

**Proposal for Questions and Answers for the Panel Session XII: „What’s the (technical) problem ?”  
Tuesday, October 17, 2017, 11:00 – 12:30**

**Panelists: Dietmar Haug, KNH Patentanwälte PartG mbB (moderator)**

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**1. Need for including a technical problem in the specification?**

**When you draft a patent application for filing in your home country only, would you include a statement defining a problem which the invention is intended to solve or one or more objects which the invention will achieve or one or more advantages which the invention will provide when put into practice? Why and where, i.e. in which part of the patent specification, would you include such a statement in the specification for an application in your home country? If you don’t include such a statement, what is/are the reason(s) for not stating a problem, objects or advantages in the specification for an application in your home country?**

**Answer for a German patent application :**

Since the early days of the German patent system the German courts and the German Patent Office have considered an invention to be a solution to a problem existing with the prior art. However, over the years the significance of the problem for the characterization of the invention has seen some noticeable changes not only because the statutory law has been amended many times but also because every now and then the courts have come up with different views on the relevance of the problem for a definition of an invention which itself is nowhere defined in the statutory patent law of Germany. Changes of the meaning of the problem in the German patent system have also been due to the fact that the courts have used words like “object”, “task”, “purpose” or “aim” synonymously with the word “problem” when addressing the relevance of the problem. Originally, the problem was considered to be one part of the invention while the solution was considered to be the other part. In keeping with this former concept of the invention the problem was even placed in the claim. The present day concept of the invention as it is commonly applied by the patent office and the courts in examination, opposition and revocation proceedings as well as in patent litigation considers only the solution to be the invention and requires therefore only the solution to be placed in the claim and the problem to be stated in the description of the specification, preferably in the introductory part of the description between the description of the prior art and a statement of the solution as claimed. An explicit or implicit indication of the problem in the description is necessary in a German patent application because it enables the patent office and the courts to decide whether or not the claimed solution involves an inventive step and whether or not the patent is infringed under the doctrine of equivalence. Moreover an indication of the problem in the description of a German patent application is prescribed by Section 10 subsection 2 paragraph 3 of the German Patent Regulation (§10 Abs. 2, Nr. 3 Patentverordnung).

**Answer for a European patent application:**

When drafting a European patent application it is important to keep in mind that the patent application and the subsequent patent granted thereon will be subjected at first to the so called problem and solution approach routinely applied by the EPO during examination before grant and any opposition after grant to assess whether or not the claimed invention is obvious in light of the cited prior art, and will be subjected subsequently to the national patent systems of the countries in which the European patent shall have effect where the validity of the patent is tested by the national courts that will apply their own method or scheme for assessing obviousness, which, depending on the country concerned, differs more or less from the EPO's rigid problem and solution approach but, more often than not, reaches the same result as that of the EPO. Since the EPO will be the first and, for the overwhelming majority of patents, the only authority examining obviousness during the life of the patent, the European patent application should be drafted so that it meets the requirements of the problem and solution approach. To this end a statement defining a technical problem with the most pertinent prior art should be inserted into the description, preferably, as in Germany, in the introductory portion of the description between the description of the prior art and the statement describing the solution as claimed. Moreover there is a statutory requirement embodied in Rule 42 (1) (b) EPC, for indicating the technical problem in the description of a European patent application at least implicitly if not in express terms.

In view of the fact that it is possible that the validity of the patent is challenged in a national court either as a counterclaim in an infringement proceeding or in a separate revocation, cancellation or nullity proceeding, it may be advisable not to state in the description of the patent application that a particular prior art reference is "the closest prior art" because a determination of which reference is the closest prior art is an essential element of the EPO's problem and solution approach which, as indicated above, is not applied by the national courts in Germany and also some other EPC countries, e.g. UK, France and the Netherlands. Omitting an indication of which reference is the closest prior art from the specification will not normally result in an examiner's objection in the EPO. Instead of indicating it in the specification, it may be mentioned in an examiner's report or in an applicant's response to it. However, since the prosecution history of the patent will not be considered by the national courts of many EPC countries including Germany, the national courts dealing with the validity of the patent will not be influenced by an indication of what is the closest prior art when assessing obviousness but can make their own decision on which prior art provides the basis for the problem to be solved.

**Answer from the US practitioner:**

Under U.S. guidelines, an applicant should include a "background" section in a patent application. In the past, applicants have used the background section to clearly define the technical problem for the reader. This practice was helpful for the examiner during prosecution to frame the problem that the claimed solution addressed. A well-developed background section was also helpful for providing context for judges and juries when the patent was being asserted, which was beneficial since patents are often asserted many years after filing when the extent of the technical problem may no longer be fully appreciated.

However, the current practice in the U.S. is to limit the description of the technical problem in the background section as much as possible for several reasons. First, when dealing with obviousness issues, the level of skill for a person of ordinary skill in the art may be determined based on the types of problems encountered in the art. Therefore, the applicant's description and assessment of the technical problem may lead to an inflated skill level when making this determination, which may lead to the claimed invention being held obvious. Second, a well-developed description of the technical problem may inadvertently lead the applicant to describe the applicant's prior attempts to solve the technical problem. Since statements in the background section are taken to be "admitted prior art," those statements about the applicant's earlier work may be used against the claimed invention as prior art when those prior attempts would not otherwise qualify as prior art. Third, there is judicial precedent that holds disparagement of prior solutions to the technical problem could result in disavowal of claim scope or a narrower claim construction. Therefore, when describing the technical problem, an applicant may disparage prior solutions to the technical problem and, in doing so, the applicant may be unwittingly disavowing claim scope from the claimed invention.

**Answer from the Chinese practitioner:**

Traditionally, China established its Patent Law system with reference to European patent laws, especially German patent law, so China also adopts a problem and solution approach when determining the inventive step of an invention. In the Examination Guidelines of the Patent Law of China, technical problem resolved by an invention, technical means for resolving the technical problem and technical effect produced by the invention are required to be written in the specification of an application in China. It is not required to use the wording of "technical problem" in the specification, other wordings like "technical defect," "technical insufficiency," "technical disadvantages" of the prior art can also be used for describing the situation of the background. The description for technical problem should be written in the "content of the invention" part of the specification, which is the part after the background art part and before the description for the figures part.

