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Hereby a Written Statement (“Amicus Brief”) is filed on behalf of the following companies:

1. Microsoft Corporation, One Microsoft Way, 98052-6399 Redmond WA, U.S.A.;
2. General Electric Company, 3135 Easton Turnpike, W3-86 Fairfield, CT 06828-0001, U.S.A..

It is respectfully suggested to send any correspondence with regard to the enclosed Written Statement, as well as with regard to any other aspects of procedure G3/08, to the Munich office of Forrester & Boehmert, attention to the undersigned. Reference is made to General Authorization No. 49637, issued in favour of Forrester & Boehmert by Microsoft Corporation.

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Prof. Dr. Heinz Goddar

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**Written Statement in Respect of Referral Under EPC Article 112(1)(b)**

**Case No. G3/08**

On behalf of Microsoft Corporation, One Microsoft Way, Redmond, Washington, USA 98052-6399 and General Electric Company, 3135 Easton Turnpike, W3-86, Fairfield, Connecticut, USA 06828-0001 the following written statement is provided with regard to the Referral by the President of the European Patent Office (“EPO”) of October 22, 2008, pursuant to Article 10 of the Rules of the Procedure of the Enlarged Board of Appeal.

**1. INTRODUCTION**

Microsoft and GE appreciate the leading role the EPO and the Boards of Appeal have played in establishing a reliable framework for patent protection of computer-implemented inventions. Considering the substantial and growing role that digital technology plays in the world economy and in the everyday lives of consumers, we believe that it is of critical importance that strong patent protection for computer-implemented inventions be retained, while giving the exclusion regarding computer programs “as such” an appropriate and consistent interpretation, as described below.

Both GE and Microsoft have made substantial investments in developing technologies that are directly implicated by the issues raised in the Referral by the President of the EPO to the Enlarged Board of Appeal. In relation to the questions posed by the Referral, the core principles of the jurisprudence of the boards of appeal have remained substantially consistent over the years. And while there have been some variations in the case law over the past two decades, in several of the instances of alleged divergence identified by the Referral we believe the decisions to be consistent and – to the extent some divergence can be discerned – it does not appear to be particularly significant. As many of these purportedly divergent decisions apply the same fundamental legal principles articulated by the Board in early cases such as T 208/84 – Vicom,<sup>1</sup> they may be better understood as a natural evolution, rather than a fundamental divergence, of the case law. Furthermore, as explained below, although the Board

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<sup>1</sup> T 208/84 – Vicom, OJ 1987, 14.

cases have at times emphasized various aspects of the analysis used to assess the “technical character” that is a prerequisite to patentability pursuant to the Convention on the Grant of European Patents (hereinafter “EPC”), these approaches are all based on the same basic criteria and – if appropriately applied – almost invariably result in the same outcome on the question of ultimate patentability.

While we believe the decisions cited in the Referral to be generally consistent as to the specific questions set forth by President Brimelow, we take no formal position on the admissibility of the referral under Article 112(b) of EPC. Rather, in view of the unquestioned competence of the Enlarged Board of Appeals to consider the meaning and import of prior decisions and whether the referral is admissible, we limit our submission to a summary of our understanding of the relevant case law, followed by substantive responses to the questions set forth in the Referral.

### **1.1. Overview of the Case Law**

The Board’s Vicom decision established the core principles governing the patentability of computer-implemented inventions under the EPC and it remains the foundation for EPO practice today (Case Law of the Boards of Appeal of the European Patent Office, 5<sup>th</sup> edition 2006, p.3). In T 208/84 – Vicom, the Board held that a computer program used to solve a technical problem cannot be regarded as a computer program “as such.” In reaching this conclusion, the Board explained that:

“... a claim directed to a technical process which process is carried out under the control of a program (whether by means of hardware or software), *cannot be regarded as relating to a computer program as such*, within the meaning of Article 52 (3) EPC, as it is the application of the program for determining the sequence of steps in the process for which in effect protection is sought.”<sup>2</sup> (emphasis added).

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<sup>2</sup> T 208/84 – Vicom, section 12 of the reasons.

