasoning, but so long as it takes into account only knowledge which was within the level of ordinary skill in the art at the time the claimed invention was made and does not include knowledge gleaned only from applicant’s disclosure, such a reconstruction is proper.” *In re McLaughlin*, 443 F.2d 1392, 1395, 170 USPQ 209, 212 (CCPA 1971), cited in § 2145, subsection X.A of the MPEP, USPTO.

⁹² See submission from Spain referring to ECLI: ES:TS:2017:4251: Supreme Court. Civil Division. Section 1. 10/05/2017, Appeal No. 699/2015.

⁹³ See the Case Law of the Boards of Appeal of the EPO (T 24/81, OJ 1983, 133; T 564/89, T 645/92, T 795/93), eighth edition, July 2016.

⁹⁴ *Windsurfing International Inc. v Tabur Marine (Great Britain) Ltd.* 4.18[1985] RPC 59. In that case, the UK Court of Appeal held that the question of obviousness “has to be answered, not by looking with the benefit of hindsight at what is known now and what was known at the priority date and asking whether the former flows naturally and obviously from the latter, but by hypothesizing what would have been obvious at the priority date to a person skilled in the art to which the patent in suit relates.”.

⁹⁵ Nevertheless, in *First Currency Choice Pte Ltd v Main-Line Corporate Holdings Ltd* [2008] 1 SLR(R) 335, the Court recognized that it may be appropriate in some cases to apply a simpler approach: “[...] Quite often, it is difficult, in practice, to break down the *Windsurfing* test ... into its component parts. Thus, while the *Windsurfing* test remains a useful guide, it is no more than that. Above all, it should be borne in mind that the *Windsurfing* test is merely a manifestation of judicial inventiveness on how best to pragmatically interpret and elucidate the requirements of s 15 of the Act.” See Section 4C of the Examination Guidelines for Patent Applications at IPOS.

55. The hindsight bias can enter into inventive step analysis at different stages of examination, for example, at the stage of determining the “closest prior art”⁹⁶ and establishing the “objective technical problem” to be solved.⁹⁷ A particular attention, however, should be given to hindsight at the stage of combining the prior art.

56. The Patent Examination Guidelines of some offices applying the problem-solution approach address the issue of *ex post facto* analysis in the context of combining the prior art references. The combination of prior art are particularly vulnerable to hindsight, because the prior art references revealed by a prior art search is informed by the nature of the invention and its features. For example, the Guidelines for Examination of the EPO warns examiners that “[...] the documents produced in the search have, of necessity, been obtained with foreknowledge of what matter constitutes the alleged invention [and that examiners] should attempt to visualise the overall state of the art confronting the skilled person before the applicant’s contribution, and [they] should seek to make a “real-life” assessment of this and other relevant factors.”⁹⁸ A similar text is found in the Norwegian examination guidelines.⁹⁹ The fact that the large number of prior art references should be relied upon may indicate the possibility of improper hindsight or the possibility that the rejection lacks a valid ground.¹⁰⁰

57. In the United States of America, in *Mintz v. Dietz & Watson, Inc.*,¹⁰¹ the United States Court of Appeals for the Federal Circuit provided further clarification of *KSR International Co. v. Teleflex Inc. (KSR)*¹⁰², and noted the three steps to be taken to avoid improper hindsight analysis: (i) requiring that “common sense” be articulated; (ii) avoiding the use of the patent itself in defining the problem the invention solves; and (iii) emphasizing the need to analyze the objective indicia of nonobviousness.

58. In relation to step (i), above, while the district court had relied on a “common sense approach” to conclude that it would have been “obvious to try” an element of the claimed invention, the Federal Circuit held that more is required than simply saying the words “common sense”: “With little more than an invocation of the words “common sense” (without any record showing that this knowledge would reside in the ordinarily skilled artisan), the district court overreached in its determination of obviousness.” As regards step (ii), the Federal Circuit found that the district court erred by using the invention to define the problem that the invention solves.

⁹⁶ See Case T 0246/04 of the Technical Boards of Appeal of the EPO, at 50–51 (July 12, 2007) (“in order to avoid *ex-post facto* considerations, the closest state of the art is not generally that merely showing superficially the most similarities, but rather that conceived for solving the same primary problem or aiming at the same objective as the claimed invention and which requires the minimum of structural and functional modifications”); Case Law of Board of Appeal (7th edition, 2013), at 169 (reviewing cases where a reference could not be used as the closest prior art because it did not address a similar problem as the invention, and concluding that hindsight must have been used to select such references as the closest prior art).

⁹⁷ See Case T 0229/85 of the Technical Boards of Appeal of the EPO (the technical problem addressed by an invention must be formulated in such a way that it does not contain pointers to the solution, since inclusion of the elements of the invention in the problem necessarily results in hindsight).

⁹⁸ See Section 6.5.3.5 of the Patent Examination Guidelines of the Spanish Patent and Trademark Office, the Norwegian Examination Guidelines and G-VII(8) of the Guidelines for Examination of the EPO. The Guidelines for Examination of the EPO further states: “If, for example, an invention is shown to be of considerable technical value, and particularly if it provides a technical advantage which is new and surprising and which is not merely achieved as a bonus effect in a “one-way street” situation (see G-VII, 10.2), and this technical advantage can convincingly be related to one or more of the features included in the claim defining the invention, the examiner should be hesitant in pursuing an objection that such a claim lacks inventive step.”

⁹⁹ See the submission of Norway.

¹⁰⁰ The KIPO Patent Examination Guidelines further explains that when determining whether it would have been obvious to combine two or more other prior arts, the examiner should take into consideration of the followings: (i) there is good possibility that a person with ordinary skill in the art would combine them, (ii) whether the prior arts come from similar or neighboring technical fields, and (iii) whether there is a reasonable basis to associate each other for the combination”.

¹⁰¹ *Mintz v. Dietz & Watson, Inc.* (Fed. Cir. 2012), pp.9 -12.

¹⁰² *KSR International Co. v. Teleflex Inc. (KSR)*, 550 U.S. 398, 82 USPQ2d 1385 (2007).

This approach is problematic, because it may be the problem itself that is nonobvious; once the problem is known, the solution may be virtually certain. The Federal Circuit stated that “Often the inventive contribution lies in defining the problem in a new revelatory way.” The Federal Circuit, therefore emphasized that, in relation to step (iii), “these objective guideposts are powerful tools for courts faced with the difficult task of avoiding subconscious reliance on hindsight” and that they “help inoculate the obviousness analysis against hindsight”.

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