G 1/19

Written Statement on behalf of AIPPI

(The International Association for the Protection of Intellectual Property)

Contents:

1. INTRODUCTION TO AIPPI

AIPPI, the International Association for the Protection of Intellectual Property, was founded in 1897 and is dedicated to the development, improvement, and legal protection of intellectual property. The acronym of the organization was derived from its name in French: Association Internationale pour la Protection de la Propriété Intellectuelle. AIPPI is a non-affiliated, non-profit organization headquartered in Switzerland, having over 9,000 members representing over 100 countries. The members of AIPPI include lawyers, attorneys, and agents working across all fields of intellectual property in corporate and private practice throughout the world, as well as academics, judges, government officials and other persons interested in intellectual property. AIPPI is organized into 68 National and Regional Groups.

The objective of AIPPI is to improve and promote the protection of intellectual property at both national and international levels. It does this by studying and comparing existing and proposed laws and policies relating to intellectual property, and working with both government and non-government organisations for the development, expansion and improvement of international and regional treaties and agreements, and national laws.

2. GENERAL REMARKS ON COMPUTER-IMPLEMENTED INVENTIONS

The patentability of computer software-related innovations has been the subject of lively debate among intellectual property users and information technology experts for the past 50 years. This is very similar to earlier discussions in connection with the recognition of patent protection for new, important fields of technology such as the extension to medical substances (approx. 100 years ago). A similar debate emerged with regard to biotechnology.

The economies of the industrialized countries are increasingly dependent on the tertiary sector (service industries). Developments in service industries are generally new working methods very often implemented through the use of computer networks such as the Internet. The question of the existence of patent protection for computer programs and other computer-implemented inventions thus becomes a question of applying the known protection system to the economic sector with the strongest growth. Computer software-related inventions penetrate almost all fields of technology.

The protection provided by copyright law and the protection provided by patent law, although applied to the same software product, cover completely different aspects of the product and should not be confused. Copyright protection only protects the specific expression of the program (i.e. typically literal elements of expression pertaining to the listing or specific code and, in some jurisdictions, non-literal elements of expression such as structure, sequence or organization of the code) against copying, whereas patent protection protects the features of a new method (i.e. the functionality) independent of the specific code implementation and other forms of expression of a program. In practice, an expression of an idea attracts copyright by the mere fact that it is a creation, i.e. the expression of any original computer program is protected by copyright. However, only the new and non-obvious subject matter and/or new and non-obvious functional implementation can be inventive and defined in a patent claim.

Up to the end of the 20th century, the question of patent protection for computer software-related inventions mainly concerned inventions that were technical in nature and fell within the traditional definition of technology, i.e. science and industry. After a period of hesitation, most patent systems adopted criteria for granting patents on computer software inventions related to technical devices.

The TRIPS Agreement, which defines in Article 27 the subject-matter of patentable inventions, does not provide for any exclusion of patentability other than those exclusions based on public order or morality, or for diagnostic, therapeutic and surgical methods, as well as for plants and animals.

One should avoid the distorted notion that the recognition of patentability for computer software-implemented innovations either in the business or in the technical field would necessarily flood the world with patents for computer software inventions. In reality, only a small number of those innovations would be eligible for patent protection, namely, those

that are shown to be novel and non-obvious. The same would hold true for computer-implemented simulations.

Computer-implemented numerical simulation is a technical field of increasing importance. As pointed out in case T 1227/05, simulations perform technical functions typical of modern engineering work enabling a wide range of designs to be virtually tested and examined for suitability before expensive fabrication starts. Computer-implemented simulation methods for virtual trials are a practical and practice-oriented part of the modern-day engineer's toolkit. For an increasing number of fields in the engineering sciences, application of numerical simulation has become a cost-effective alternative to expensive, experimental investigations consuming significant time and personnel resources. In addition to computer simulation to test and examine designs in engineering contexts, significant advances are being made in computer simulation of wet laboratory tests in the fields of biology and biotechnology. In many industrial branches, numerical simulation has already evolved to a key technology.

The G 1/19 Referral questions concern how the established interpretation of the EPO in respect of the patentability of computer-implemented inventions should be applied to a computer-implemented simulation of a technical system or process. This specific issue is a point of law of fundamental importance and legal certainty in respect of the patentability of such computer-implemented simulation systems and methods is highly desirable.

3. PREVIOUS OFFICIAL PRONOUNCEMENTS OF AIPPI ON COMPUTER IMPLEMENTED INVENTIONS

AIPPI adopted a Resolution at its Congress held in San Francisco in 1975 entitled: “Protection of computer programmes - Protection of computer-software” (Resolution Q57). In that pronouncement, AIPPI officially resolved that:

> *“Inventions otherwise satisfying the criteria of patentability according to national laws, should not be denied patent protection or protection by inventors' certificates merely because software, especially a computer programme, is involved, or because the subject matter can or is intended to be put into effect by using or programming data processing equipment.”*

This Resolution Q57 was further confirmed at AIPPI's Executive Committee Meeting held in Sydney in 1988.

At its Executive Committee Meeting held in Vienna in 1997, AIPPI adopted another Resolution entitled: “Patenting of computer software” (Resolution Q133), according to which it was resolved:

> *“Computer software should be considered patentable provided that the*

> *claimed subject matter meets the traditional patentability requirements of novelty, inventive step (non-obviousness) and utility or industrial applicability.*
>
> *[…]*
>
> *The technical character of computer software should be generally acknowledged and its industrial applicability should be construed in a broad manner so as to embrace the concept of enabling a useful practical result."*

Further, at the Melbourne Congress of the organization held in 2001, in a Resolution entitled: "Patentability of Business Methods" (Resolution Q158), it was adopted that:

> *"Inventions including methods used in all fields of industrial, commercial and financial activities, …, should be entitled to patent protection provided that the invention as defined in the claims has a technical content."*

This Resolution Q158 was confirmed in further Resolution of the organization passed at its Executive Committee Meeting in Lucerne in 2003 and entitled: "Computer Software, Information Networks, Artificial Intelligence and Integrated Circuits" (Resolution Q132), which adopted that:

> *"computer-implemented inventions should be eligible for patent protection and should not be treated more restrictively than other inventions".*

In 2006, the AIPPI Standing Committee on Information Technology and Internet (formerly Special Committee Q132) prepared a Study Paper titled "Patent Protection for Computer Software Related Inventions" giving an overview of the then situation regarding patentability of computer software-related inventions. The Committee concluded that the earlier AIPPI Resolutions on computer software patents (Resolution Q133) and on business methods with a technical content (Resolution Q158) were consistent with the then analysis of the Committee and should therefore be reaffirmed.