However, even though the description of technical problem is required by the Examination Guidelines of the Patent Law of China, it is not a mandatory requirement. If there is no description in the specification, usually the examiner will not require the applicant to add such description into the specification. Rather, the examiner will cite the "closest prior art document" and determine by himself a technical problem by comparing the difference between the invention and the so-called closest prior art document, and thereby determine the inventive step of the invention. Actually when conducting the substantive examination, the examiner often decides by himself the "real" technical problem resolved by the invention by comparing the difference between the technical solution of the invention and the closest prior art found by him no matter whether or not a technical problem is specifically recorded in the specification.

One advantage of stating explicitly technical problem in the specification is that it is helpful for the examiner to understand and believe the contribution of the invention to the background art. So it will be somewhat easier for the applicant to argue for the inventive step of the invention.

However, one disadvantage of stating explicitly problem in the specification is that the examiner usually will determine the “indispensable technical features” for resolving the technical problem stated by the applicant, which often results in the narrowing of the protection scope of a claim.

Therefore, one practical way of stating technical problem in the specification is to state more than one technical problems that could be resolved by the specification with at least one technical problem is stated very generally. In China, it is not required by an invention to resolve all stated technical problems unless such multiple problems are asserted to be all resolved. It should be noted that when describing multiple problems, it is recommended to use the wording of “or” rather than “and”.

Another practical way is no stating of technical problem in the specification. Instead, only insufficiency of the background art is generally described in the background part. This is more like a “US style” of description. When adopting such style of description, usually it is recommended to describe multiple technical effects when describing the embodiments of the invention. Since technical effect is often generated by resolving a technical problem, which is also beneficial for the arguments of inventive step.

It should be specially mentioned that for business related inventions, explicit description of technical problem in the specification is recommended, which is helpful to convince the examiner that a technical solution is constituted in this business related application.

#### **Answer from the Japanese practitioner:**

Japanese patent law does not require that specification includes technical problem. Therefore, if the specification does not include the statement of the technical problem, the examiner cannot reject the application based on the reason that it lacks a technical problem. However, the patent application including a statement of technical problem can be examined in favor of requirements of inventive step and support. For example, in the examination of inventive step, difference of technical problem between the present application and the prior art may increase the chances of finding for patentability. With regard to support requirement, the claimed invention may not exceed the extent of disclosure in the description to which a person skilled in the art would recognize that a technical problem would be solved. Therefore, the technical problem should be stated clearly in order that the examiner can understand the technical problem correctly.

The Japanese Patent Office (JPO) provides a basic specification format of a patent application. According to the specification of format, the patent application includes an indication of the Technical area, Background, Technical problem, Means of solving the problem, Effect of the invention, Embodiment. Since most of Japanese patent application are prepared based on the format, they include a statement of technical problem.

Accordingly, the technical problem should be stated in the specification to achieve a favorable position in inventive step and support requirements.

## **2. Technical problem and novelty and obviousness**

**After you have filed the application that you have drafted in a style that meets your home country's best practice requirements for disclosing an invention in a patent application and you have received an examiner's report stating that claim 1 lacks novelty over a reference A and that claim 1 is also obvious in view of a second reference B in combination with a third reference C, would you, in a response to the examiner's report, rely on the technical problem in one way or another to reject (a) the examiner's novelty objection and (b) the examiner's obviousness objection?**

**Answer from the German practitioner:**

### **(a) Technical problem and novelty:**

The basis for assessing novelty over single reference A is the content of claim 1 which is distinct from the generally larger scope of protection conferred by the claim. The content of the claim is to be determined by its terms as understood by the person skilled in the art in light of the description, the drawings and the common general knowledge. The technical problem which may be stated in the description will have a bearing on the content of the claim only on account of it forming part of the description which itself needs to be taken into account by the skilled person when interpreting the claim. Thus the technical problem will not be considered separately in the assessment of novelty. Consequently claim 1 will lack novelty over reference A if each and every term of claim 1 is also disclosed in reference A. Since the technical problem, by definition, relates to the effects achieved by the solution claimed in that it asks "How to achieve these effects", it follows that, if the reference discloses each and every term of the claim the reference also discloses the technical problem of the patent application. Thus the assessment of novelty does not require an additional investigation whether the technical problem stated in the patent application is also disclosed in the reference.

### **(b) Technical problem and obviousness:**

In contrast to the assessment of novelty, the assessment of inventive step or non-obviousness requires the determination of the technical problem because the technical problem is central to the German test of determining whether or not the invention as claimed is obvious. This test comprises several steps, the first one of which requires determining who is the relevant person skilled in the art, the second step consists in determining the contents of the claim, the third step is directed to the determination of the objective technical problem which is considered to be the achievements of the claimed solution over the entire relevant prior art. In a final step the question is to be asked whether the skilled person, when faced with this problem, received any hints or pointers or suggestions from the relevant prior art to modify the prior art so that he arrived at the claimed solution.

**Answer from the EPO practitioner:**

**(a) Technical problem and novelty:**

The EPO's approach to assessing novelty is identical to that used for a German application, which means that once the contents of the claim is determined by a person skilled in the art in light of the description, the drawings and the common general knowledge the skilled person is assumed to possess, the contents of the claim is compared to reference A to check whether or not reference A discloses every element of the claim. If reference A discloses every element of the claim the claim lacks novelty. No separate determination of the technical problem is required to assess novelty.