Here, the Board distinguished between a purely abstract (excluded) algorithm or mathematical method and a “technical process” that can constitute an invention in the sense of Article 52(1) EPC:

*“A basic difference between a mathematical method and a technical process can be seen, however, in the fact that a mathematical method . . . provides a result also in numerical form, the mathematical method or algorithm being only an abstract concept prescribing how to operate on the numbers. No direct technical result is produced by the method as such. In contrast thereto if a mathematical method is used in a technical process that process is carried out on a physical entity (which may be a material object but equally an image stored as an electric signal) by some technical means implementing the method and provides as its result a certain change in that entity.”<sup>3</sup> (emphasis added).*

As reflected in this paragraph, T 208/84 – Vicom firmly established that claimed subject matter relating to computer programs was not to be considered a computer program “as such” if it produced technical results or used technical means. To this day, these two considerations (technical results or effects and technical means) constitute the foundational concepts for assessing whether claimed subject matter has a “technical character” and is thus an “invention” with the meaning of Article 52(1).

The other early leading case in this area, T 26/86 – Koch & Sterzel<sup>4</sup>, examined an X-ray apparatus that was operated in part by means of a computer program. Here, the Board concluded that the manner in which the algorithm (or routine) controlled the operation of the X-ray apparatus resulted in a technical effect. Furthermore, the Board flatly rejected the contention that the X-ray apparatus and program should be independently considered because the technical effects occurred only periodically (at the end of each computing operation). Responding to this argument that the features of the claimed subject matter should be considered separately or independently, the Board stated that:

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<sup>3</sup> T 208/84 – Vicom, section 5 of the reasons.

“*When* the technical effect occurs is irrelevant to the question of whether the subject-matter claimed constitutes an invention under Article 52(1) EPC. The only fact of importance is that it occurs at all.”<sup>5</sup> (emphasis added).

Making a similar point, the Board also emphasized that the invention *as a whole* should be considered in assessing technical character, stating that it was:

“unnecessary to weigh up the technical and non-technical features in a claim in order to decide whether it relates to a computer program as such. If the invention defined in the claim uses technical means, its patentability is not ruled out by Article 52(2)(c) and (3) . . . .”<sup>6</sup>

These seminal early cases established the core principles that are still applied today in assessing the patentability of computer-implemented inventions, namely that a technical process carried out under the control of a program cannot be regarded as relating to a computer program “as such” and that the invention as a whole (*i.e.*, the combination of all features of the invention) should be considered when assessing technical character. However, in building upon this initial foundation, the case law continued to evolve as the Boards of Appeal have sought to establish a workable approach to assessing “technical character.”

For example, in one line of cases, the Boards of Appeal applied the “contribution approach,” according to which claimed subject matter comprising both technical and non-technical features is deemed technical in character if it provides a technical contribution in a field not excluded from patentability.<sup>7</sup> Under this approach, a technical contribution was considered to be present if a technical problem was solved,<sup>8</sup> which was determined in part by assessing

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<sup>4</sup> T 26/86 – Koch & Sterzel, OJ 1988, 19.

<sup>5</sup> T 26/86 – Koch & Sterzel, section 3.2 of the reasons.

<sup>6</sup> T 26/86 – Koch & Sterzel, section 3.4. of the reasons.

<sup>7</sup> *E.g.*, T 121/85; T 38/86, OJ 1990, 384; T 603/89, OJ 1992, 230.

<sup>8</sup> See, e.g., T 38/86; T 769/92 – SOHEI, OJ 1995, 525.

whether the implementation of the invention involved technical considerations.<sup>9</sup> The “contribution approach” has been criticized in subsequent case law because – as applied in some cases – it distinguished between novel features and those that were known from the prior art,<sup>10</sup> an analysis more appropriate for determining novelty and inventive step.<sup>11</sup> These later cases correctly recognized that the absolute requirement of technical character should not be conflated with the relative requirements of novelty and inventive step. However, this refinement in the application of Article 52 did not reject the assessment of technical character based on whether the claimed invention constituted the solution to a technical problem, nor did it reject the more general notion of a technical contribution.<sup>12</sup> Rather, these cases correctly identified the first as the criterion to be considered in applying Article 52(2) and (3), and the second as more appropriately considered in the context of novelty and inventive step.

Similarly, T 1173/97 – Computer Program Product refined the “technical effects” analysis, holding that the “normal” physical effects associated with the execution of instructions contained in a computer program are not in themselves sufficient to establish technical character.<sup>13</sup> However, technical character in this context can be established by demonstrating “further effects” deriving from the execution (by the hardware) of computer program instructions: “Where said further effects have a technical character or where they cause the software to solve a technical problem, an invention which brings about such an effect may be considered an invention, which can, in principle, be the subject-matter of a patent.”<sup>14</sup>

Thus, a computer program is not excluded from patentability if it produces, or is capable of producing, a technical effect that is something more than the normal effects that are a “common feature of all programs that have been made suitable for being run on a computer.”<sup>15</sup>

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<sup>9</sup> T 769/92 – SOHEI, section 3.3. of the reasons.

