

# Comparative Analysis of Inventive Step/Nonobviousness Standard and Case Study Thereof – from the Aspect of “the Problem to Be Solved” (\*)

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*Although the concept of invention originated in the 16th century, there are still significant differences in the standards of inventive step for patentability among different countries because of policies, laws and regulations, assessment, etc. nowadays. This report studies and analyzes the standard for the inventive step of the European Patent Office (hereinafter referred to as “EPO”), United States Patent and Trademark Office (hereinafter referred to as “USPTO”), Japan Patent Office (hereinafter referred to as “JPO”) and Taiwan Intellectual Property Office (hereinafter referred to as “TIPO”). It will also discuss the similarities and differences between said offices step by step from the perspective of definitions of the inventive step and applicable laws, the scope of prior art, the level of a person skilled in the art, assessment of the inventive step, etc. Owing to the fact that, while assessing the inventive step, “the problem to be solved by the claimed invention” can usually provide objectively logical articulation concerning the rationale to combine the different teachings of prior art, this research will try to analyze the assessment of inventive step from the aspect of “the problem to be solved” and illustrates the differences among the above offices via some representative case studies.*

*When determining the existence of the inventive step, for all the four IP Offices, it is necessary to conduct reasonable articulation on whether or not a claimed invention is obvious from the view point of a person skilled in the art based on the prior art and they also emphasize the importance of “the problem to be solved.” However, the approaches for assessment among different IP Offices are different and can be categorized into the “problem and solution approach,” which is adopted mainly by the EPO and combines different prior arts by an objective technical problem, and into the “general rationale articulation,” which is adopted mainly by the USPTO, JPO, TIPO, etc. and combine different prior arts by articulating rationales from various and broad points of view. In addition, from the aspect of using “the problem to be solved” to analyze the inventive step determination approaches adopted by the four IP Offices, there exists three major differences including “the way to define the problem”, “features taken into account for the solution of the problem”, “technical character of the problem and solution”, etc.; and these differences can be relevant to the “level of a person skilled in the art.” When trying to harmonize the standards of the inventive step from the aspect of “the problem to be solved”, these three differences, as well as the level of a person skilled in the art, should be taken into consideration and be harmonized gradually from the easiest to the most complicated in the hope that a more practical and objective inventive step standard can be obtained.*

## I Introduction

Although the concept of invention originated in the 16th century,<sup>1</sup> there are still significant differences in the standards of inventive step for patentability among different countries because of policies, laws and regulations, assessment, etc. nowadays.<sup>2</sup> Recently, based on the trend towards globalization, countries around the world are making efforts to achieve international harmonization in the patent system, and harmonization in the standard of the inventive step is one of the goals to be achieved. For example, when the draft of the Substantive Patent Law Treaty, (Draft SPLT) was established among

contracting states of the World Intellectual Property Organization (hereinafter referred to as “WIPO”),<sup>3</sup> there were discussions about whether to include the inventive step as one of the requirements for patent harmonization. In addition, the World Trade Organization (hereinafter referred to as “WTO”)<sup>4</sup> states that “patents shall be available for any inventions, whether products or processes, in all fields of technology, provided that they are new, involve an inventive step and are capable of industrial application” in its Agreement on Trade-Related Aspects of Intellectual Property Rights (hereinafter referred to as “TRIPs”)<sup>5</sup>

And therefore, it is obvious that the inventive step is

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one of the basic requirements to obtain patent protection and the standards for the inventive step have a significant impact on patentability.

This report studies and analyzes the standard for the inventive step of the European Patent Office (hereinafter referred to as “EPO”), United States Patent and Trademark Office (hereinafter referred to as “USPTO”), Japan Patent Office (hereinafter referred to as “JPO”) and Taiwan Intellectual Property Office (hereinafter referred to as “TIPO”). It will also discuss the similarities and differences between said offices step by step from the perspective of definitions of the inventive step and applicable laws, the scope of prior art, the level of a person skilled in the art, assessment of the inventive step, etc. Owing to the fact that, while assessing the inventive step, “the problem to be solved by the claimed invention” can usually provide objectively logical articulation concerning the rationale to combine the different teachings of prior art, this research will try to analyze the assessment of inventive step from the aspect of “the problem to be solved” and illustrates the differences among the above offices via some representative case studies.

As a result of this research, it was found that while assessing the inventive step, from the aspect of “the problem to be solved”, there are three major differences between the “problem and solution approach”, adopted by the EPO, and the “general rationale articulation”, adopted by the USPTO, JPO, TIPO, and others; they include “the way to define the problem”, “features taken into account for the solution of the problem”, and “the technical character of the problem and solution”, etc. When trying to achieve international harmonization of the standards of the inventive step from the aspect of “the problem to be solved”, these three differences should be taken into consideration and be harmonized gradually from the easiest to the most complicated in the hope that a more practical and objective inventive step standard can be obtained.

## II Definition of the Inventive Step and the Applicable Law

With respect to the provisions of the EPO related to innovation, the main reference is Article 56 of the European Patent Convention (EPC Art. 56)<sup>6</sup>, with respect to the provisions of the USPTO related to the inventive step, the main reference is the relevant provisions of 35 USC § 103<sup>7</sup>, With respect to the provisions of the JPO on inventive steps, the main reference is the provisions of Article 29 (2) of the Japan Patent Act<sup>8</sup>, and With respect to the provisions of the TIPO related to inventive steps, the main reference is the provisions of Article 22 (2) of the Republic of China Patent Law<sup>9</sup>. As shown in the above paragraphs, although terms are somewhat different