In 2009, AIPPI submitted an *amicus curiae* brief in the Referral G 3/08 pending before the Enlarged Board of Appeal of the EPO. The opinion expressed in that *amicus curiae* brief is in line with the above Resolutions Q133 and Q158.

In 2016, the AIPPI Standing Committee on Information Technology and Internet issued a report on the current situation around the world on the protection of CII (hereinafter referred to as the AIPPI Report 2016). This very comprehensive report sets out the different approaches to patentability of CII in various jurisdictions worldwide, and shows the urgent need for harmonization in the field of patentability of CII.

Lastly, at its Congress held at Sydney in 2017, AIPPI adopted a Resolution entitled: "Patentability of Computer Implemented Inventions" (the "Sydney Resolution"). It was thereby adopted that, as a question of principle clearly reflected in the TRIPS Agreement, and taking into account other reasons of a legal, economic and practical nature, patents should be available, and patent rights enjoyable, without discrimination for inventions in all fields of technology, including CIIs. Moreover, it was resolved that there should be no general exclusion from patentability of CIIs, including computer programs. Further, the Sydney Resolution adopted that a claim directed to a CII should be eligible for patent protection if it defines an invention in at least one field of technology, and that claim directed to a CII should be examined using the same criteria as applied to other kinds of inventions.

The foregoing Resolutions and other work of AIPPI clearly and consistently support a liberal approach towards the recognition and protection of patent rights in CII. AIPPI duly recognizes that the Enlarged Board of Appeal, which is charged with the present Referral G 1/19, is bound to decide the questions before it according to the applicable laws, regulations, administrative guidelines and past decisions that govern practice before the European Patent Office. This notwithstanding, AIPPI respectfully invites the Enlarged Board of Appeal to decide and determine the subject matter of the present Referral G 1/19 as consistently as possible to approach better harmonization with the law and practice of other industrialized jurisdictions worldwide.

4. CURRENT SITUATION IN THE UNITED STATES, JAPAN, CHINA, GERMANY, THE UK AND CANADA

We provide below a summary of the laws and patent office examination guidelines regarding the patentability of computer-implemented inventions in various jurisdictions. All such jurisdictions typically recognize the patentability of computer simulations of a technical system or process, provided they fulfill the normal patentability requirements that are applicable generally to computer-implemented inventions.

4.1. USA

Recent decisions of the U.S. Supreme Court and the U.S. Federal Circuit present a new impediment to the patentability of software and other computer-implemented technologies, and to the enforceability of patents directed thereto.

In *Alice Corporation* v. *CLS Bank*, 134 S. Ct. 2347 (2014), the U.S. Supreme Court unanimously struck down all the patent claims at issue, drawn to a method for exchanging financial obligations, a computer system configured to carry out the method, and a computer-readable storage medium containing program code for causing a computer to perform the method.

In *Alice*, the Court implemented a new two-step analysis for determining patent-eligible subject matter:

- Are the claims directed to a judicial exception, including laws of nature, natural phenomena and/or abstract ideas?

- If yes, what else is in the claims to transform the nature of the claim into a patent-eligible invention?

In answering "yes" to the first question, the Court quoted extensively from its recent *Mayo*, *Bilski*, and *Myriad* decisions, confirming that laws of nature and natural phenomena still constitute exceptions to the generally broad categories of inventions qualifying for protection in the U.S. The Court also indicated its desire to "tread carefully in construing this exclusionary principle lest it swallow all of patent law."

The Court determined that the claims at issue were drawn to the abstract idea of intermediated settlement, an ineligible concept for purposes of patent protection. The Court indicated the patent claims were drawn to a concept that is "a fundamental economic practice long prevalent in our system of commerce." The Court further explained that it "need not labor to delimit the precise contours of the 'abstract ideas' category," seeing no meaningful distinction between the risk hedging of *Bilski* and the intermediated settlement of *Alice*.

Regarding the second prong of the *Alice* test, inquiring as to what else might be in the claims could also serve as a search for an "inventive concept", or for an element or combination of elements, sufficient to ensure the invention in practice amounts to significantly more than a patent merely upon the "ineligible concept" itself. In making the determination, the Court indicated the claims should be considered individually and as "an ordered combination". Furthermore, the Court indicated the importance of determining whether the additional elements transform the nature of the claim into patent-eligible subject matter.

The *Alice* opinion refers to the desirability of solving a "technological" problem, wherein the solution is an "inventive application" of a formula or abstract idea. This formulation may blur the requirements of utility (or industrial applicability), novelty, and non-obviousness (or inventive step) with the question of patent-eligible subject matter.

In the first year after the *Alice* opinion was issued, patent claims have been found unpatentable by the U.S. PTO and by the U.S. courts in unprecedented numbers, for failing to recite patent-eligible subject matter. In a typical scenario, a claim is generalized to a high-level of abstraction and thereby determined to be "directed to" an abstract idea under the first prong of the *Alice* test. The elements of the claim, taken individually, are then characterized as not reciting "significantly more" than the abstract idea. This development has presented significant challenges with respect to the protection of computer-implemented inventions in the U.S.

However, several recent developments could potentially reverse the trend against the patentability of computer-related inventions. First, the U.S. PTO issued a May 4, 2016 memorandum to the Patent Examining Corps specifying that a subject-matter eligibility rejection must identify specific claim limitations which are alleged to recite an abstract idea and explain why the alleged abstract idea corresponds to a concept which the courts have previously identified as an abstract idea, and also must consider the elements of a claim in combination, and not individually, when determining whether a claim recites "significantly more" than an abstract idea.

Shortly thereafter, in *Enfish LLC* v. *Microsoft Corporation et al.* (Fed. Cir. 2016), the Federal Circuit indicated that it did not "read Alice to broadly hold that all improvements in computer-related technology are inherently abstract and, therefore must be considered at step two." In doing so, the Federal Circuit clarified that some improvements to computer-related technology are not abstract for purposes of the first prong of the *Alice* test. Moreover, it held that:

> *"[s]oftware can make non-abstract improvements to computer technology just as hardware improvements can, and sometimes the improvements can be accomplished through either route."*

In its May 19, 2016 follow-up memorandum to the Patent Examining Corps, the U.S. PTO confirmed the logical underpinnings of the *Enfish* decision and instructed the Examining Corps to conform patent examination to these principles.