<sup>10</sup> T 1173/97 – Computer Program Product, OJ 1999, 609, section 8 of the reasons; T 931/95 – Pension Benefit Systems Partnership, OJ 2001, 44.

<sup>11</sup> T 1173/97 – Computer Program Product, section 8 of the reasons, T 258/03 – Hitachi, OJ 2004, 575, section 3.3. of the reasons, concurring.

<sup>12</sup> T 641/00 – Comvik, OJ 2003, 352, T 1177/97 – SYSTRAN.

<sup>13</sup> T 1173/97 – Computer Program Product, section 6.2 of the reasons.

<sup>14</sup> T 1173/97 – Computer Program Product, section 6.4 of the reasons.

<sup>15</sup> T 1173/97 – Computer Program Product, section 6.2 of the reasons.

Other cases further emphasized technical means, a consideration that was first applied in the context in T 208/84 – Vicom and which has been applied in the case law ever since. For example, in T 931/95 – Pension Benefit Systems Partnership, the Board noted that:

“... a computer system suitably programmed for use in a particular field, even if that is the field of business and economy, has the character of a concrete apparatus in the sense of a physical entity, man-made for a utilitarian purpose and is thus an invention within the meaning of Article 52(1) EPC. ... An apparatus constituting a physical entity or concrete product suitable for performing or supporting an economic activity is an invention within the meaning of Article 52(1) EPC.”<sup>16</sup>

The decision T 258/03– Hitachi<sup>17</sup> concurred with T 931/95 – Pension Benefit Systems Partnership and concluded a method involving technical means is an invention within the meaning of Article 52(1) EPC. The Hitachi case explained that those activities falling within the exclusions “as such” are purely abstract concepts devoid of any technical implications. This was again confirmed in T 424/03 – Microsoft in which the Board – following the reasoning of T 1173/97 – Computer Program Product – again emphasized the distinction between a method implemented in a computer system, *i.e.*, a sequence of steps actually performed and achieving an effect, and a computer program, *i.e.*, a sequence of computer-executable instructions, merely having the potential of achieving such an effect.<sup>18</sup> Regarding the claim to a computer-readable medium having a program stored thereon, the Board applied the criterion on further technical effect set up in T 1173/97 – Computer Program Product.

While some may argue that these approaches for assessing technical character (*i.e.*, based on contribution, further technical effect, and use of technical means) reflect a divergence in the case law, these approaches are in substance based on the same criteria and generally produce precisely the same outcome on the issue of ultimate patentability (*i.e.*, whether or not a patent relating to a particular invention will be granted).

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<sup>16</sup> T 931/95, Pension Benefit Systems Partnership section 5 of the reasons.

<sup>17</sup> T 258/03 – Hitachi, section 3.8. of the reasons.

<sup>18</sup> Cf. T 1173/97 – Computer Program Product, sections 9.4 and 9.5 of the reasons.

## 1.2 Additional Discussion of Further Technical Effects and Contribution Approach

With respect to assessing a further technical effect, although the fundamental reasoning of the T 1173/97 – Computer Program Product decision is sound, the decision did not establish a clear criterion distinguishing the “common features of all programs” or “normal operation” of a computer from the requisite “further effects.” This resulted in ambiguity regarding, *inter alia*, precisely what types of effects were to be considered, whether the object of such effects was relevant to the determination, and whether the technical effect of individual features should be considered in isolation or whether the relevant effect was that of the invention as a whole.