among different IP Offices, principally, all of them fulfill the minimum requirements related to patent protection under TRIPS in and have some things in common.<sup>10</sup> (1) An inventive step is a relative concept. When assessing the inventive steps of an invention, it must be compared with prior art before the patent application date (or before the effective filing date). (2) The subject who judges the inventive steps is a person skilled in the art (or a person who has normal knowledge in the field of technology to which the invention belongs). (3) While emphasizing the differences between the claimed invention and prior art, the inventive step should be determined based on whether or not “the claimed invention as a whole” is obvious or may easily be completed by a person skilled in the art. These match the concepts of the Draft Substantive Patent Law Treaty, Article 18 [Alternative A]<sup>11</sup> that was established by the Standing Committee on the Law of Patents of WIPO.<sup>12</sup> As it is apparent in the aforementioned, definitions and provisions of laws related to inventive steps have already been harmonized considerably because countries are making an effort towards international harmonization; and these conditions correspond to the trends proposed by the Summary Report<sup>13</sup> of the Association Internationale pour la Protection de la Propriété Intellectuelle (AIPPI) on “the patentability standards of inventive step/non-obviousness.”

## III Scope of Prior Art

With respect to provisions of the EPO related to prior art, the main reference is Article 54 of the EPC. In other words, (1) an invention shall be considered to be new if it does not form part of the state of the art.<sup>14</sup> (2) The state of the art shall be held to comprise everything made available to the public by means of a written or oral description, by use, or in any other way, before the date of filing of the European patent application.<sup>15</sup> (3) Additionally, the content of European patent applications as filed, the dates of filing of which are prior to the date referred to in paragraph 2 and which were published on or after that date, shall be considered as comprised in the prior art.<sup>16</sup> However, judgment of the inventive step does not apply to the state of the art (or secret prior art or conflicting application<sup>17</sup>).<sup>18</sup> In principle, the definition of the “prior art” is broad;<sup>19</sup> there are no restrictions whatever as to the geographical location or the language or manner in which the relevant information was made available to the public; and also no age limit is stipulated for the documents or other sources of the information. Moreover, the state of the art does not include provisions on the non-prejudicial disclosures or grace period<sup>20</sup> set forth in EPC Article 55 (1). Non-prejudicial disclosures include the following two specific cases within six months<sup>21</sup> prior to the date of filling a patent application: (A) evident abuse in relation to the applicant or his/her

legal predecessor, such as where there is an act where the invention in question is taken from the applicant and disclosed, that is against intention of the applicant (“an evident abuse” is established only if the person who disclosed the invention has the true intention to cause harm to the applicant, or if the person who disclosed the invention knows surely or concretely that the disclosure causes or is likely to cause harm after the disclosure); (B) the fact that the applicant or his/her legal predecessor has displayed the invention at an official, or officially recognized, international exhibition as indicated in EPC Art. 55 (1) (b).

With respect to the provisions of the USPTO related to prior art, the main reference is the relevant provisions, including (1) and (2) of the current 35 USC § 102<sup>22</sup> (a). According to the regulations, in the United States, prior art includes all inventions that are disclosed before the effective filing date of the claimed invention and secret prior art for which the filing was made before the effective filing date of the claimed invention and disclosure or public notice was made after the effective filing date, and the region and language are not limited in principle.<sup>23</sup> In addition, the current 35 USC § 103 does not exclude 35 USC Art. 102 (a) (2) with respect to the part related to the inventive step (non-obvious subject matter). Therefore, in the United States, secret prior art is grounds for judging the existence of the inventive step with the claimed invention and this is clearly different from the way treated by the EPO. In addition, 35 USC Art. 102 (a), including (1) and (2), are exceptions concerning prior art; therefore, in the United States, applicants who disclose the invention first (before the effective filing date of the invention) may obtain an absolute, one-year grace period. The disclosure related to the claimed invention during the grace period does not only constitute a prior art that hinders the applicant who discloses the invention first from obtaining a patent and this disclosure also can prevent (other) disclosures by other persons during the grace period from forming a prior art that hinders the applicant who discloses the invention first from obtaining a patent. Furthermore, if this absolute grace period and right of priority are claimed together, the disclosure made by the applicant who discloses the invention first, enjoys the period calculated by dating back for two years from the effective filing date at a maximum and excludes that (other) disclosures made by another person constitute a prior art that hinders the applicant who disclosed the invention first from obtaining a patent. The way the United States treats this part is apparently different from those in other countries and it is one of the characteristics<sup>24</sup> of the First-inventor-to-file system in the U.S. patent system.

With respect to the provisions of JPO related to prior art, the main reference will be to the relevant provisions of Article 29 (1) of the Japan Patent Act. In principle, the

geographical location and language of prior art are not limited.<sup>25</sup> The JPO treats the parts related to conflicting applications (secret prior art) in a similar way to the EPO. It means that if an invention pertaining to a patent application is identical to another application that is filed before filing an application for the patent in question and that is published or its filing is announced in the Patent Gazette indicating the matters listed in the items of Article 66 (3) of the Japan Patent Act pursuant to the provisions of said paragraph or published in the Utility Model Gazette indicating the matters listed in items of Article 14 (3) of the Utility Model Act (Act No. 123 of 1959), or is identical to an invention or a device (excluding an invention or device in cases where the person who made the invention or device is identical to the inventor of the invention of said patent) indicated in a statement attached first to an application of utility model, scope of patent claim, scope of utility model registration claim, or drawing (in cases of an application in a foreign language set forth in Article 36-2 (2), the foreign language document), the invention cannot obtain a patent regardless of the provisions of Article 29 (1) of the Japan Patent Act. However, if the applicant and an applicant of said other application or utility model registration are identical at the time of said application for the patent, the aforementioned provision<sup>26</sup> does not apply. It should be noted that secret prior art applies only to the examination of novelty and should not be used for judgment of the inventive step.<sup>27</sup> In addition, based on the relevant provisions of Article 30 of the Japan Patent Act, if an invention for which a patent is filed in Japan corresponds to the specific circumstances specified in the provisions of this Act, an applicant for a patent invention may have at most a six-month grace period.