Most recently, the U.S. PTO revised its guidance on determining subject matter eligibility. (2019 Revised Patent Subject Matter Eligibility Guidance, 84 Fed. Reg. 50, Jan. 7, 2019). The new guidance is primarily directed to determining whether in the first step of the *Alice* analysis, as noted above, a patent claim is "directed to" a judicial exception, e.g., an abstract idea. The new guidance has limited the categories of the abstract ideas to mathematical concepts, certain methods of organizing human activity, and mental processes. When the patent claim "recites" a judicial exception, e.g., an abstract idea that falls only into one of these three categories, the new guidance requires determining whether additional elements of the claim integrate the judicial exception into a practical application considering the claim as a whole. If so, then the claim is not "directed to" the judicial exception and the patent claim is considered to be patent-eligible. If the claim does not integrate the judicial exception into a practical application, then the new guidance proceeds to the second step of the *Alice* analysis, as noted above, determining whether the claim recites additional elements that transform the claim into patent-eligible subject matter. The revised guidance provides examples of practical applications: the claim effects improvement in the functioning of a computer, the claim effects improvement to other technology or a technical field, the judicial exception is implemented or used with a particular machine that is integral to the claim, the claim effects a transformation of a particular article to a different state or thing, or the claim applies the judicial exception in a meaningful way beyond generally linking it to a technological environment. Since the release of the new guidance, the rejections of patent applications directed to computer-

implemented inventions on the grounds of lacking patent-eligible subject matter have been sharply reduced.

4.2. Japan

In Japan, computer software-related inventions are patentable if they satisfy the requirements of the Japanese Patent Law that apply to other inventions, i.e. they relate to statutory invention (Sections 2(1) and 29(1)), and meet novelty, inventive step and description requirements.

In order to address the unique examination issues presented by these types of inventions, the Japan Patent Office released Examination Guidelines, an Examination Handbook and Case Examples Pertinent to AI-related Technology (collectively the "Examination Guidelines") for software-related inventions. The Examination Guidelines explain with specific examples what kind of software-related inventions satisfy the requirements, including the statutory invention and inventive step requirement. A statutory invention is defined by Section 2(1) of the Japanese patent law as “a (highly advanced) creation of technical ideas utilizing a law of nature”. Since a law of nature has to be utilized, not all inventions constitute statutory inventions. For example, natural phenomena, man-made rules such as laws of economics, business schemes/methods, abstract ideas, pure mathematical algorithms, arbitrary arrangements, mental activity, mere presentation of information, and computer program listings do not constitute statutory inventions.

As for software-related inventions, according to the Examination Guidelines, unless such inventions are non-typical ones such as an invention controlling an apparatus (e.g. washing machine, engine, hard disk drive), the question of whether they may constitute a statutory invention is judged by whether or not information processing by software is concretely realized using hardware resources (e.g. CPU, memory). In other words, a software-related invention must be described in a claim such that software and hardware resources are working in a cooperative manner. Merely reciting hardware resources (such as a CPU or ROM) is not sufficient.

As for software-related inventions including steps performed by a human, they usually do not constitute a statutory invention, since an invention as a whole must utilize a law of nature.

If a software-related invention constitutes a statutory invention, it is patentable in the form of an apparatus, a method, a program or a computer-readable storage medium storing a program. However, this invention must imply an inventive step. According to the Examination Guidelines, for example, the following do not usually involve an inventive step: 1) the application of the prior art to a different field (e.g. medical information retrieval applied to commodity information retrieval); 2) implementation by software of functions that were implemented by hardware in the prior art; and 3) systematisation of transactions which were performed by humans in the prior art.

When assessing the inventive step of a computer implemented invention, the person skilled in the art who should determine whether an inventive step exists is considered to have knowledge in the field of the software application (e.g. the financial field) and in the field of computer technology. This seems to imply that the inventive contribution can also be made in the non-technical field (e.g. in the financial field) as long as the claimed product satisfies the aforementioned statutory invention requirements.

4.3 China

The position in China is set by the China National Intellectual Property Administration (CNIPA).

The legal basis is Article 2.2 of the Patent Law:

> *"Invention", means any new technical solution relating to a product, a process or improvement thereof.*

The Examination Guidelines further set up the tests for satisfying the definition of "invention" as regulated in the Patent Law in Part 2, Chapter 9 regarding "special requirements for examining computer program related invention applications":

> *"In accordance with Article 2.2, "invention" in the Patent law means any new technical solution relating to a product, a process or improvement thereof. An invention application relating to computer programs is the subject matter of patent protection only if it constitutes a technical solution.*
>
> *If the solution of an invention application relating to computer programs involves the execution of computer programs in order to solve technical problems, and reflects technical means in conformity with the laws of nature by computers running programs to control and process external or internal objects, and thus technical effects in conformity with the laws of nature are obtained, the solution is a technical solution as provided for in Article 2.2 and is the subject matter of patent protection.*
>
> *If the solution of an invention application relating to computer programs involves the execution of computer programs not in order to solve technical problems, or does not reflect technical means in conformity with the laws of nature by computers running programs to control and process external or internal objects, or the effect obtained is not restrained by the laws of nature, the solution is not a technical solution as provided for in Article 2.2, and is not the subject matter of patent protection."*

According to the established practice in China, similar as that in Europe, an "invention" within the meaning of Article 2.2 must have a technical character, i.e., patentable subject matter that is implemented mainly through a computer program-related invention must tie

to and satisfy three technical elements: solving a technical problem, employing technical means and achieving a technical result.

For business method-related inventions, most of them are typically drafted by employing technical means. However, they are usually rejected by the CNIPA for not satisfying the other two technical elements: solving the technical problem and achieving technical effect. In China, a problem solved and an effect obtained in the area of economics are not regarded as “technical”.

The CNIPA used to reject business method-related inventions as not complying with Article 2.2. However, there is a more recent trend in the CNIPA to reject business method related inventions on the basis of lack of inventiveness. For example, the following logic is adopted:

- identification of the closest prior art;
- determination of the features of a claim that distinguish the solution from the closest prior art (the "distinct features").

Once the presence of “distinct features” has been ascertained, then the inventive step is assessed taking the claim as a whole. If the distinct features provided by the invention as claimed are non-technical, e.g. lie in the field of economics, or if the effect of the technical means is non-technical even though the distinct features use technical means, they are not taken into account in the assessment of inventive step and the invention is then deemed obvious over the closest prior art.

The Examination Guidelines explicitly exclude the following subject matter from being granted in Part 2, Chapter 9: a computer program per se; or a medium/carrier for conveying the computer program.

However, method claims to the computer program should be allowable if the steps implemented by running the computer program are defined by using plain language; product claims to the computer program should also be allowable if they are drafted in means plus function manner or in functional modules manner.