**(b) Technical problem and obviousness:**

The EPO applies the so-called problem-and-solution approach to assess the presence of an inventive step. It is based on the requirement in Rule 42(1)(c) that the invention must be disclosed in terms of a technical problem and a solution. Although the problem and solution approach is not mandatory, it is highly unlikely that the EPO will use any other test for non-obviousness. Details of how the problem and solution approach is to be applied are given in the Examination Guidelines of the EPO, Part G, Chapter VII, from paragraph 5. onward. The Guidelines state that

"In the problem and solution approach there are three main stages:

- (i) determining the "closest prior art",
- (ii) establishing the "objective technical problem" to be solved, and
- (iii) considering whether or not the claimed invention, starting from the closest prior art and the objective technical problem, would have been obvious to the skilled person.

With regard to the formulation of the objective technical problem, the Guidelines go on to state:

"In the second stage, one establishes in an objective way the technical problem to be solved. To do this one studies the application (or the patent), the closest prior art and the difference (also called "the distinguishing feature(s)" of the claimed invention) in terms of features (either structural or functional) between the claimed invention and the closest prior art, identifies the technical effect resulting from the distinguishing features, and then formulates the technical problem."

The Guidelines also provide a definition of the technical problem as follows:-

"In the context of the problem-and -solution approach, the technical problem means the aim and task of modifying or adapting the closest prior art to provide the technical effects that the invention provides over the closest prior art. The technical problem thus defined is often referred to as the "objective technical problem".

As can be seen from the above description of the German approach to assessing inventive step and the EPO's problem and solution approach there is a difference in that the German approach does not necessarily start from a "closest prior art" and the technical problem is not just the difference between the closest prior art and the claimed solution. Rather the technical problem is related to the effects achieved by the invention over the entire relevant prior art.

**Answer from the US practitioner:**

**(a)** For a novelty rejection, we typically do not rely on the technical problem being addressed. Since a novelty (anticipation) rejection in the U.S. is primarily concerned with whether the prior art reference shows and discloses each and every claim recitation, we generally limit our response to argument that the prior art does not show or disclose one or more claim recitations.

**(b)** For an obviousness rejection, we may rely on the technical problem being addressed depending on how the obviousness rejection is expressed. For instance, if the Examiner's proposed combination relies on modifying reference B to incorporate a feature from reference C where the feature is expressly described as being for a different purpose than for solving the application's technical problem, then we may argue that the Examiner's proposed modification is improper hindsight reasoning based on the applicant's disclosed solution to the technical problem. However, we avoid relying on the technical problem when overcoming an obviousness rejection whenever possible so that the invention is not characterized as being somehow limited to applications only involving the described technical problem.

**Answer from the Chinese practitioner:**

**(a) Technical problem and novelty:**

Technical problem is a very important factor when determining the novelty. If the examiner states claim 1 lacks novelty over reference A, we should check the following factors:

- whether all features of claim 1 are disclosed by reference A;
- whether the features are disclosed in a same embodiment of reference A;
- whether the technical field of the invention, technical problem resolved by the invention and technical effect of the invention are all substantially the same with those of the technical solution disclosed by that same embodiment of reference A.

If there is no explicit statement of technical problem in the specification, it will be somewhat hard to argue for the novelty. If all features are disclosed in a same embodiment of reference A, usually the applicant needs to further comparing the logic connection of the features of claim 1 with the logic connect of features in reference A to see if there is any difference between them.

**(b) Technical problem and obviousness:**

Similar with EPO, China also applies the so-called problem-and-solution approach to determine the presence of an inventive step. According to the Examination Guidelines of the Patent Law of China,

“When evaluating whether or not an invention involves an inventive step, the examiner shall consider not only the technical solution itself, but also the technical field to which the invention pertains, the technical problem solved, and the technical effects produced by the invention. The invention shall be considered as a whole.”

“Usually the following three steps are followed to determine whether a claimed invention is obvious as compared with the prior art.

- (1) Determining the closest prior art

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

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

In many cases, the “technical problem actually solved by the invention” determined by the examiner in the above step (2) is different from the technical problem stated by the applicant in the specification. The “technical problem actually solved by the invention” is determined by the examiner based on the closest prior art found by the examiner, which means the technical task in improving the closest prior art to achieve a better technical effect. Therefore, comparing with the technical problem stated by the applicant in the specification, the “technical problem actually solved by the invention” is a redetermined technical problem according to the examiner’s own evaluation of the difference between the invention and the closest prior art. In the practice, the technical effect of an invention is often used by the examiner as a basis for redetermining the technical problem.

Therefore, if a Chinese examiner determines that claim 1 is obvious in view of a second reference B in combination with a third reference C, it is very likely that the examiner has redetermined a “technical problem actually solved by the invention” based on the distinguishing feature between the invention and the disclosure of reference B, and has determined that reference C has disclosed the distinguishing feature and given the technical motivation being combined with reference B to obtain the invention.

According to the Examination Guidelines, under the following circumstances, it is usually thought there exists such a technical motivation in the prior art:

- (i) The said distinguishing feature is a common knowledge, such as a customary means in the art to solve the redetermined technical problem, or a technical means disclosed in a textbook or reference book to solve the redetermined technical problem.
- (ii) The said distinguishing feature is a technical means related to the closest prior art, such as a technical means disclosed in other part of the same reference document, the function of which in the other part is the same as the function of the distinguishing feature in the claimed invention in solving the redetermined technical problem.
- (iii) The said distinguishing feature is a relevant technical means disclosed in another reference document, the function of which in that reference document is the same as the function of the distinguishing feature in the claimed invention in solving the redetermined technical problem.

Therefore, when receiving an Office Action stating that claim 1 is also obvious in view of a second reference B in combination with a third reference C, the applicant often argues with the examiner that the technical problem determined by the examiner is not correct. In such case, the technical problem stated by the applicant in the specification could be a strong argument to argue against the examiner. Also, the “technical motivation” alleged by the examiner is another point to be argued against by the applicant based on the technical analysis of reference B and reference C. As a result, it is desirable that the applicant draws the conclusion that the technical problem redetermined by the examiner is not correct and there is no technical motivation to combine reference C with reference B.