With respect to the provisions of the TIPO related to prior art, the main reference will be the relevant provisions of Article 22 (1) of the ROC Patent Law.<sup>28</sup> In principle, geographical location and language are not limited.<sup>29</sup> In addition, the part related to a conflicting application (secret prior art) is called a loss of fictitious novelty in Taiwan and the treatment is similar to that of the JPO. The secret prior art applies only to examination of novelty and should not be used for judgment of the inventive step.<sup>30</sup> Furthermore, if the invention pertaining to the filing corresponds to the requirements specified by Article 22 (3) of the ROC Patent Law, the publication of technology, an applicant for a patent for an invention may have a grace period of six months at maximum.

Summarizing the abovementioned items, for the four IP Offices, the scope of prior art are almost the same and have at least the following common concept: (1) prior art includes those inventions that have been indicated in any printed publication prior to filing, those that have been practiced publicly prior to filing, and those that have been publicly known prior to filing; (2) in principle, the

region and language that become open are not limited; and (3) the grace period of secret prior art and novelty applies. There are also some differences that exist (1) regarding approval of the grace period for novelty and (2) whether secret prior art is used to disturb the inventive step of the claimed invention. These two parts involve differences in practices and concepts of government policy, etc. of each country and need further harmonization.

#### IV Level of a Person Skilled in the Art

When discussing the standard for the inventive step, it is necessary to understand the definition of a person skilled in the art and level of state of the art. This is because a person skilled in the art is the subject<sup>31</sup> who determines the patentability of the claimed invention. If the definition and criteria for the level of the skill are different, it may have great impact on the assessment of inventive steps. The term “a person skilled in the art” is not expressed in the same way in different IP Offices.<sup>32</sup> In order to avoid confusion, it is regularly referred to as “a person skilled in the art” hereinafter.

First, this report will explain the definition of a person skilled in the art used by the EPO. According to the EPO Examination Guidelines,<sup>33</sup> the “person skilled in the art” should be presumed to be a hypothetical person who is a skilled practitioner in the relevant field of technology who is possessed of average knowledge and ability and is aware of what was common general knowledge in the art at the relevant date. The person skilled in the art should also be assumed to have had access to all information regarding the “state of the art”: in particular the documents cited in the search report, and to have had at his disposal the means and capacity for routine work and experimentation which are normal for the field of technology in question. If the (objective and technical) problem prompts the person skilled in the art to seek its solution in another technical field, the specialist in that field is the person qualified to solve the problem. The skilled person is involved in constant development in his technical field and he/she may be expected to look for suggestions in neighboring and general technical fields<sup>34</sup> or even in remote technical fields, if prompted to do so. Assessment of whether the solution involves an inventive step must therefore be based on that specialist's knowledge and ability and there may be instances where it is more appropriate to think in terms of a group of persons, e.g. a research or production team, rather than a single person. If an invention pertaining to an application relates to creation in both a field of technology and a non-technical field, a person skilled in the art is an expert<sup>35</sup> in the field of technology with knowledge of the non-technical field and only solves problems related to the technical aspect. Therefore, when assessing an

inventive step of a claimed invention, one only considers features making contribution to the solution of technical problems (hereinafter referred to as “features making technical contribution”). In other words, we do not have to consider “features making no contribution to the technical character of the claimed invention” (hereinafter referred to as “non-technical features as such”).<sup>36</sup> What we must note is the following point. The person skilled in the art is assumed to have had at his or her disposal the means and capacity for routine work and experimentation which are normal for the field of technology in question; however, he/she is not recognized to have any creative abilities in practice.<sup>37</sup> This is the major difference between a person skilled in the art and an inventor.

The definition of a “person skilled in the art” by the USPTO<sup>38</sup> is the same as the definition by the EPO. However, “the inferences and creative steps that a person of ordinary skill in the art would employ” should also be noted. The Supreme Court emphasized in its decision of the KSR case<sup>39</sup> that “a person skilled in the art is also a person of ordinary creativity, not an automaton.” In many cases, a person of ordinary skill will be able to fit the teachings of multiple patents together like pieces of a puzzle.<sup>40</sup> Therefore, after the decision of the KSR case, there are some critics who consider that the level of skill of a person skilled in the art may include fields of technology that are remote from a claimed invention.<sup>41</sup> The definition of a “person skilled in the art” by the JPO Examination Guidelines for Patent and Utility Models in Japan<sup>42</sup> is the same as the definition by the USPTO and it includes the ordinary creativity to use ordinary technical means for studies and developments. The definition of a “person skilled in the art” by the TIPO Patent Examination Guidelines is substantially the same as the definitions by the USPTO and the JPO.

Compiling what is stated in the above, it is obvious that definitions and criteria for the level of skills for a person skilled in the art by each IP Office are similar to each other. The same points are as follows: (1) a person skilled in the art is a legally hypothetical person who has common general knowledge at the relevant date (e.g. effective filing day, etc.), and depending on the complexity of the claimed invention, a person skilled in the area may mean a team of persons; (2) a person skilled in the art has common general knowledge;<sup>43</sup>

and the scope of knowledge covers the “general field” and the “field relevant to the claimed invention,” and includes knowledge expected of an average person in these fields or knowledge that can be acquired by performing routine experiments; (3) a person skilled in the art has the skills expected of an average person in the field relevant to the claimed invention; and (4) a person skilled in the art can perform a routine experiments and researches and is expected to obtain predictable means of a solution in the prior art.

The apparent differences are as stated below: (1) whether or not a person skilled in the art has ordinary creativity; and (2) while assessing the inventive step, whether or not a person skilled in the art takes “non-technical features as such” in to his/her consideration. These differences often affect the motivation to combine different prior arts and in turn, influence the assessment of the inventive step. Therefore, “level of a person skilled in the art” is an item worthy of more efforts concerning international harmonization in the future.