4.4 Germany

In the recent past, the highest German court for patent cases, the Federal Court of Justice, has issued a series of decisions concerning the patentability of computer implemented inventions *(Elektronischer Zahlungsverkehr*, GRUR 2004, p. 667; Rentabilitätsermittlung, GRUR 2005, 143; *Steuerungseinrichtung für Untersuchungsmodalitäten*, GRUR 2009, 479; *Dynamische Dokumentengenerierung*, GRUR 2010, p. 613; *Wiedergabe topografischer Informationen*, GRUR 2011, p. 125; *Fahrzeugnavigationssystem*, GRUR 2013, 909; *Bildstrom*, GRUR 2015, 660; *Entsperrbild*, GRUR 2015, 1184). That court has developed a set of tests for judging the

patentability of such inventions that is consistently applied, also by the lower courts. The test applied by the Federal Court of Justice is consistent with the approach of the EPO, in particular as summarized and analyzed by the Enlarged Board of Appeals in the decision G 3/08 (*Wiedergabe topografischer Informationen*, *supra*).

For computer implemented inventions, the German Federal Supreme Court applies two additional steps preceding the tests for novelty and inventive step.

In a first step, it has to be determined whether at least a partial aspect of the subject matter of the claimed invention lies in a technical field and thus qualifies as a technical invention according to Article 52 (1) EPC. This technicality requirement is already fulfilled if a method includes the processing, storing or transmission of data by means of a technical device. It is irrelevant if the subject matter of the claim contains non-technical features in addition to the technical features or which of the features characterize the claimed teaching.

Computer implemented inventions generally pass the technicality test easily. However, a claim directed to a method using a computer program for achieving its goal must pass a second test step for avoiding exclusion from patentability under Article 52 (2) and (3) EPC (computer program as such). Such methods are only patentable if the claimed teaching contains instructions that serve the solution of a specific technical problem with technical means. Instructions outside of the technical area do not fulfill this criterion; they are only relevant if they influence the solution of a technical problem with technical means (*Wiedergabe topografischer Informationen*, *supra*).

The most significant hurdle for computer implemented inventions is the inventive step test. When assessing the inventive step of a method including the use of a computer program, only those instructions are considered that determine or at least influence the solution of a technical problem with technical means.

So in practice, the test applied by the German courts matches the test of the EPO. If the subject matter of a claim is considered to comprise an inventive step by the EPO, it must contain non-obvious instructions that determine or at least influence the solution of a technical problem with technical means and can, therefore, not be a computer program as such, which would be excluded from patentability.

The German Federal Court of Justice has extended this test scheme to another exclusion from patentability under Article 52 (2) and (3) EPC, namely the exclusion of presentations of information (*Wiedergabe topografischer Informationen*; *Fahrzeugnavigationssystem*; and *Bildstrom*, *supra*). A claim aiming at the presentation of information is not excluded subject matter under Article 52 (2) (d) and (3) EPC if it contains instructions that serve the solution of a specific technical problem with technical means. In two of these cases (*Wiedergabe topografischer Informationen*; and *Fahrzeugnavigationssystem*, supra), the Federal Court of Justice maintained the earlier decision to revoke the patent based on the lack of inventive step while in one case (*Bildstrom*, *supra*), the earlier decision was reversed and the patentability of a computer implemented method for displaying an image

stream of medical images by simultaneously displaying on a monitor (at least) two subset image streams was held patentable, i.e. comprising an inventive step solving the technical problem of presenting the image content in a manner particularly suitable for the physical conditions of human perception and reception of information and aiming at enabling or improving the perception of the presented information by a human being (*Bildstrom*, *Ibid.*).

This judgement highlights the importance of thoroughly explaining the technical contribution of an invention when drafting a patent application for a computer implemented invention. On the other hand, computer implemented inventions also have to fulfill the standard patentability requirements of novelty and inventive step once their technical contribution is established.

4.5 United Kingdom

The patentability of computer implemented inventions is different throughout the world and the position of the various offices is constantly changing. Nowhere more so than the UK, where recent judgements by the Court of Appeal have significantly altered the position of the UK Intellectual Property Office (UKIPO). Although it is still difficult to get a software patent granted in the UK, software developers are nevertheless able to protect a wide range of software implemented inventions in the UK.

The UK Courts are strictly bound by earlier precedent and an extensive body of case law on software patents has developed over the last 20 years. The current practice of the UKIPO is based on a Court of Appeal judgement *Aerotel v Telco, Macrossan's Application* [2006] EWCA Civ 1371 ("*Aerotel/Macrossan*"), in which the latest test for determining patentability is laid out.

The Court of Appeal in *Aerotel/Macrossan* laid out a four step test with which to assess an invention (N.B. novelty and inventive step etc. are to be assessed once this test has been passed). The four steps are as follows:

1. Properly construe the claim;
2. Identify the actual contribution;
3. Ask whether it [the contribution] falls solely within the excluded subject matter;
4. Check whether the actual or alleged contribution is actually technical in nature.

The fourth step is only to be considered if the invention has passed the previous third step. The decisive question is the 'technical contribution' the invention makes to the prior art. The fourth step stems from the decision in *Merrill Lynch*, which states that "There must, I think, be some technical advance on the prior art in the form of a new result". This approach is completely different to that currently followed by the EPO.

In contrast to the approach followed by the EPO, the mere presence of conventional computing hardware does not of itself mean an invention makes a 'technical contribution' and so avoids the computer program exclusion. The UK Courts require more than this.

Subsequent to the Aerotel/Macrossan decision, the UKIPO adopted a very strict approach in its examination of UK patent applications, leading to the refusal of many cases and a barrage of criticism in return from disaffected applicants.

The most significant recent judgement affecting software patents is that of *Symbian Ltd's Application* [2008] EWCA Civ 1066 ("*Symbian*"). Before this, the UKIPO's practice following the Areotel/Macrosson decision was to reject any application where the invention was an improvement in computer programming and the 'novel' features lie in a computer program. The UKIPO held the view that a computer program was not patentable unless it makes a contribution outside the computer. The Court of Appeal decision in Symbian has now relaxed the requirements for patenting software in the UK and has brought the UK case law more into line with the EPO.

The *Symbian* patent application described how a library of functions (a "Dynamic Link Library"), useable by multiple application programs running on a computer, is accessed. It provides a way of indexing the library functions so that the computer will continue to work reliably even after making changes to the library. The Court of Appeal used the four step test to determine the patentability of the application and concluded that the invention does not fall solely within excluded subject matter "because it has the knock-on effect of the computer working better as a matter of practical reality". The key question is whether or not the invention makes a 'technical contribution'. The invention "solves a 'technical' problem lying with the computer itself". A computer running faster or more reliably may be considered to provide a 'technical contribution' even if the invention solely addresses a problem in the programming.