### **Answer from the Japanese practitioner:**

#### (a) Technical problem and novelty

The examiner determines whether the claimed invention has novelty by comparing the claimed inventions and the prior art to identify the differences between them. Where there is a difference, the examiner determines that the claimed invention has novelty. Where there is no difference, the examiner determines that the claimed invention lacks novelty.

Therefore, even if technical problems of the claimed invention and reference A are different, in case that reference A discloses all elements of the claimed invention, the examiner determines that the claimed invention lacks novelty.

#### (b) Technical problem and inventive step

Technical problem is important for the assessment of inventive step. Steps of assessment of inventive step are as follows.

- i) determining the contents of the claim invention
- ii) determining the contents of the prior art
- iii) determining the difference between the claimed invention and the prior art
- iv) determining whether or not the reasoning is possible based on "the factors in support of the non-existence of an inventive step" for the differences between the claimed invention and the primary prior art by adopting secondary prior art or considering the common general knowledge.

#### Factors in support of non-existence of an inventive step

(Factor 1) Motivation for applying secondary prior art to primary prior art

(Factor 2) Design variation of primary prior art

With regard to Factor 1, if the technical problem of primary prior art (reference B) is similar to the one of secondary prior art (reference C), a person skilled in the art can easily combine the prior art and reach the claimed invention. With regard to Factor 2, if the technical problem of the claim is similar to the one of primary prior art (reference B), a person skilled in the art can easily change the primary prior art (reference B) and reach the claimed invention.

### **3. Technical problem and sufficiency (written description requirement)**

**The European Patent Convention and the German Patent law each contain a provision requiring a patent application to disclose an invention in a manner sufficiently clear and complete for it to be carried out by a person skilled in the art. If the examiner is of the view that this provision is not met he will raise an objection of insufficiency. In other jurisdictions, first and foremost in the US,**

**the same or a similar objection is known under the heading written description requirement and enablement requirement. If the examiner asserts in his report that the disclosure does not meet the sufficiency requirement or written description or enablement requirement and you want to argue against this assertion of the examiner in your response, would you refer to the technical problem indicated expressly or implicitly in the specification to convince the examiner that the disclosure of the invention or the written description is sufficient to enable the skilled person to carry out the invention?**

**Answer from the German practitioner:**

The indication of the technical problem in the description, be it an express indication or an implicit indication, is mandatory for a German application. Thus the technical problem forms part of the disclosure of the invention and can be relied upon for providing the skilled person with the additional information necessary to meet the sufficiency requirement. Sufficiency is judged on the basis of the whole application, including description and claims, but not including the abstract. The technical problem is considered to describe the achievements of the invention over the entire relevant prior art. The technical problem constitutes a kind of bridge between the relevant prior art and the claimed solution and as such can act to render the disclosure sufficient for the invention to be carried out by the skilled person.

**Answer from the EPO practitioner:**

The requirement for a sufficient disclosure of the invention is defined by Art. 83 EPC which is one of the basic provisions of the patent law governing European patent applications and patents. Sufficiency of disclosure of European applications must be judged on the basis of the application as a whole, including the description and the claims, but not the abstract. According to Rule 42 (1)(c) EPC the description shall disclose the invention, as claimed, in such terms that the technical problem, even if not expressly stated as such, and its solution can be understood. Therefore, the technical problem forms part of the description which, together with the claims, forms the basis for judging sufficiency of disclosure. The technical problem is effect related and thus, when stated in the description, enables the skilled person to recognize the correct meaning, scope and reach of the claimed features. As a general rule, the EPO considers the disclosure to be sufficient only if the disclosure enables the skilled person to carry out the invention over the entire range of the claim. This may be problematic to achieve in case of very broad claims. In this respect a statement of which technical problem is to be solved by the invention may provide the additional information necessary to meet the requirement of sufficiency in case of broad claims.

**Answer from the US practitioner:**

No, we would not try to connect the sufficiency of the written specification with the technical problem being addressed. Instead, we would argue that the person of ordinary skill in the relevant field would be capable of understanding the specification and accompanying drawings and submit declarations from inventors or experts for support if necessary.

**Answer for the Chinese application:**

Article 26.3 of the Patent Law of China provides that the description shall set forth the invention or utility model in a manner sufficiently clear and complete so as to enable a person skilled in the art to carry out the invention or utility model.

According to the Examination Guidelines of the Patent Law of China,

“The description shall set forth the invention or utility model in a manner sufficiently clear and complete to such an extent that a person skilled in the art can carry it out. In other words, the description shall comply with the requirement of disclosing the invention or utility model sufficiently.”

“The description shall enable a person skilled in the art to carry out the invention or utility model. It means that the person skilled in the art can, in accordance with the contents of the description, carry out the technical solution of the invention or utility model, solve the technical problem, and achieve the expected technical effects.”

Therefore, if a Chinese examiner issues an Office Action to asserts that the disclosure does not meet the sufficiency requirement or written description or enablement requirement, it is practical to argue against this assertion of the examiner in the response to the office Action based on the technical problem indicated expressly or implicitly in the specification to convince the examiner that the disclosure of the invention or the written description is sufficient to enable the skilled person to carry out the invention.

Besides the recording of the application (the claims, the specification and drawings), evidence of common knowledge ,e.g., a dictionary book, a text book or a tool book, and other prior art documents may also be used for arguing for the issue of sufficient disclosure. However, it should be very cautious to use a prior art document to support the argument of sufficient disclosure because it may have the negative result that the invention lacks inventive step in view of the disclosure of the prior art document.

#### **Answer for the Japanese application:**

The Japanese Patent law requires three written requirements ((i) enablement, (ii) clarity and (iii) support).

IP high court rendered with regard to support requirement in 2005 (Hei17(2005) (gyo-ke) 10042). In the court decision, support requirement (Art. 36(6)) is to determine whether or not the claimed invention exceeds “the extent of disclosure in the description to which a person skilled in the art would recognize that a problem to be solved by the invention would be actually solved” (hereinafter, referred to as “the extent of disclosure in the description”). When it is determined that the claimed invention exceeds “the extent of disclosure in the description,” the claimed invention and the invention disclosed in the description do not substantially correspond with each other, and thus, the statement in the claims does not satisfy the support requirement.