## V Assessment of Inventive Step and Case Study

Regarding the approaches about the assessment of inventive step of the EPO, USPTO, JPO, and TIPO, please refer to the complete report of this research. According to the comparative analysis, each IP Office emphasizes that it is necessary to conduct reasonable articulation on whether or not a claimed invention is obvious from the view point of a person skilled in the art based on the prior art. However, the approaches for assessment among different IP Offices are different and can be categorized into the “problem and solution approach,” which is adopted mainly by the EPO and combines different prior arts by an objective technical problem, and into the “general rationale articulation,” which is adopted mainly by the USPTO, JPO, TIPO, etc. and combine different prior arts by articulating rationales from various and broad points of view.

Because “using “a problem to be solved as an aim to search the solution and as a motivation to combine different prior arts” can usually provide logically objective rationales to articulate whether or not the claimed invention is obvious from the view point of a person skilled in the art based on the prior art. In addition, the questionnaire summary report on agenda Q217 of AIPPI indicates that, for the approach to assess inventive step, many of group members preferred to adopt the “problem and solution approach” for harmonization.<sup>44</sup>

Therefore, this report analyzed the assessments of the inventive step among the above IP Offices from the aspect of “problem to be solved” in the hope that this could assist in the further harmonization involving inventive step determination.

Actually, in the “general rationale articulation” adopted by the USPTO, JPO, TIPO, etc., a “problem to be solved” can also be a motivation for combining different prior arts and can be correlated to the “problem and solution approach” adopted by the EPO. In other words, the “general rationale articulation” also emphasizes the importance of “the problem to be solved” but it is somehow different from the OTP of the “problem and solution approach”. Consequently, this research tries

to discuss the differences in these two approaches of assessment by comparative study<sup>45</sup> of the following representative cases.

### (1) Case (I) – 1 through 5 –The Way to Define (Find) the Problem

The first difference related to the “problem to be solved” in assessment approaches adopt by the above IP Offices, the “The way to define (find) the problem,” is illustrated below.

A: Case (I)-1 (EPO) Process for fabricating a semiconductor crystallized layer and process for fabricating a semiconductor device using the same<sup>46</sup> - In this case, the objective technical problem was reformulated to be “providing an alternative” which results in equivalent technical effects.

B: Case (I)-2 (US): Decision on the case of ICON Health & Fitness Inc.<sup>47</sup> - In this case, the U.S. Court found in this case as follows: the panel bed that is disclosed by prior art document and the claimed treadmill have the same problem; if a person skilled in the art tries to solve the claimed problem in this case, he/she has a reasonable motivation to improve the stability of the treadmill base by applying the gas spring in a counterbalancing mechanism to the treadmill of the panel bed; therefore, the claimed invention has no inventive step.

C: Case (I)-3 (JPO): Biaxial forced mixer<sup>48</sup> - In this case, the court found as follows: the problem to be solved by the patent under conflict, “reduction of cost and space,” is found not only in the field of technology of the mixer, but also any machine field; in short, it is an obvious problem in the field of technology of device configuration. Therefore, the solution of this problem can be deemed as a motivation to combine different teachings of prior art.

D: Case (I)-4 (TW): Decision on the case of the improvement of a belt with hook and pile fastening tape effects<sup>49</sup> - In this case, the court found as follows: all technical features of the patent under conflict have disclosed in the prior art and the technical problems to be solved have commonality among the claimed invention and cited inventions; therefore, the claimed invention as a whole would be easily conceived by a person who is familiar with weaving skills based on the content disclosed in the prior art. In addition, the claimed invention does not result in any unexpected effects; therefore, it involves no inventive step.

E: Case (I)-5 (US): Decision on the case of Wiseman<sup>50</sup> - In this case, the court found as follows: the brake system disclosed in the prior art documents D1 and D2 has the same problem, “to emit worn scraps from the brake lining”; if a person skilled in the art attempts to solve this problem, he/she has a reasonable motivation to apply the technical idea of “providing multiple grooves on the frictional surface of the brake device” to the disc

brake system disclosed in D1 and to complete the claimed invention as a whole; therefore, the claim involves no inventive step. In addition, because there exists obvious motivation for reasonable combination in D1 and D2, the problem “to emit water vapor or gas on the frictional surface of the brake device” stated by the applicant no longer has much importance.

#### F: Conclusion (I)

As is apparent from the aforementioned cases, the approach adopted by the EPO is mainly to find the technical solutions for the objective technical problem in the same or a relevant field of technology, in a field of technology that has the same or a similar problem, or in a field of technology generating the same or similar effects in order to solve the objective technical problem, articulate whether or not the solution provided by the claimed invention is obvious. In other words, it combines different cited inventions (or disclosures) in prior art utilizing the objective technical problem. In addition, a person skilled in the art (of the EPO) has no creativity. Therefore, the examiners have to compare the claimed invention with the closest prior art objectively, identify technical effects based on distinguishing features, and formulate the objective technical problem. Therefore, the objective technical problem may not simply be a problem same as those stated in the description (in other words, the problem which the applicant thinks his invention would attempt to solve). However, the technical effects resulted from distinguishing features are determined by comparing the effects stated in descriptions and the closest prior art. Therefore, the objective technical problem is usually closely relevant to the problems or effects stated in the description<sup>51</sup>; it will never be “a problem that is known or obvious in the prior art but without any relevance to the problems stated in the description” selected (subjectively) by the examiners. The key point is “OTP must be formulated objectively”.