Notably, T 1173/97 – Computer Program Product limits its understanding of the “normal” effects that cannot establish patentability to the very narrow set of physical effects that are necessarily produced during a computer’s execution of instructions. This is reflected in the decision’s description of these normal effects as those that “are a common feature of *all* those programs for computers which have been made suitable for being run on a computer”<sup>19</sup> (emphasis added) and of “further technical effects” as those that go “beyond the ‘normal’ physical interactions between the program (software) and the computer (hardware).”<sup>20</sup> In this sense, the concept of “further effects” merely distinguishes between those physical phenomena that are the *necessary incidents* of computer-implementation of a method (*e.g.*, the changes in the electrical charge of memory cells occur when writing data to RAM memory, the changes in magnetic polarity that result from storing the software code on a hard drive, *etc.*) from the *intended results* of implementing the method (*e.g.*, achieving faster retrieval of data from RAM memory or shorter seek times on a hard disk). In other words, the “normal” effects as discussed in T 1173/97 – Computer Program Product comprise only the necessary physical “byproducts” of computer implementation. Nevertheless, the decision did not establish a clear standard for defining such “normal” effects or in defining a clear criterion distinguishing them from “further effects.” Similar challenges arose in the application of the contribution approach, as it was not clear in practice what art the subject matter was to be compared with

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<sup>19</sup> T 1173/97 – Computer Program Product, section 6.2 of the reasons.

<sup>20</sup> T 1173/9 – Computer Program Product, section 13 of the reasons.

in order to assess its “contribution,” and also not clear how to define the scope of the excluded field of technology to allow for a consistent understanding of what types of contributions would suffice to establish eligibility for patent protection. Additionally, in some cases, the contribution approach, when combined with a weighting of the features as to their importance or whether they relate to the core or essence of an invention, resulted in premature rejection of the invention without a proper assessment of whether the combination of all technical features of the claim was obvious over the prior art.<sup>21</sup>

Difficulties in the proper application of these approaches led to uncertainty for applicants and third parties. And due to the lack of a clear standard for either approach, the deciding bodies came to different (and sometimes inconsistent) conclusions as to what should constitute a sufficient contribution and what would suffice for “further technical effects.” Although some may interpret these inconsistencies under earlier case law as reflecting a divergence on underlying legal standards, in general they appear to relate not to variation on legal issues, but rather to the inherent difficulty of applying certain types of legal standards to differing factual scenarios and to a lack of clarity on definitional matters. Although both “technical effects” and “technical contribution” are – and should remain – *relevant* to determining ultimate patentability, in our view neither alone is sufficiently clear to provide a workable standard for assessing technical character.<sup>22</sup>

In contrast, we believe that the process set forth in recent cases, which retains the underlying criteria pertaining to “further technical effects” and “technical contribution,” but applies these criteria in a clearer and more principled manner, provides greater predictability, and minimizes the risk that an examination will end prematurely without adequately considering the

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<sup>21</sup> “[The Board] sees practical objections to a need to give a weighting to technical and non-technical aspects . . . . Not only is such a decision fraught with difficulties in practice; it also has the effect of making the teaching unpatentable in its entirety if the greater part is non-technical and even though the technical aspect which is found to be subordinate is in fact judged to be novel and to involve inventive step” T 26/86 – Koch & Sterzel, section 3.4 of the reasons.

<sup>22</sup> For sake of clarity, it should be emphasized that this is not intended as an implicit criticism of the manner in which the Boards of Appeal have applied these standards or to suggest a systematic lack of analytical rigor in application of these standards. Rather, in our view the difficulty stems from the difficulties associated with assessing technical character based on standards involving secondary or indirect characteristics of the subject matter, such as contribution or effects, which involve difficult judgments to be made in their application to a particular set of facts.

features of the claimed subject matter. In sum, the case law initiated with the decisions T 641/00 – Comvik and continued by T 258/03 – Hitachi, limiting the examination of novelty and inventive step to the combination of all technical features of a claim, have provided clearer and more workable standards for applying the Article 52 exclusion and for determining the ultimate patentability of the claimed invention.

As discussed in more detail below, however, this case law does not clear the way for more liberal patenting of computer-implemented inventions in general. To the contrary, the ultimate outcome as to patentability will almost invariably be the same under T 258/03 – Hitachi as it would have been under the previous case law. From the perspective of GE and Microsoft as frequent applicants and significant patent holders, it does not appear that obtaining patents for computer-implemented inventions has become easier, but our perception is that the process of examination is more logical and orderly, and the ultimate outcome is more consistent and predictable. This type of predictability and consistency is crucial if the patent system is to have its intended effect of creating incentives to invest in research, development and commercialization of new technologies. The more that innovators, patent owners, and third parties are able to rely on predictable, consistent outcomes in examination, the more likely it is that they will rely on the patent system to incentivize their efforts to advance development of technology and its commercialization.