In principle, technical problem is identified from the statement in the description. However, when any technical problem is not clearly indicated in the description, technical problem is identified while taking into account the common general knowledge at the time of filing in addition to all of the statements in the description and drawings. Specifically, I think that the technical problem can be determined from the statement of “background”, “effect of invention” and “example”.

Therefore, when receiving an office action to assert that the specification does not meet support requirement, applicant can state that the claim is supported by the specification considering the common general knowledge. Please note, however, that the statement may have a negative result that the invention lacks inventive step. This is because it may have a risk that the present invention is determined that it lacks an inventive step from the prior art and the common general knowledge if applicant states that the technical problem can be solved from them.

#### **4. Technical problem and unity of the invention**

**If the examiner argues that the application contains more than one invention and requires to restrict the application to one invention by deleting the description and claims directed to the other invention or inventions or dividing the application into one or more applications and you wish to argue against the examiner’s lack of unity objection would you refer to the technical problem in support of your argument against the examiner’s assertion?**

##### **Answer for the German application:**

According to German Patent law (cf. section 34(5)) the application may contain only a single invention or a group of inventions which are related to one another such that they materialize a single inventive concept. There is case law which has determined that more than one invention may be included in a single application if they solve a common technical problem. Thus the technical problem stated in the description may be relied upon in convincing the examiner that there is no lack of unity of the application provided the multiple inventions solve a technical problem common to all inventions disclosed in the application.

##### **Answer for the European application:**

According to the EPC law (Art. 82), the European patent application shall relate to one invention only or a group of inventions so linked as to form a single general inventive concept. Rule 44 defines a single general inventive concept as a technical relationship among inventions involving one or more special technical features. The special technical features are features that define a contribution which each of the inventions considered as a whole makes over the prior art. The Guidelines indicate (see Part F Chapter V-5 8) that “when there is lack of unity, the claimed subject matter is divided among the separate inventions. In this context the word “invention” means an invention having technical character and concerned with a technical problem within the meaning of Art 52(1)”. The Guidelines go on to state in para. 8.1 of Part F Chapter V-5 that “the reasons (submitted by the examiner) should highlight the technical problem(s) addressed by the different inventions, unless it is

perfectly clear from the remainder of the argumentation that the different inventions could not possibly be subsumed under an overall problem". The conclusion to be drawn from these passages from the Guidelines is that if the application indicates a common technical problem for the different inventions, the examiner's objection of there being a lack of unity may be refuted.

**Answer for the US application:**

No, we would not rely on the technical problem being addressed. If we were trying to overcome a restriction requirement, we typically focus our arguments on: (1) whether the examiner appropriately followed U.S. rules for issuing a restriction requirement (unity of invention requirement); and (2) whether there truly would be a burden to search and examine the different groups of claims being restricted as the examiner asserts.

**Answer for the Chinese application:**

Article 31.1 of the Patent Law of China provides that a patent application for invention or utility model shall be limited to one invention or utility model. Two or more inventions or utility models belonging to a single general inventive concept may be filed as one application.

When determining the "single general inventive concept", according to the Examination Guidelines,

"two or more inventions or utility models in an application shall be technically interrelated and contain one or more of the same or corresponding special technical features, wherein the expression "special technical features" shall mean those technical features that define a contribution which each of the inventions or utility models, considered as a whole, makes over the prior art. "

"Special technical features" is a concept specially proposed under the Patent Law of China for the evaluation of unity of a patent application. Special technical features refer to technical features that define a contribution which the invention makes over the prior art. Therefore, "special technical feature" is often understood as a technical feature specially used by the invention to resolve the technical problem, either stated by the applicant in the specification or redetermined by the examiner based on a closest prior art document.

In China, the unity issue only relates to the claims. If the specification contains more than one inventions but the claims only claim to protect one of the inventions, it is allowable and the examiner will not issue a notification to request for deleting other inventions from the specification. In the unity issue usually relates to two or more independent claims, the unity issue about two or more dependent claims will not be objected to by the examiner unless the examiner determines that an independent claim does not have inventive step, which makes the two or more dependent claims do not share a "special technical feature."

Therefore, when receiving an Office Action addressing the unity issue or a Notification of dividing the applicant into one or more applications, the technical problem stated in the specification could be used to argue for the unity issue.

**Answer for the Japanese application:**

Japanese patent law Article 37 requires that application has to fulfil the requirement of unity of invention. The requirement of unity of invention in Japan is similar to the requirement of EPC law.

Under the Japanese Guideline, determination on the requirements of unity of invention is determined whether two or more inventions stated in the claims have the same or corresponding “special technical features“. The term "special technical feature" means a technical feature defining a contribution made by an invention over the prior art (a technical significance of the invention in contrast to the prior art.

In cases where two or more inventions solve the same or overlapping problems with respect to the prior art, the application fulfil the requirement of unity of invention.

Accordingly, if the claimed inventions can solve the same technical problem with respect to the prior art, the examiner’s objection of there being a lack of unity can be overcome.

#### **5. Reformulation of the technical problem.**

**If the application prepared and filed in your home country includes a statement which describes a technical problem that the invention will solve and the examiner cites prior art which also solves this technical problem would you be allowed to reformulate the technical problem to make it more specific in view of the newly cited prior art?**

##### **Answer for the German application:**

Reformulation of the technical problem is always possible, e.g. if newly cited prior art requires the addition of one or more elements to the as-filed claim, or if elements of the solution are to be removed from the problem to meet the requirement that the problem should not include any elements of the solution, or if the problem is to be amended into conformity with the effects achieved by the solution, or if the problem is to be amended to state any advantages originally disclosed in the specification or identified by the skilled person from the overall content of the application. However, any reformulation of the problem may not extend (i) the content of the application beyond that of the as-filed application and, (ii) once a patent has been granted, the scope of protection of the patent.