In the general rationale articulation adopted by the USPTO, JPO, TIPO, etc., “a problem to be solved” used to combine different cited inventions (or disclosures) in the prior art (hereinafter referred to as a “problem used for combination”) can be set as (A) a problem that is pertinent to that stated in the description or (B) a problem that is common among different cited inventions. Identification of this commonality may cover “a known or obvious problem in prior art that is (subjectively) selected by an examiner from various and broad points of view based on prior art documents or common general knowledge.” In other words, As long as there exists commonality in the problems solved by different cited inventions, the “problem used for combination” may be a problem that has no relevance to “the problem to be solved by the claimed invention that is stated in the description”; however, regardless of the existence of a relevance between the “problem used for combination”

and “the problem to be solved by the claimed invention that is stated in the description,” an examiner must present an objective and reasonable articulation for the reason of combination (teaching, suggestion, motivation, etc.) to prove that the claimed invention as a whole is obvious. In other words, the approach adopted by USPTO, etc. can utilize “a problem to be solved” as a motivation to search a solution from the prior art; however, since a person skilled in the art is assumed to have ordinary creativity, obvious and generally existing problems can be used as the “problem used for combination”. Therefore, the specific problem may be a “problem that is known or obvious in the prior art” selected by an examiner, “but has no relevance to the problem to be solved by the claimed invention that is stated in the description.” The key point is “the articulation of rationale must be reasonable.

## (2) Case (II) – Features Taken into Account for the Solution of the Problem

Next, the second difference, “features taken into account for the solution of the problem,” will be explained by using another case.

A: Case (II) (EPO Appeal Court): Decision on lithium tertiary-butoxide/FMC<sup>52</sup> - In this case, the EPO Board of Appeals (EPO BoA) found that the objective technical problem in this case should be “a further process to prepare lithium tertiary-butoxide by reaction between lithium and tert-butyl alcohol.” In addition, the Board of Appeals also indicated that the claimed invention in this case includes features” to react for one to ten hours”; however, the objective technical problem does not include special requirements for yield and therefore reaction time is not critical to the solution of the objective technical problem. Consequently, it is not necessary to consider this technical feature when assessing the inventive step in this case. In other words, features that have no importance to a solution for the objective technical problem have no importance when assessing the inventive step.

B: Conclusion (II): As shown in this case, when searching for the solution of OTP, although the EPO also emphasizes “the claimed invention as a whole”, it is necessary to check whether or not distinguishing features really contribute to solution of the technical problem and achieve the technical effects stated in the description. If some technical features do not make any contribution to the solution of the problem, these features are not taken into account while assessing the inventive step.<sup>53</sup> Therefore, even if the results obtained after combining different cited inventions do not have all the technical features of the claimed invention, they may prove to lack the inventive step in the claimed invention. This type of treatment corresponds to the definition by the EPO that a person skilled in the art has no creativity. Since a person

skilled in the art has no creativity, he/she cannot think of features that have no contribution to the solution of the objective technical problem. Therefore, the features making no contribution to the solution of the objective technical problem should not become a part of the solution of OTP. On the other hand, under the system of the USPTO, etc., a person skilled in the art has ordinary creativity and a specific problem that exists commonly and generally in prior art can be used as a motivation to combine different cited inventions “subjectively.” Therefore, all features that specify the claimed invention must be taken into account while assessing the inventive step to ensure that the creativity is not abused to the extent that it affects objectivity.<sup>54</sup> Therefore, only if all features of the claimed invention are included in the results obtained after combining different cited inventions, the inventive step of the claimed invention may be reasonably eliminated.

### **(3) Case (III) – Technical Character of the Problem and Solution**

Finally, this report will explain using another case in judgment by IP Offices on the inventive step of the claimed invention in cases where differences in “technical character of the problem and solution,” i.e., of an invention pertaining to a filing have technical features and non-technical features simultaneously and the problem to be solved or the solution involve non-technical aspects.

A: Case III (EPO BoA): Decision on the case of Auktionsverfahren/HITACHI<sup>55</sup> In this case, the Board of Appeals judged as stated below. The claim in this case fulfills the definition of an invention; however, it is just a modification “to determine a successful bidder by adjusting the conventional Dutch auction method” (business method category) so that delays in information transmission between clients’ computers and the server computer do not affect the auction results and it is essentially conducted by modifying commercial transaction method in order to circumvent the technical problem of transmission delay, therefore the claimed subject matter does not provide a technical solution to the problem of delays in information transmission. Consequentially, the modified Dutch auction method corresponds to “non-technical features as such” and they do not have to be considered when assessing the inventive step. Based on the aforementioned reasons, the claim is considered to be only a solution of a problem of “atomization of the modified Dutch auction.” Automation of business method by using a computer or network is a well-known prior art in the relevant field. A person skilled in the art can automate the aforementioned auction method by using a well-known computer network. Therefore, the claim involves no inventive step.

B: Conclusion (III): The claimed invention having technical features and non-technical features can easily

pass examination of the definition of invention under the EPO<sup>56</sup>; however, while assessing the inventive step of the claimed invention, a person skilled in the art under the EPO considers only the “features contributing to technical character of the invention (FCTC)” to ensure that “the objective technical problem and its solution must be technical.” Therefore, if a claimed invention contributes only to the solution of a problem in non-technical field, it is difficult for the claimed invention to pass the threshold of the inventive step and to obtain a patent. In other words, in order to obtain a patent, the claimed invention must involve an inventive step in the field of technology so that a creation in a non-technical field (such as abstract idea, business method, etc.) does not obtain the protection of patent rights and therefore will not obstruct the development of the industry.