## 2. STATEMENTS ON THE QUESTIONS

### 2.1. Question 1: *Can a computer program only be excluded as a computer program as such, if it is explicitly claimed as a computer program?*

No. In its decisions and analysis, the Board has consistently concluded that claims must be interpreted as a whole and given the meaning that a skilled reader would give them. Thus, while the claimed subject matter must, of necessity, be defined by the language of the claims themselves, the exclusion cannot be circumvented by merely avoiding use of the specific phrases or terms, such as “computer program” or “computer program as such.” Similarly,

claims explicitly directed to a computer program will not necessarily fall within the exclusion in Article 52(2) EPC.

However, this does not mean that differences in claim language and claiming practice may simply be disregarded as irrelevant or inconsequential when determining the scope of the claimed subject matter and applying Article 52(2) EPC.<sup>23</sup> As the Board stated in T 756/06 – Fujitsu:

“... it goes without saying that a proper analysis of the claims must be performed. In particular, a perfunctory analysis involving a loosely paraphrased wording of the claim should be *avoided* so as not to miss any features that might contribute to the technical character of the claimed subject-matter.”<sup>24</sup> (internal citation omitted and emphasis added)

In sum, consistent with conventional claim construction, it is the meaning of the claim itself that must be used to determine the applicability of Article 52(2). And, although frequently relevant, the particular claim forms and terms of art are not determinative of the applicability or inapplicability of the exclusion.

### 2.1.1. Further Discussion

Although question 1 is nominally about claim form, the corresponding discussion in the Referral raises additional issues that warrant brief comment.

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<sup>23</sup> The Enlarged Board has recently noted the importance of using the claim language to define the relevant subject matter in applying exclusions:

“Article 84 EPC requires that the claims define the subject-matter for which patent protection is sought, and that they must be clear. It signifies that an independent claim within the meaning of Rule 29 EPC should explicitly specify all of the essential features needed to define the invention, and that the meaning of these features should be clear for the person skilled in the art from the wording of the claim alone. The same should apply *mutatis mutandis* in respect of a claim relating to the subject-matter excluded from patent protection under Article 52(4) EPC. These requirements serve the overriding purpose of legal certainty.” G01/04 – Diagnostic Methods, section 6.2 of the reasons.

<sup>24</sup> T 756/06 – Fujitsu, section 6 of the reasons.

*First*, the Referral seems to imply that the distinction between “a method implemented in a computer” and a “computer program” is (or, perhaps, should be) irrelevant or inconsequential in applying Article 52(2) EPC. That proposition has been consistently rejected in the case law, beginning with T 208/84 – Vicom. This implicit assumption also ignores the Board’s repeated interpretation of the exclusions of Article 52(2) EPC as excluding only abstract subject matter.<sup>25</sup>

Moreover, it is virtually impossible to square this proposition with the actual language of Article 52(2) and (3). The drafters of the EPC could have excluded “computer-implemented methods” or “methods of operating a computer,” as they did in the adjacent phrase relating to “mental acts, playing games or doing business.” Alternatively, they could have used broader language such as the “schemes, rules, and methods for” phrase or simply by excluding any subject matter “including” or “comprising” a computer program or a programmable computer. However, they did not employ such language, but simply excluded “programs for computers.” Clearly, if this broader reading of the Article 52(2) EPC exclusion had been intended, the drafters would not have included Article 52(3) EPC, which limits the effect of the exclusions to the “subject-matter or activities as such.” (*see* T 208/84 – Vicom, especially section 12 of the reasons, and T 1173/97 – Computer Program Product, section 5.4. of the reasons). In our view, both the case law and the plain language of the EPC foreclose the possibility that the distinction between “computer-implemented methods” and “computer programs as such” should be treated as irrelevant to the application of Article 52(2) and (3) EPC.<sup>26</sup>

Similarly, the contention in the Referral that “if one were to follow the reasoning of T 424/03 – Microsoft, overcoming the exclusion of programs for computers would become a formality” inappropriately proceeds from the assumption that the intent of the exclusion is broader than its literal meaning. By contrast, a neutral interpretation leads one to conclude that the exclusions in Article 52(2) EPC reflect specific illustrations of the general rule that precludes the patenting of abstract conceptual or “cognitive” matter itself, but which does *not* exclude applications of such conceptual matter in the physical world (for example, by its embodiment in

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<sup>25</sup> E.g., T 258/03 – Hitachi; T 163/83 – BBC, T 0208/84 – Vicom, section 5 of the reasons.