The courts have since provided further guidance for assessing the 'technical contribution' requirement in the fourth step of the Four Step Test. In *AT&T Knowledge Ventures LP and CVON Innovations Ltd* [2009] EWHC 343 ("*AT&T/CVON*"), the judge laid down five possible signposts of patentable subject matter, namely:

i) whether the claimed technical effect has a technical effect on a process which carried on outside the computer;

ii) whether the claimed technical effect operates at the level of the architecture of the computer; that is to say whether the effect is produced irrespective of the data being processed or the applications being run;

iii) whether the claimed technical effect results in the computer being made to operate in a new way;

iv) whether the program made the computer a better computer in the sense of running more efficiently and effectively as a computer;

v) whether the perceived problem is overcome by the claimed invention as opposed to merely being circumvented.

These signposts have been used fairly regularly by the UKIPO, and the fourth sign post (improved efficiency of the computer) has proven to be particularly attractive for applicants arguing technical effect before the UKIPO. These signposts were recently approved by the Court of Appeal in *HTC Europe Ltd v Apple Inc* [2013] EWCA Civ 451, which used the fourth signpost to overturn a lower court's decision to refuse an Apple patent. It should be noted, however, that the listed signposts are neither exhaustive, nor binding.

The *Aerotel/Macrossan* judgement left an unanswered question: can claims to a computer program (or a program on a carrier) be allowable when other claims in a different form, claims covering the use of that particular program, would be allowed? The UKIPO thought not. The judgement in *Astron Clinica Ltd v Comptroller-General* [2008] RPC 14 ("*Astron Clinica*") has now clarified the law in this area. In principle, claims to the program should be allowable where claims to a method performed by running a suitably programmed computer or to a computer programmed to carry out the method are allowable, as long as the claim to the computer program is drawn to reflect the features of the invention which would ensure the patentability of the method which the program is intended to carry out when it is run. Claims to a computer program are now allowable when this condition is met.

Four questions concerning the patentability of computer implemented inventions had been referred to the EPO's Enlarged Board of Appeal by the EPO's President Alison Brimelow. The four questions were in no small part due to the inconsistencies highlighted in judgements such as *Aerotel/Macrossan* and *Symbian*. Inconsistencies in EPO case law was one of the reasons given for why the UKIPO was not allowed to appeal the *Symbian* decision to the House of Lords "because in its view it would be premature for the House of Lords to decide what computer programs are patentable before the issue has been considered by the Enlarged Board of Appeal of the [EPO]". However, this referral was subsequently deemed inadmissible in 2005, and it was held that there was no divergence in EPO case law. The EPO approach to computer implemented inventions has remained largely unchanged, and the trend in UK judgements has been a gentle creep towards the EPO approach.

With respect to computer-implemented simulations more specifically, the Haliburton decision (*Halliburton* v *Comptroller-General of Patents* [2011] EWHC 2508 (Pat)) which represents the approach taken in the UK. The invention in the *Haliburton* decision was related to a method of designing a drill bit with the help of computer simulation. However, the step of manufacturing the end product was not claimed, i.e. the step of producing the designed bit. Therefore, there was a question of whether the simulation was technical. Although the approach in the UK to assessing this question is different to that of the EPO, with it being a question of excluded subject matter rather than inventive step, the outcome should be expected to be consistent. Judge Birss in the *Haliburton* decision construed the claim as not falling within any of the exclusions. Judge Birss instead

decided that “designing drill bits is obviously a highly technical process, capable of being applied industrially. Drill bit designers are, I am sure, highly skilled engineers. The detailed problems to be solved with wear and ability to cut rock and so on are technical problems with technical solutions. Accordingly finding a better way of designing drilling bits in general is itself a technical problem. This invention is a better way of carrying that out.”

Thus, in the *Haliburton* decision the outcome was that the claim was patentable, similar to what was found in T 1227/05.

4.6 Canada

In Canada, statutory classes of patentable subject matter are broadly defined in section 2 of Canada’s *Patent Act,* RSC 1985, c P-4 [*Patent Act*]:

> *“‘invention’ means any new and useful art, process, machine, manufacture or composition of matter, or any new and useful improvement in any art, process, machine, manufacture or composition of matter”.*

Canadian courts have expansively interpreted the five enumerated classes of invention: art, process, machine, manufacture and composition of matter (see e.g. *Shell Oil Co v Commissioner of Patents*, [1982] 2 SCR 536 [*Shell Oil*]).

However, the definition is further proscribed by the statutory exception that:

> *“No patent shall be granted for any mere scientific principle or abstract theorem” (Patent Act, s 27(8)).*

This exception has been used to exclude mere mathematical formula and mental steps from patentability (*Schlumberger Canada Ltd v Commissioner of Patents*, [1982] 1 FC 845, 56 CPR (2d) 204 (FCA) [*Schlumberger*]).

Notwithstanding an otherwise generally expansive interpretation, several judicial exceptions to patentable subject matter have also been created. Most notably methods of medical treatment and higher life-forms have been categorically excluded from patent protection in Canada (*Tennessee Eastman Co v Canada (Commissioner of Patents)*, [1974] SCR 111, 8 CPR (2d) 202 (dealing with medical treatment); *Harvard College v Canada (Commissioner of Patents)*, 2002 SCC 76, [2002] 4 SCR 45 (dealing with higher life-forms)).

Questions regarding the patentability of computer-related inventions have been considered on several occasions by Canada’s Federal Courts (*Schlumberger*, *supra*; *Progressive Games, Inc v Canada (Commissioner of Patents)* (1999), 177 FTR 241, 3 CPR (4th) 517 (FCTD), aff’d (2000), 9 CPR (4th) 479 (FCA); *Amazon.com, Inc. v. Canada (Attorney General)*, 2010 FC 1011, aff’d in part 2011 FCA 328). The questions were most recently explicitly considered by Canada’s Federal Court of Appeal in *Canada (Attorney*

General) v. Amazon.com Inc., 2011 FCA 328 [*Amazon FCA*]. In that decision, the Federal Court of Appeal endorsed the lower Court decision affirming that there is no specific requirement for an invention to be scientific or technological in nature (*ibid* at paras 56-58). Likewise, there is no specific exclusion to the patentability of business methods or computer software (*ibid.* at paras 59-63).