##### **Answer for the European application:**

Reformulation of the technical problem is permissible according to the case law and practice of the EPO. However, the extent to which a reformulation of the problem is possible depends on the merits of each particular case. Reformulation of the technical problem is required if “new” prior art is cited against the application, which “new” prior art is closer than the original prior art of which the applicant was aware at the time the application was filed. However, the reformulated problem must be derivable from the application as filed. Otherwise the application may be objected to on the ground that the reformulated problem broadens the content of the as filed- application (Art. 123 (2) or the scope of the patent (Art. 123(3)) inadmissibly.

**Answer from the US practitioner:**

No, we would not attempt to reformulate the technical problem in view of prior art cited by the Examiner. In fact, in the U.S. any attempt to reformulate a technical problem described in the originally filed specification would likely cause the Examiner to issue an objection for adding new matter to the application.

**Answer from the Chinese practitioner:**

If the application prepared and filed in China includes a statement which describes a technical problem that the invention will solve and the examiner cites prior art which also solves this technical problem, reformulation of the technical problem is possible only in the response to an Office Action for the purpose of arguing for the inventive step of the invention. It is not allowable to record such reformulated technical problem into the specification. Also, such reformulated technical problem should be derivable from the specification as filed.

As mentioned in the above, when evaluating the inventive step of an invention, a Chinese examiner usually determines a closest prior art and redetermines a technical problem actually resolved by the invention. In such circumstances, reformatting a different technical problem that is different from the technical problem redetermined by the examiner is often a practical way to argue against the examiner's rejection to the inventive step.

**Answer from the Japanese practitioner:**

In principle, the technical problem is identified from the statement in the description. However, when any technical problem is not clearly indicated in the description, technical problem is identified while taking into account the common general knowledge at the time of filing in addition to all of the statements in the description and drawings. Therefore, reformulation of the technical problem is possible within the range of disclosure of the specification and figures. In my opinion, the technical problem can be reformulated from the statement of "background", "effect of invention" and "example".

**6. The role of the technical problem in infringement proceedings for (i) literal infringement and (ii) equivalent infringement (or non-literal infringement)**

**6a Answer for German patents and European patents having effect in Germany in case of literal infringement**

European patents having effect in Germany are examined for infringement by the same German courts as those that examine German patents for infringement and are treated by these courts in infringement proceedings in the same way as they treat German patents in infringement

proceedings. The German courts apply the same rules of practice to both types of patents to determine their scope of protection and to determine whether or not they are infringed literally or by equivalent means or steps. The scope of the patent is determined by the content of the claims as understood by the person skilled in the art in light of the description and the drawings of the patent, and the prior art described in the patent specification. The German courts are not allowed to use the prosecution history of the patent for interpreting the claims. The technical problem needs to be identified to construe the claims properly. If there is literal infringement there is no need to examine also whether the infringing item would also meet the technical problem solved by the invention of the patent because it can be assumed that since the infringing item exhibits the same features as those recited in the claim there can be no difference in the technical problem solved by the infringing item and the technical problem stated in the patent.

#### **6b Answer for German patents and European patents having effect in Germany in case of equivalent infringement**

One of the German requirements for affirming infringement by equivalence is met if the infringing item provides substantially the same technical effect(s) as the claimed solution of the patent. In other words the technical problem(s) solved by the infringing item and the “variant” must be substantially the same as the technical problem(s) solved by the claimed solution of the patent and the claim feature replaced by the “variant” in order that there is practically complete identity in the effects provided by both the claimed solution and the infringing item.

A further requirement for affirming infringement by equivalence is met if the person skilled in the art is able to find the “variant” without inventive effort, knowing the patent and the prior art available at the filing date. Again the technical problem solved by the claimed solution and the claim feature replaced by the “variant” is important to be able assess whether the skilled person has found the “variant” for substituting it for a claim feature without inventive effort. It is to remember in this context that the test applied by other national courts in Europe to assess infringement by equivalence is conducted differently from the German test, so that the role of the technical problem varies from country to country in Europe in terms of the assessment of infringement by equivalence.

#### **Answer from the US practitioner:**

In infringement proceedings in the U.S., claim construction determinations take into account the specification of the patent. Thus, if the specification includes a description of the technical problem, then claim construction of the patent will take into account the technical problem. This is true for both (i) literal infringement; and (ii) equivalent infringement (*i.e.* infringement under the doctrine of equivalents).

#### **Answer from the Chinese practitioner:**

##### **6a Answer from the Chinese practitioner in case of literal infringement**

When determining whether an alleged infringing technical solution falls within the scope of a patent, an “All Element Rule” is adopted.

According to an interpretation made by the Supreme People's Court ("Judicial Interpretation Of The Supreme People's Court Concerning The Application Of The Laws In Patent Infringement Cases 2009"),

"Article 7 In determining whether the alleged infringing technical solution falls within the scope of patent protection, the trialing people's court shall examine all the technical features recorded in the right owner's request for the rights.

Where the alleged infringing technical solution includes all the technical features expressed in or equivalent to those expressed in the request for the rights, the trialing people's court shall conclude that such technical solution falls within the scope of patent protection. Where in comparing the all the technical features in the alleged infringing technical solution with all those in the request for the rights there is at least one technical feature is not expressed in or not equivalent to those expressed in the request for the rights, the trialing people's court shall conclude that such technical solution does not fall within the scope of patent protection."

According to the Guidelines for Patent Infringement Determination (2017) made by Beijing High People's Court,

"35. All Element Rule. The all elements rule is the basic principle to judge whether a technical solution infringes the invention patent or utility model patent. To be specific, in the determination as to whether the accused technical solution falls within the protection scope of the patent, an examination shall be conducted on all the technical features stated in the claim alleged by the right holder, and a comparison shall also be conducted between all the technical features stated in the claim and all corresponding technical features in the accused technical solution one by one. Where the accused technical solution contains the technical features that are identical or equivalent to all the technical features of the claim, it shall be determined that the accused technical solution falls within the protection scope of the patent."