The problem to be solved by a person skilled in the art under the schemes of USPTO and the JPO is not limited particularly to the technical field and all features that specify the claimed invention must be considered when assessing the inventive step. Therefore, even if a claimed invention contributes only to the solution of a problem in a non-technical field, the claimed invention may still obtain a patent beyond the threshold of the inventive step. Therefore, if the claimed invention contains both technical features and non-technical features and involves innovation in a non-technical field, the USPTO and the JPO adopt the definition of an invention (subject matter eligibility) as the major threshold to prevent an invention in a non-technical field from obtaining a patent.<sup>57</sup> Taking the current version of MPEP (Manual of Patent Examining Procedure) of the USPTO as an example, it specifically requires that “a claimed invention must have additional element(s) such that the invention as a whole significantly exceeds judicially recognized exception.”<sup>58</sup> However, if the threshold of the definition of invention is set too high, the inventors will protect their result of the research and development (hereafter referred as R&D) by keeping it as a business secret. Therefore, the outcome of new R&D will not be disclosed to the public and therefore will not contribute to further innovation; this will result in conflicting with the proactive purpose of promoting the development of industry by means of the patent system.<sup>59</sup> Therefore, the effect that the USPTO adopts “the definition of an invention (subject matter eligibility)” as a major threshold to prevent an invention in a non-technical field from obtaining patent right protection is worthy of further observation.

## **VI Discussion and Suggestions**

### **1 Discussion**

From the aspect of “the problem to be solved”, the major differences in assessment of inventive steps among

the four IP Offices are the following three points: “The way to define (find) the problem,” “Features taken into account for the solution of the problem,” and “Technical character of the problem and solution,” and these differences may be relevant to the “level of a person skilled in the art.”

Based on the “problem and solution approach,” a person skilled in the art has no creativity, he/she has to formulate the objective technical problem based on the technical effects resulted from distinguishing features between the claimed invention and the closest prior art. In addition, when searching a solution, a person skilled in the art does not think of features making no contribution to the solution of the objective technical problem. Therefore, it is not necessary to take such features into account when assessing the inventive step. In addition, when a person skilled in the art under the EPO assesses the inventive step of a claimed invention, he/she only has to consider “features contributing to technical character of the invention (FCTC)”. Therefore, if distinguishing features include “non-technical features as such”, the “non-technical features as such” or “non-technical effects that are achieved by the claimed invention” can be used to formulate the objective technical problem rather than a part of the solution; and therefore, this will ensure that the inventive step of the claimed invention is acknowledged on the basis of the FCTC. On the other hand, under the general rationale articulation, a person skilled in the art has ordinary creativity and therefore he/she can consider a problem that can be reasonably solved by a claimed invention and its solution from various and broad points of view. Therefore, when assessing the inventive step, all features of a claimed invention must be considered so that the creativity of a person skilled in the art will not be so abused to the extent that they affect objectivity. Moreover, the problem to be solved is not limited to technical fields. When assessing the inventive step, “non-technical features” that do not contribute to the solution of a technical problem must also be considered.

“Assessment of the inventive step” and “level of a person skilled in the art” may also affect the weight of “secondary indicia.” Taking “unexpected effects” as an example, the EPO defines that a person skilled in the art has no creativity and he/she has to find a technical solution to solve the OTP. The main considerations in the selection of the closest prior art and formulation of an objective technical problem are the “purpose and effect of a claimed invention” and the “technical effects of distinguishing features” respectively. In other words, when formulating an objective technical problem, the “effect that can be achieved by a claimed invention that is specified in a description” is weighted considerably.

For this reason, in cases where an applicant files a response that the claimed invention has unexpected effects compared to prior art, if the solution provided by

the claimed invention is so obvious that a person skilled in the art will absolutely adopt it (in cases of a “one-way street” situation), the unexpected effect is just a bonus effect<sup>60</sup> that can be obtained by a person skilled in the art without excising any of his/her creativity. Therefore, it cannot change the result that the claimed invention involves no inventive step. This is because such unexpected effect cannot affect the formulation of objective technical problem and therefore won’t change the selection of solution by a person skilled in the art. On the contrary, the USPTO, JPO, etc. assume that a person skilled in the art have ordinary creativity and is allowed to adopt “a problem or effect that does not have any relevance to the effects stated in the description” as the motivation for combining different prior arts. Therefore, when the effect stated in the description is unexpected compared to the prior art, when assessing the inventive step of the claimed invention, such unexpected effect should be given more weight in order to prevent a person skilled in the art from abusing his/her creativity and results in non-objective judgment. This is because when facing a problem different with that stated by the applicant (in the description, although a person skilled in the art may come to the same solution and arrive at some creation that is the same as the claimed invention, the effect of this creation expected by this person may be greatly different from the effect stated in the description. Therefore, sometimes it may practically exceed the ordinary creativity of a person skilled in the art to expect that his creation can achieve the same effect as that which is stated in the description; under such situation, the existence of inventive step of the claimed invention should be acknowledged. This research expands the argument in relation to the “Impact of the closest prior art (CPA),” “Avoidance of (unreasonable or impermissible) hindsight,” “Treatment of a nonobvious problem,” among other aspects. For more detail, please refer to the complete report of this research.

## 2 Proposal

Compiling the aforementioned, for both the “problem and solution approach” of the EPO and the “general rationale articulation” of the USPTO, JPO, TIPO, etc., it is necessary to conduct reasonable articulation on whether or not a claimed invention is obvious from the view point of a person skilled in the art based on the prior art and they also emphasize the importance of “the problem to be solved.” Because “using “a problem to be solved as an aim to search the solution and as a motivation to combine different prior arts” can usually provide logically objective rationales to articulate whether or not the claimed invention is obvious from the view point of a person skilled in the art based on the prior art, it is suggested that the international harmonization for standardization of the inventive step may be conducted



from the aspect of “the problem to be solved.”