Further, the Federal Court of Appeal affirmed that inventions relating to software may qualify as an "art" or "process" in the enumerated classes of inventions (*ibid.* at para 50). However, to determine whether or not such an invention qualifies as an "art" or "process", the Court adopted the three-part test articulated by the Supreme Court of Canada in *Shell Oil*:

> *" .... i) it must not be a disembodied idea but have a method of practical application; ii) it must be a new and inventive method of applying skill and knowledge; and iii) it must have a commercially useful result" (Amazon FCA, supra* at para 50).

The Court additionally confirmed that "patentable subject matter must be something with physical existence, or something that manifests a discernable effect or change" (*ibid*. at para 66).

However, despite endorsing patent eligibility of qualifying software inventions, the Court further cautioned:

> *"This formulation of the issues to be considered does not mean that the Commissioner cannot ask or determine what the inventor has actually invented, or what the inventor claims to have invented. ... This requires the Commissioner's identification of the actual invention to be grounded in a purposive construction of the patent claims. It cannot be determined solely on the basis of a literal reading of the patent claims, or a determination of the "substance of the invention" ... Purposive construction will necessarily ensure that the Commissioner is alive to the possibility that a patent claim may be expressed in language that is deliberately or inadvertently deceptive. Thus, for example, what appears on its face to be a claim for an "art" or a "process" may, on a pro*per *construction, be a claim for a mathematical formula and therefore not patentable subject matter"* (*ibid.* at paras 42 to 44 [emphasis added]).

The doctrine of purposive construction has its origins in the UK as a tool in assessing infringement (*Catnic Components Ltd* v *Hill & Smith Ltd*, [1983] FSR 512 (Pat Ct)). As adopted into Canadian law, purposive construction affirms the primacy of the claims in defining the patent monopoly, but acknowledges that certain non-essential claim elements may be omitted or varied without avoiding liability for infringement, notwithstanding their express recitation in the language of a claim (*Free World Trust* v *Electro Sante Inc*, 2000 SCC 66, [2000] 2 SCR 1024 [*Free World Trust*]; *Whirlpool Corp* v *Camco Inc*, 2000 SCC 67, [2000] 2 SCR 1067).

Briefly, purposive construction of patent claims, as mandated by the Supreme Court of Canada (*Free World Trust*, *supra* at para 31), requires:

> *"The claim language must, however, be read in an informed and purposive way;*
>
> *... The language of the claims thus construed defines the monopoly. There is no recourse to such vague notions as the "spirit of the invention" to expand it further.*
>
> *... The claims language will, on a purposive construction, show that some elements of the claimed invention are essential while others are non-essential. The identification of elements as essential or non-essential is made:*
>
> *(i) on the basis of the common knowledge of the worker skilled in the art to which the patent relates;*
>
> *(ii) as of the date the patent is published;*
>
> *(iii) having regard to whether or not it was obvious to the skilled reader at the time the patent was published that a variant of a particular element would not make a difference to the way in which the invention works; or*
>
> *(iv) according to the intent of the inventor, expressed or inferred from the claims, that a particular element is essential irrespective of its practical effect;*
>
> *(v) without, however, resorting to extrinsic evidence of the inventor's intention.*
>
> *There is no infringement if an essential element is different or omitted. There may still be infringement, however, if non-essential elements are substituted or omitted."*

Typically, in the absence of an indication to the contrary, Canadian courts have treated each recited claim element as essential (*Martinray Industries Ltd v Fabricants National Dagendor Manufacturing Ltd* (1991), 41 CPR (3d) 1 at 18 (FCTD), citing *Eli Lilly & Co O'Hara Manufacturing Ltd.* (1989), 26 CPR (3d) 1 at 7 (FCA)).

Seizing on the Federal Court of Appeal's caution, the Canadian Intellectual Property Office issued new examination practice notices in March 2013 for computer-implemented inventions in order to provide Patent Examiners guidance on how to purposively construe the claims (Canadian Intellectual Property Office, Practice Notice PN2013-02,

"Examination Practice Respecting Purposive Construction" (8 March 2013) [PN2013-02]; Canadian Intellectual Property Office, Practice Notice PN2013-03, "Examination Practice Respecting Computer-Implemented Inventions" (8 March 2013) [PN2013-03]). These practice notices supplement parts of existing guidelines in the Canadian Intellectual Property Office's *Manual of Patent Office Practice*, affirming the patentability of computer-related inventions when properly disclosed, claimed and enabled in a patent application (Canadian Patent Office, *Manual of Patent Office Practice*, (Ottawa: Industry Canada, Canadian Intellectual Property Office, 1998), Chapter 16).

However, rather than referencing all of the relevant factors for determining the essential or non-essential character of a recited claim element as set out in the Canadian jurisprudence, the *Examination Practice Respecting Purposive Construction* solely guides Examiners to identify those elements required to solve an identified problem, and consider these as essential, and to consider the remaining claim elements as non-essential. This reliance solely on a problem-solution approach in categorizing claim elements as essential or non-essential is arguably an unsupported departure from established Canadian law and has been sharply criticized by commentators such as Ferance, "Purposive Claim Construction and Computer-Implemented Inventions: A Detailed Analysis of CIPO's Guidelines", (2013) 28 CIPR 259. Likewise, the departure from a presumption of essentiality of all claim elements has also been criticized (*ibid.*).

Once essential and non-essential elements are identified, Examiners are encouraged to omit non-essential elements from their construction of the claims and to assess whether the claims define statutory subject matter based on this construction (PN2013-02, *supra* at 5; PN2013-03, *supra* at 2).

The *Examination Practice Respecting Computer-Implemented Inventions* specifically notes: "if an examiner concludes that the solution to a given problem is to perform certain calculations according to a specific equation, the use of a computer to perform the calculations may expedite the mathematical manipulations without having a material effect on the operation of the equation itself. The examiner could therefore conclude that the computer is not an essential element of the invention" (PN2013-03 at 4-5).

However, "[w]here it appears that the computer cannot be varied or substituted in a claim without making a difference in the way the invention works or that the computer is required to resolve a practical problem, the computer may be considered an essential element of the claim" (*ibid.* at 5).

The *Examination Practice Respecting Computer-Implemented Inventions* confirms that "where a computer is found to be an essential element of a construed claim, the claimed subject-matter will generally be statutory" (*ibid.* at 2).

However, where the computer is assessed to be non-essential, the claim may be found non-statutory if the essential elements of the claim define patent ineligible subject matter, including mere scientific principles and abstract theorems, "fine arts (i.e. things 'that are inventive only in an artistic or aesthetic sense'); methods of medical treatment...

disembodied inventions (including those lacking a method of practical application); e.g. inventions that lack physicality; ... e.g. inventions where the claimed subject-matter is a mere idea, scheme, plan or set of rules" (*ibid.* at 2 [citations omitted]).