"38. Where the accused technical solution comprises corresponding technical features that are identical to all the technical features stated in an entire technical solution of the claim, literal infringement will be found, namely infringement in literal sense."

Therefore, when determining "literal infringement", only technical features recorded in a claim is considered. The technical problem recorded in the specification is not considered.

#### **6b Answer from the Chinese practitioner in case of equivalent infringement**

In China, when determining equivalent features, technical problem is considered when interpreting the protection scope of claims. Equivalent infringement is determined after the determination of the protection scope of a claim.

According to the Guidelines for Patent Infringement Determination (2017) made by Beijing High People's Court,

" 4. The principle of compliance with the object of invention. In the determination of the protection scope of the patent, technical solutions incapable of realizing the object and effect of the invention shall not be interpreted to be within the protection scope of the claims, that is, the technical solution

which is determined by a person with ordinary skills in the art as still incapable of solving the technical problem of the patent or realizing the technical effect of the patent on the basis of the background art after reading all the contents of the description and drawings shall not be interpreted to be within the protection scope of the patent. “

“44. In the event that literal infringement fails to be found in the determination of patent infringement, the court shall judge whether equivalent infringement is found. “

“45. The accused technical solution shall be determined to fall within the protection scope of the patent and equivalent infringement shall be found, when one or more technical feature(s) in the accused technical solution, though different in literal sense from the corresponding technical feature(s) in the claim, belong(s) to equivalent feature(s) of the latter.

Equivalent features refer to those which achieve substantially the same function and generate substantially the same effect by the means substantially the same as the technical features stated in the claim and can be envisaged by a person with ordinary skills in the art without making inventive effort.”

In the judgment on equivalent features, the means is the technical content of the technical feature per se and the function and effect are the external characteristics of the technical feature, and the function and effect of the technical feature are decided by the means of the technical feature.”

Therefore, technical problem is a factor to be considered when determining the equivalent infringement in China. Especially when the “equivalent feature” relates to the inventive point.

#### **Answer from the Japanese practitioner:**

##### Literal infringement

The scope of the patent is determined by the content of the claims as understood by the person skilled in the art in light of the description and the drawings of the patent, and a common technical knowledge. Technical problem is one of the important elements to understand the scope of the patent.

##### Equivalent infringement

In 1998, the Supreme Court set forth five requirements for infringement under the Doctrine of Equivalents.

- (i) non essential part
- (ii) replaceability
- (iii) obviousness of replacement
- (iv) accused embodiment not falling within public domain
- (v) no special circumstance

“Non -essential part” requirement relates to technical problem. The part of the claim which is different from the structure of the accused product or process is not an essential part of the patented invention. Essential part has to be considered a characterizing portion of a core of the technical idea which forms a base of means for solving the technical problem.

**7. If you have to draft a US application for filing in the US and also for subsequent filing in Germany, at the EPO, China or Japan, how would you deal with the different requirements or practices prevailing in these countries in terms of a statement of a technical problem to be solved by the invention?**

**Answer for US patent applications to be filed at home and abroad (e.g. Germany, EPO, CN, JP):**

We would keep the background section as brief as possible to avoid the disadvantages and potential pitfalls associated with including description of the technical problem. We generally include in The Detailed Description section sufficient support for either an explicit or implicit statement of a technical problem.

**8. If you draft a patent application for filing in Germany, EPO, CN or JP and also for subsequent filing in the US, how would you deal with the fact that a patent application to be filed in Germany, at the EPO, in China and Japan requires an express or at least an implicit statement of a technical problem, and such a statement should be avoided in the US application?**

**Answer from the German and EPO practitioner:**

I would remove any statements of problems, objects and advantages from the general part of the description and add one or more new claims to the existing claims, with the new claims being directed specifically to the technical effects that are subject of the original statements of problems, objects and advantages.

**Answer from the US practitioner (if applicable):**

Not applicable for U.S. practice.

**Answer from the Chinese practitioner:**

Considering the disadvantages of having statement of technical problem in the specification in a US application, I would remove the any statements of problems, objects and advantages from the content of the invention part of the description.

**Answer from the Japanese practitioner:**

I do not change specification for filing in the US based on the following two reasons.

<Reason 1>

In the same manner of US practice, the statement of the technical problem in a limited way may limit the scope of the patent in Japan. For example, if the specification discloses only one technical problem in a limited way, and an accused product does not solve the technical problem, the court may not decide that the embodiment infringes the patent. Therefore, I always prepare the draft of specification wherein the technical problem is not stated in a limited way. I think that the specification prepared in such a way does not affect the US practice.

<Reason 2>

Further, if we remove statements of technical problem and advantages from the application for filing in the US, the effects of the priority may not be recognized partially.

I prepared a Japanese specification in view of JP, US and EP practice. Specifically, I always prepare a statement of technical problem in the specification but it is not stated in a limited way.

**9. If you receive an application drafted in the US style (i.e. no statements describing a technical problem, objects or advantages) from your US associate with instructions to file it in your home country (German, EPO, CN or JP), would you revise the application by including a technical problem, objects or advantages to conform it to the requirements of your home country, assuming you are informed by your US associate which technical problem is to be solved or which objects or advantages are achieved by the invention?**

**Answer from the German and EPO practitioner:**

If the application drafted in the US style has claims that include functional clauses it may be sufficient to use these functional clauses as a basis for defining a technical problem (s) if the need for stating a technical problem arises in subsequent examination, opposition or revocation proceedings because these functional clauses may describe the effects achieved by the claimed solution and are the basis for stating the technical problem. In other words a revision of the application before filing in Germany or at the EPO is not necessary in this particular case.