In addition, from the aspect of using “the problem to be solved” to analyze the inventive step determination approaches adopted by the four IP Offices, there exists three major differences including “the way to define the problem”, “features taken into account for the solution of the problem”, “technical character of the problem and solution”, etc. In addition, these differences can be relevant to the “level of a person skilled in the art.” When trying to harmonize the standards of the inventive step from the aspect of “the problem to be solved”, these three differences, as well as the level of a person skilled in the art, should be taken into consideration and be harmonized gradually from the easiest to the most complicated in the hope that a more practical and objective inventive step standard can be obtained.

<sup>1</sup> Franklin D. Prager, Standards of Patentable Invention from 1474 to 1952, 20 U. CHI. L. REV. 69, 71-71 (1952).

<sup>2</sup> Landers, Amy L., The Inventive Step and Cooperative Harmonization (June 12, 2013), Chapter from Intellectual Property In Common Law And Civil Law (Toshiko Takenaka, ed.) 2013. Available at SSRN: <http://ssrn.com/abstract=2500167>

<sup>3</sup> World Intellectual Property Organization, Standing Committee on the Law of Patents, Report on the International Patent System, SCP/12/3 Rev. 2, 48 (2/3/2009). Available at [http://www.wipo.int/edocs/mdocs/scp/en/scp\\_12/scp\\_12\\_3\\_rev\\_2.pdf](http://www.wipo.int/edocs/mdocs/scp/en/scp_12/scp_12_3_rev_2.pdf) (last visited 4/19/2015))

<sup>4</sup> Predecessor of the World Trade Organization (WTO): General Agreement on Tariffs and Trade (GATT 1994) is the final agreement concluded between contracting countries as a result of multilateral trade negotiations in the Uruguay Round. The Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPs) is included in GATT 1994. This Agreement came into effect on January 1, 1996 and this is the most complete and only multilateral agreement from among existing internal laws that protects intellectual property rights related to trade.

<sup>5</sup> Agreement on Trade-Related Aspects of Intellectual Property Rights, Art. 27(1), Apr. 15, 1994, 33 I.L.M. 1197.

<sup>6</sup> European Patent Office, Guidelines for Examination in the EPO (EPO Examination Guidelines), Part G VII 2, November 2015 edition.

<sup>7</sup> Leahy-Smith America Invents Act (AIA). A legislative bill that President Obama of the United States officially signed on September 16, 2011. U.S. patents were changed from a first-to-invent system to the current first-to-file system by this legislative bill. In addition, it is enforced mainly in five steps. AIA, 35 USC Art. 103 are provisions mainly related to the inventive steps and novelty of an invention.

<sup>8</sup> Article 29, paragraph (1) of the Japan Patent Act: An inventor of an invention that is industrially applicable may be entitled to obtain a patent for the said invention, except for the following: (i) inventions that were publicly known in Japan or a foreign country, prior to the filing of the patent application; (ii) inventions that were publicly worked in Japan or a foreign country, prior to the filing of the patent application; or (iii) inventions that were described in a distributed publication, or inventions that were made publicly available through an electric telecommunication line in Japan or a foreign country, prior to the filing of the patent application.

<sup>9</sup> 中華民國專利法第二十二條第二項規定：「發明雖無前項各款所列情事，但為其所屬技術領域中具有通常知識者依申請前之先前技術所能輕易完成時，仍不得取得發明專利。」

<sup>10</sup> 劉國讚，專利法之理論與實用，第5章專利要件，pp130-133, 2014版。

<sup>11</sup> Draft Substantive Patent Law Treaty, Article 18 [Alternative A] An invention shall be considered to involve an inventive step (be non-obvious) if, having regard to the prior art as defined in Article 8, it would not have been obvious to a person skilled in the art at the filing date or, where priority is claimed, the priority date of the application claiming the invention, as prescribed in the Regulations.

<sup>12</sup> WIPO started discussions related to the international harmony of patent laws in 1983. The Standing Committee on the Law of Patents (SCP) was established in 1998 as a forum for discussion of agendas, promotion of cooperation, and implementation of international development of patent laws.

<sup>13</sup> Association Internationale pour la Protection de la Propriété Intellectuelle (AIPPI), Summary Report of Question Q217 (2011) The patentability criterion of inventive step/non-obviousness. Available at <https://www.aippi.org/download/committees/217/SR217English.pdf>

<sup>14</sup> EPC Article 54 (1): An invention shall be considered to be new if it does not form part of the state of the art.

<sup>15</sup> EPC Article 54 (2): The state of the art shall be held to comprise everything made available to the public by means of a written or oral description, by use, or in any other way, before the date of filing of the European patent application.

<sup>16</sup> EPC Article 54 (3): Additionally, the content of European patent applications as filed, the dates of filing of which are prior to the date referred to in paragraph 2 and which were published on or after that date, shall be considered as comprised in the state of the art.

<sup>17</sup> 吳俊逸，分析各國對於衝突申請案之處理原則，智慧財產權月刊 Vol. 195, pp45-79。

<sup>18</sup> EPC Article 56: ... If the state of the art also includes documents within the meaning of Article 54, paragraph 3, these documents shall not be considered in deciding whether there has been an inventive step.

<sup>19</sup> EPO Examination Guidelines, Part G IV 1, November 2015 edition.

<sup>20</sup> TIPO, 五邊局專利審查實務差異性 2012版。

<sup>21</sup> When calculating the grace period, the date of filling a European patent application shall be its start date, but not the priority date.

<sup>22</sup> Id. Note 7.

<sup>23</sup> 鍾文正，論先前技術公開之國際調和，智慧財產權月刊 Vol. 180, pp33-54。

<sup>24</sup> A person who discloses an invention first may usually be the first inventor instead of the person who files a patent first. Therefore, an invention that is disclosed earlier during the grace period should be guaranteed.

<sup>25</sup> Id. Note 23.