To date, the new practice notices have not yet been tested in the courts. However, the Patent Appeal Board has considered the patentability of computer-related subject matter using an analysis consistent with the new practice notices on several occasions, *including: Commissioner's Decision 1337, 6 March 2013 (Canadian Patent Application* No 2285834) [CD 1337]; *Commissioner's Decision 1338*, 14 March 2013 (Canadian Patent Application No 2304195); *Commissioner's Decision 1339*, 28 March 2013 (Canadian Patent Application No 2144068) [CD 1339]; *Commissioner's Decision 1341*, 28 March 2013 (Canadian Patent Application No 2222229) [CD 1341]; *Commissioner's Decision 1345*, 22 March 2013 (Canadian Patent Application No 2333184) [CD 1345]; *Commissioner's Decision 1349*, 11 July 2013 (Canadian Patent Application No 2235566) [CD 1349]; *Commissioner's Decision 1355*, 29 November 2013 (Canadian Patent Application No 2493971) [CD 1355]; and *Commissioner's Decision 1373*, 10 October 2014 (Canadian Patent Application No 2312726) [CD 1373].

In those decisions, computerized method for interacting with postage meters was found to be statutory subject matter (CD 1337, *supra*); a computer-implemented method for the production of a standard bill of resources was found to be non-statutory (CD 1338, *supra*); a computer-implemented method for identifying and determining fraudulent transaction data and a computer controlled transaction processing system were found to be non-statutory (CD 1339, *supra*); a method of conducting electronic commerce transactions in a transaction server connected over a network to a merchant server was found to be directed to patentable subject matter (CD 1341, *supra*); an application for an automated seed sorting technique was found to be statutory subject matter (CD 1345); a method of calculating vehicle insurance using driver-related data obtained from in-vehicle sensors was found to be statutory subject matter (CD 1349); an application for a computerized auction method was denied (CD 1355); and an application for a computer-implemented financial advice system was denied (CD 1373).

Under Practice Notices currently applied at CIPO, computer-implemented inventions are generally considered patent-eligible if they are directed to a solution of a computer problem. "Computer problem" means problems with the operation of a computer as opposed to problems whose solutions may be implemented using a computer. To assess patent-eligibility, CIPO Examiners purposively construe the claims by: first identifying a problem and solution provided by the invention, and then identifying the claim elements required to solve such problem. The claim elements identified as being required to solve the problem are considered essential, while the remaining claim elements are considered non-essential. Non-essential claim elements do not lend weight to patent-eligibility. For example, a computer that is merely used as a platform to implement the solution to an identified problem may not be recognized as an essential claim element, such that if the only remaining essential claim elements are directed to subject matter that lacks physicality or is a mere idea, scheme, plan, or set of rules, then the claimed invention as a whole will be considered as pertaining to subject matter that is not patent-eligible.

Canadian jurisprudence may allow for a broader definition of patent-eligibility than what is currently being applied at CIPO. However, Canadian courts have not yet addressed whether the *de facto* CIPO practice above is in full compliance with governing law. For example, Canadian courts have indicated that claim elements that are physical in manifestation or produce a “discernible” effect or change may be found patent-eligible; without necessarily undertaking the problem-and-solution analysis noted above.

5. POSITION OF AIPPI REGARDING THE QUESTIONS OF REFERRAL G 1/19

The Enlarged Board of Appeal was charged with the Referral from Technical Board of Appeal interlocutory decision T 0489/14 dated February 22, 2019.

The following questions have been put to the Enlarged Board of Appeal by way of the current Referral:

1. *In the assessment of inventive step, can the computer-implemented simulation of a technical system or process solve a technical problem by producing a technical effect which goes beyond the simulation's implementation on a computer, if the computer-implemented simulation is claimed as such?*

2. *If the answer to the first question is yes, what are the relevant criteria for assessing whether a computer-implemented simulation claimed as such solves a technical problem? In particular, is it a sufficient condition that the simulation is based, at least in part, on technical principles underlying the simulated system or process?*

3. *What are the answers to the first and second questions if the computer-implemented simulation is claimed as part of a design process, in particular for verifying a design?*

For the reasons set out more fully below, AIPPI respectfully responds to each of the foregoing Referral questions in the affirmative, with the qualifications noted below. AIPPI thereby supports and promotes a broad recognition of the patentability of computer-implemented simulations and computer implemented inventions more generally, consistent with the official Resolutions and other work of AIPPI as presented above.

As a preliminary matter, AIPPI respectfully wishes to comment on the particular language used in the Referral questions above which references a computer simulation “as such”. AIPPI has interpreted this language to mean a computer simulation “that is claimed by itself”. The Enlarged Board of Appeal is respectfully referred to the identical expression "as such" as found in EPC Article 52 (3) , where it is used and understood to define non-technical subject matter as referenced by EPC Article 52 (2). For these reasons, AIPPI finds the use of this expression arguably confusing in the context of a determination that

relates to the computer-implemented simulation of a technical system or process, i.e. subject matter that obviously is technical due to the mandatory use of a computer and due to the underlying technical nature of the simulated system or process. AIPPI respectfully invites the Enlarged Board of Appeal to clarify this terminology in its awaited decision from the current Referral.

The issue before the Enlarged Board of Appeal in the present Referral concerns the point of law of the patentability of computer-implemented simulations and, more particularly, a method for simulating pedestrian crowd movement in an environment such as building construction, the main purpose of the simulation being its use in a process for designing a venue such as a railway station or a stadium.

Being computer-implemented, and according to established EPC case law, the referring decision of the Board of Appeal makes it clear that the claims at issue before the Board are not regarded as a subject matter that is as such unpatentable pursuant to Articles 52 (2) and (3) EPC. Rather, the issue to be decided is instead the assessment of inventive step in view of the character of the simulation feature, determined from a technical viewpoint according to the approach set out in T 641/00 – Comvik, which forms the basis for the assessment of inventive step in the practice of the EPO.

In its decision, the referring Board considers case T 1227/05, whose approach to patentability has been incorporated in the EPO Guidelines for Examination of November 2018 that are related to computer-implemented simulations. Case T 1227/05 relates to the patentability of a computer implemented simulation method using mathematical formulae. More particularly, the subject matter of case T 1227/05 is directed to the modelling of the operation of a noise-affected electronic circuit to provide for realistic prediction of the performance of a designed circuit. The foregoing modelling ideally allows the simulated circuit to be developed so accurately that a prototype's chances of successful operation can be assessed before it is built. In case T 1227/05, all steps relevant to circuit simulation, including the mathematical formulae relied upon to simulate the circuit in question, were found to contribute to the technical character of the simulation method and to be taken into account in assessing novelty and inventive step.