If the application drafted in the US style includes an abstract which indicates objects, advantages or technical problems, as is often the case, I would copy the abstract into the specification, preferably after the Summary of Invention section or at the end of the specific description. The reasoning behind this proposed amendment is that the abstract is not considered to be a part of the disclosure from which support for subsequent amendments may be drawn. Therefore, the abstract should be made a part of the description before filing if it includes additional information such as effects, objects, advantages, problems, not appearing anywhere in the specification.

**Answer from the Chinese practitioner:**

When receiving an application drafted in the US style (i.e. no statements describing a technical problem, objects or advantages) from your US associate with instructions to file it in China, I would adopt different strategies based whether the subsequent application in China is based on a Paris Convention application or based on a PCT application.

If the US style application enters into China based on a Paris Convention priority application, it is generally advisable to add a statement of technical problem in the specification for a business related application or an application that is likely to be rejected as rules and methods for mental activities. But for a “normal” application, I do not recommend to add such statement, because it may affect the applicant’s global litigation strategy. The applicant’s actions in China may be used by a competitor against the applicant (patentee) in litigation in another country.

If the US style application enters into China based on a PCT application, I would suggest retaining the specification as it is, that is, without adding any statement of technical problem. Because the publication document of the PCT application is served as the basis to determine whether any amendment goes beyond the recording to the original claims and specification (similar to introducing new matter in the US), which is a reason to request for invalidation by a third party against the patentee after the application is granted.

Even though China adopts a technical problem-solution approach when determining the inventive step of an invention, it is not a mandatory requirement. Also, statement of technical problem may disadvantageously constrain the indispensable technical features that should be recorded into an independent claim. When the issue of lacking dispensable technical feature in a claim is raised by the examiner in an Office Action, usually it is very hard to argue that a technical feature is not indispensable for resolving the technical problem stated by the applicant in the specification.

**Answer from the Japanese practitioner:**

**<Paris Convention>**

I do not change specification for filing in the Japan if I receive an application drafted in the US style. Specifically, I do not add the technical problem, effect of the invention based on the original US specification. If the application does not include technical problem in the specification, the technical problem can be identified from the statement in the description, figures and drawings under the Japanese patent practice.

Further, if a statement of the technical problem is added to the specification and if the technical problem is broader than that described in the original US patent application, the effects of the priority may be recognized only partially.

Therefore, I do not recommend adding a statement of the technical problem to the US style specification.

**<PCT>**

Under the Japanese Patent law, we have to file a translation of the PCT original application (US style application), and the translation is deemed to be the claims and the specification of the Japanese application, I suggest, therefore, retaining the specification as it is, that is, without adding any statement of technical problem.

If the PCT application (US style application) does not state the technical problem clearly, applicant can state that the technical problem can be identified from the statement in the description, figures and drawings.

Therefore, I do not recommend adding the statement of the technical problem to the US style specification.

**Answer from the US practitioner (if applicable)**

Not applicable for U.S. practice.

**10. If you amend the application received from your foreign associate for filing in your home country, by adding or deleting a technical problem or shifting it to another part of the specification such as the description of the embodiments, claims or abstract so as to render the application suitable for meeting your home country's requirements of disclosure or avoidance of a technical problem, would you consider there to be a priority problem, such as a total or partial loss of priority caused by such an amendment?**

**Answer from the German and EPO practitioner:**

The German approach and the EPO's approach to assessing the entitlement of a subsequent application to claim priority from an earlier application have been reconciled in recent years. Consequently, the central question of the priority system, i.e. whether the earlier application discloses the "same" invention as that claimed in the subsequent application, is now being answered uniformly, namely by asking whether the person skilled in the art would consider the subject matter of a claim of the subsequent application to be specifically disclosed in the earlier application as a whole, either explicitly or implicitly. Consequently, adding a technical problem not disclosed in the earlier specification to a subsequent application or vice versa, omitting a technical problem stated in the earlier application from a subsequent application could result in a total or partial loss of the priority claim if by adding or omitting the technical problem the invention claimed in the subsequent application is shifted to the extent that the invention is not "the same" as that disclosed in the earlier application.

**Answer from the US practitioner:**

A priority claim will be upheld in the U.S. if the priority application contains sufficient disclosure to form a basis for the subject matter of the claims sought, *i.e.* the priority application satisfies the written description requirement and enablement requirement for the claims. Thus, deleting or shifting a technical problem in the specification of the U.S. application should not affect a priority claim. Adding a technical problem could affect a priority claim if it is considered to be "new matter."

**Answer from the Chinese practitioner:**

Yes. Priority issue is a factor to be considered when amending a first application to be subsequently filed in China, but the "amendment going beyond the recording to the original claims and specification (similar to introducing new matter in the US)" issue is more considered than the priority issue.

For an application that is subsequently filed in China based on a Paris Convention priority application, if the amendment only relates to adding of a statement of technical problem in the specification, it usually will not affect the priority right.

For an application that enters into China based on a PCT application, if the amendment only relates to adding of a statement of technical problem in the specification, it usually will not affect the priority right. However, if the added statement results in the problem of amendment going beyond the recording to the original claims and specification, it has the risk of being rejected by the examiner in the substantive examination stage and the risk of being invalidated by a third party after the issuance of the application. Therefore, as mentioned in the above item 9, since publication document of the PCT application is served as the basis to determine whether any amendment goes beyond the recording to the original claims and specification, I do not recommend adding the statement of technical problem in the specification when the PCT application enters into the national stage of China.

If the amendment only relates to deleting a technical problem or shifting it to another part of the specification such as the description of the embodiments, the priority right should not be affected.

**Answer from the Japanese practitioner:**

If the claimed invention of the application filed in Japan introduces any new technical matter in relation to the "matters stated in the application documents as a whole of the application filed in the first country", the effect of the priority claim of the Paris Convention shall not be recognized partially. If the amendment is broader than the original application, there are some risks that the effects of the priority may not be recognized partially.

Therefore, I do not recommend adding or shifting the statement of the technical problem when I receive the Japanese application from my foreign clients.