<sup>26</sup> JPO, Part III, Chapter 3: Secret Prior Art (applicable since October 1, 2015) of the Examination Guidelines for Patent and Utility Model in Japan

<sup>27</sup> Id. Note 17.

<sup>28</sup> TIPO, 專利審查基準第二篇第三章專利要件。

<sup>29</sup> Id. Note 23.

<sup>30</sup> Id. Note 17.

<sup>31</sup> 張仁平，論述專利之熟悉該技術者之定義的國際調和，智慧財產權月刊 Vol. 169, pp128-212。

<sup>32</sup> The term used by the EPO is “a person skilled in the art,” by the

- USPTO, “a person having ordinary skill in the art, PHOSTA,” by the JPO, “當業者,” and by the TIPO, “所屬領域具有通常知識者” respectively.
- <sup>33</sup> EPO Examination Guidelines, Part G VII 1.3, November 2015 edition.
- <sup>34</sup> European Patent Office, the Board of Appeal Decisions (EPO BoA Decisions), T 176/84 and T 195/84.
- <sup>35</sup> EPO BoA Decisions, T 0641/00 date of decision:2002/09/26. (p10: “... the skilled person will be an expert in a technical field.”; p9: “...the person skilled in the art had knowledge of the non-technical method so that only the technical aspects of the apparatus were taken into account in assessing inventive step.”)
- <sup>36</sup> EPO Examination Guidelines, Part G VII 6, November 2014 edition, “Non-technical features, to the extent that they do not interact with the technical subject-matter of the claim for solving a technical problem, i.e. non-technical features “as such”, do not provide a technical contribution to the prior art and are thus ignored in assessing inventive step.”.
- <sup>37</sup> European Patent Office, Case Law of the EPO Boards of Appeal (EPO BoA Case Law), I.D 8.1, 7th edition Sep. 2013, p187, “person skilled in the art ... namely that none of them suggested he was possessed of any inventive capability.”.
- <sup>38</sup> USPTO, M.P.E.P. 2141, 7th ed. (Rev. 07, 2015.10).
- <sup>39</sup> KSR, 550 U.S. at 421, 82 USPQ2d at 1397.
- <sup>40</sup> Id. Note 39, at 420, 82 USPQ2d at 1397.
- <sup>41</sup> Stephen G. Kunin and Philippe J. C. Signore, A Comparative Analysis of the Inventive Step Standard in the European and Japanese Patent Offices from a US Perspective, IP Litigation January/February 2008, pp 15-23.
- <sup>42</sup> JPO Examination Guidelines for Patent and Utility Models in Japan, Part III, Chapter 2: Novelty and Inventive Step (applied from October 1, 2015).
- <sup>43</sup> The Third Subcommittee, the First Patent Committee, “Comparative Study on Judgment of the Inventive Step by the Patent Offices in Japan, U.S., and Europe – Matters of Design,” Chizaikanri, Vol.66, No.1, pp.40-49 (2016).
- <sup>44</sup> Id. Note 13.
- <sup>45</sup> In this summary, case titles and conclusions obtained from inductive logic only are listed. For more details on cases, please refer to the research and investigation report.
- <sup>46</sup> EPO BoA Decisions, T 0767/02 date of decision: 2005/06/01.
- <sup>47</sup> United States Court of Appeals for the Federal Circuit, 496 F.3d 1374 (2007), date of decision: 2007/08/01.
- <sup>48</sup> Japan, Tokyo High Court on May 29, 1996, Tokyo High Court 1992 (Gyo-Ke) No.142.
- <sup>49</sup> 台灣智慧財產法院, 2010年度行專更(一)字第005 號, 判決日期: 2011年5月4日。
- <sup>50</sup> United States Court of Customs and Patent Appeals., 596 F.2d 1019 (1979), date of decision: 1979/04/26.
- <sup>51</sup> G. Knesch, Assessing Inventive Step in Examination and Opposition Proceedings in the EPO, epi Information 3/1994, pp95-101, “There must be a basis for the reformulated problem in the application as filed, the problem must be »foreshadowed« by what is said in the application”.(p96)
- <sup>52</sup> BoA Decisions, T0442/02 date of decision:2004/10/26.
- <sup>53</sup> EPO BoA Case Law, I.D 9.5, 7th edition Sep. 2013, pp208-209.
- <sup>54</sup> USPTO, M.P.E.P. 2100-7 “..., when evaluating the scope of a claim, every limitation in the claim must be considered.”; M.P.E.P. 2111.05 “USPTO personnel must consider all claim limitations when determining patentability of an invention over the prior art. In re Gulack, 703 F.2d 1381, 1385,217 USPQ 401, 403-04 (Fed. Cir. 1983). Since a claim must be read as a whole, USPTO personnel may not disregard claim limitations comprised of printed matter.”.
- <sup>55</sup> EPO BoA Decisions, T258/03 date of decision:2004/04/21.
- <sup>56</sup> 趙慶冷, 電腦軟體專利標的適格性之測試法演進-從歐洲觀察美國, 智慧財產權月刊 Vol. 201, pp5-47。
- <sup>57</sup> Etsuko Yoshida, “A Comparative Law Study on the Patent Eligibility – Focus on the Method Invention –” (FY2013 reports in Industrial Property Rights Research Promotion Projects (FY2013 to FY2015) (Institute of Intellectual Property, June 2015).
- <sup>58</sup> Wu Chia-Ying, “After *Myriad*: The Comparative Study on Biotechnology Patent Practice” (FY2013 reports in Industrial Property Rights Research Promotion Projects (FY2013 to FY2015) (Institute of Intellectual Property, June 2015).
- <sup>59</sup> Michael Loney, Biotech Company Consider Trade Secrets as Alternative to Patents, Managing Intellectual Property, 2015/06/30.
- <sup>60</sup> EPO Examination Guidelines, Part G VII 10.2, November 2014 edition.