While the Board of Appeal in the referring decision was seemingly not fully convinced by the reasoning in the earlier decision, it is noted that if the Board were to follow case T 1227/05, it would have to acknowledge that some or all of the steps of the claimed simulation method contribute to a technical effect of the invention and could not be ignored when assessing inventive step. Although recognizing that the approach developed in case T 1227/05 suggests a different finding, the Board states that it intends to consider the subject matter as claimed to lack inventive step and further intends to deviate from the interpretation and explanations of the EPC given on this point in case T 1227/05.

AIPPI accepts the position of the referring Board of Appeal which exclusively speaks of the simulation of a technical system or process. In Section 10 of the Interlocutory Decision, the Board states as follows:

> "As to the technicality of simulating crowd movement, the appellant argued that simulating the movement of pedestrians yielded results which were no different from those obtained by modelling an electron using numerical methods. Like the simulation of an electron, the claimed simulation of the movement of pedestrians was based, at least in part, on the laws of physics. The Board does not disagree with these observations but is not convinced that numerically calculating the trajectory of an object as determined by the laws of physics is in itself a technical task producing a technical effect."

The subject matter of the Referral herein (a computer-implemented simulation of a technical system or method) may have two potential technical qualities that must be considered in an assessment of inventive step under the approach set out in T 641/00 - Comvik, namely:

(a) the implementation of the simulation on a computer (which may or may not be inventive); and
(b) the technical nature of the underlying system or method that is being simulated.

As was noted above, in an increasing number of fields in the engineering sciences, the application of numerical simulation has become a cost-effective alternative to expensive, experimental investigations consuming significant time and personnel resources. Physical testing or physical trials undisputedly have technical character and produce a technical effect beyond the mere test or trial, in that they are used for building new and better systems. There is no reason to consider this differently, if another technical device – a computer – is used to perform the testing. In answer to Question 1 above, the subject matter of the claims at issue before the referring Board of Appeal, in the very same way as physical testing, creates a technical effect beyond merely carrying out the test, in that computer simulations of a technical system produce a technical effect which goes beyond the simulation's implementation on a computer.

As noted in case T 1227/05, industrial simulation methods are becoming more and more crucial to technological progress and that, in a globally distributed industry, development and production are becoming increasingly separated, both materially and geographically. The referring Board confirms that there is no doubt that the significance of numerical development tools has increased even more since case T 1227/05 was decided and notes that, in view of the important role that numerical development tools and in particular computer-implemented simulations play nowadays in the development of new products, legal certainty in respect of the patentability of such tools is highly desirable. The Board further recognizes that the approach developed in case T 1227/05 suggests finding the subject matter of claim 1 of the main request to have inventive step and notes that this is the approach which currently prevails in the jurisprudence and is also included in the Guidelines for Examination in the EPO of November 2018.

In view hereof, there is no doubt that not following the approach of T 1227/05 would represent an unjustified step back in the development of the law on the patentability of

computer-implemented numerical simulations and its adaptation to the technological development. Such a step back in the development of EPC case law relating to computer-implemented simulations would also be contrary to the intention to leave the interpretation of EPC open for adapting to technical developments of such a radical nature as have been brought into existence by the digital era.

In answer to Question 2 above, the computer simulation of a technical process or system, i.e. a process or system governed by laws of nature, makes a technical contribution. The computer simulation constitutes a tool that automatically, without human interaction, provides knowledge about the behaviour of the technical system or process under certain conditions.

By way of example, if a new and non-obvious procedure is proposed to gain knowledge in a virtual simulation about otherwise unrecognizable real processes in the physical world, a technical contribution should generally be acknowledged. By way of analogy to long-recognized patentable subject matter, a microscope that reveals small structures makes a technical contribution, and a thermal imaging camera that reveals invisible IR radiation makes a technical contribution. Similarly, a simulation method that allows real world processes to be recognized and revealed should also be considered to make a technical contribution. Such a simulation uses technical means (computers and software) and enables the user thereof to recognize and analyze real world processes that would not otherwise be recognizable and analyzable without the simulation in question.

The considerations in the referring decision, that the simulation may theoretically be executed by a human mind without the use of a computer cannot be accepted as a basis for deciding on the patentability of a computer-implemented simulation. The feature in the claim of the simulation being computer-implemented leads to an electronic device that produces the technical effect (simulation results) without any human interaction. As per the examples above, computer-implemented simulation should be considered like any other system that makes the effects and features of technical processes or systems visible to human users of the simulation or to machines receiving data from the simulation.

Accordingly, the question of whether or not a computer simulation of a process or system makes a technical contribution and is thus patentable depends on the question whether the simulated process or system itself is technical. The technical character of the simulated process or system should be examined using the same criteria as for other (computer-implemented) inventions.

As a result, AIPPI respectfully proposes that in the assessment of inventive step, the following two aspects should be considered when establishing the technical content of a claim related to computer-implemented simulations:

(a) First, is the underlying simulated process or system technical in and of itself?
(b) Second, is the simulation on a technical device (e.g. computer or software implementation) a feature of the claim?

Where at least one of the foregoing questions (a) and (b) is answered in the affirmative, the computer simulation in question should be duly recognized as having technical character and being patentable if it fulfills the general patentability requirements, i.e. novelty, inventive step and industrial application. Like all other computer-implemented inventions, the subject matter identified by questions (a) and/or (b), should be accepted as patentable if it is new and non-obvious.

Based on the foregoing proposed test, the answer to referral Questions 1 and 2 above remain the same where the computer-implemented simulation is part of a design process such as the verification of a design, provided the underlying simulated process or system is technical in and of itself. With this proviso, AIPPI respectfully likewise responds to Question 3 above in the affirmative.

In conclusion, it was mentioned above how the referring Board also in its decision notes the important role that numerical development tools and, in particular, computer implemented simulations, play nowadays in the development of new products. This confirms the need for the pragmatic development of the patentability of computer-implemented simulations in order to further adapt the European patent system to the protection of new and non-obvious simulation solutions that are used as tools for technical development in a new technical era.

All of this therefore requires the approach of case T 1227/05 to be confirmed by the Enlarged Board of Appeal. Moreover, the present Referral should be decided on the basis of its particular facts in conformity with the said approach, and without adopting any new general principle as may perhaps be implied by the Referral questions.

For all of the foregoing reasons, AIPPI submits respectfully that each of the Referral questions be answered in the affirmative.

1 September 2019