<sup>26</sup> *See, e.g.*, T 1173/97 – Computer Program Product, section 5.4 of the reasons (“Article 52(3) EPC ... does not allow a broad interpretation of the scope of the exclusion.”).

a physical article or a method that uses physical means). However, if one starts from a neutral interpretation – as the Board has done – then rather than reducing the exclusion to an easily-evaded formality, the Board’s interpretation effectuates precisely what was intended by precluding the patentability of disembodied abstract matter standing alone (*cf.* T 1173/97 – Computer Program Product, section 5.2 of the reasons).

*Second*, and more importantly, we question whether the Referral completely and accurately interprets the holding of T 424/03 – Microsoft. In characterizing that case, the Referral contends that the decision “placed emphasis on the manner in which the computer program is claimed.” It is not clear that this is correct. The decision in T 424/03 – Microsoft did not state that a computer program falls outside the scope of the exclusion if it is claimed as a “computer-implemented method.” Rather, the decision cites T 258/03 –Hitachi for the proposition that “a method using technical means is an invention within the meaning of article 52(1) EPC.”<sup>27</sup> The decision goes on to state that “A computer system including a memory (clipboard) is a technical means, and consequently the claimed method has technical character in accordance with established case law.” *Id.* Thus, rather than a formalistic distinction turning on claim form, the analysis in T 424/03 instead turned on the Board’s conclusion that the method in question used technical means, and therefore had technical character.

The analysis in T 424/03 – Microsoft did not end there. The Board went on to consider “further technical effects,” specifically citing T 1173/97 – Computer Program Product, section 5.3 of the reasons as authority. The summary analysis regarding the computer-readable media claim aptly encapsulates the full reasoning of this case:

The subject-matter of claim 5 has technical character since it relates to a computer-readable medium, *i.e.* a technical product involving a carrier (see decision T 258/03 – Hitachi cited above). Moreover, *the computer-executable instructions have the potential of achieving the above-mentioned further technical effect* of enhancing the internal operation of the computer, which goes beyond the elementary interaction of any hardware and software of data processing (see T 1173/97 – Computer program product). *The computer program recorded on the*

*medium is therefore not considered to be a computer program as such, and thus also contributes to the technical character of the claimed subject-matter.*<sup>28</sup> (emphasis added)

From this passage it is clear that the Board in fact did *not* reject the analysis in T 1173/97 – Computer Program Product or rely solely on the use of technical means to establish patent eligibility of computer programs. Rather (consistent with T 1173/97 – Computer Program Product) the Board concluded that, because the computer program at issue had the potential of achieving further technical effects, the program contributed to the technical character of the claimed subject matter. Consistent with T 258/03 – Hitachi, the Board concluded that the use of technical means *also* contributed to the technical character of claimed subject matter.

In sum, contrary to the Referral’s supposition that T 424/03 – Microsoft concluded that a computer program product was patent-eligible based solely on its use of technical means, it appears that the Board previously concluded that the computer program at issue was not a computer program as such (based on “further technical effects”) and, thus, that it – along with the claimed technical means – contributed to the technical character of the claimed subject matter (which included both the program and the computer-readable medium). This analysis neither diverges from nor conflicts with T 1173/97 – Computer Program Product.

## 2.2. Question 2

**Question 2(A):** *Can a claim in the area of computer programs avoid exclusion under Article 52(2)(c) and (3) EPC merely by explicitly mentioning the use of a computer or a computer-readable data-storage medium?*

No. It is an implicit requirement under Article 52(1) that an invention must have a technical character. Thus, the term “invention” is to be understood as meaning “subject-matter having technical character” (T 931/95 – Pension Benefit Systems Partnership; T 258/03 – Hitachi; T

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<sup>27</sup> T 424/03 – Microsoft, section 5.1 of the reasons.

619/02 – Quest; T 914/02 – GEC). However, we would note that the answer to this question depends on the nature of the claim, as Article 52 (2) (c) and (3) EPC do not exclude subject matter in the “area of computer programs,” but only computer programs “as such.” Thus, the exclusion does not apply to claims relating to a computer system adapted to perform a method under the control of a computer program or to a related method of operating a computer under the control of a program.<sup>29</sup>

The EPC clearly does not prohibit the patenting of inventions consisting of a combination of technical and non-technical elements, rather the case law has consistently required that an invention must be considered as a whole when assessing its technical character. (T 26/86 – Koch & Sterzel; T 258/03 – Hitachi). Technical means such as a computer or computer readable medium are relevant and may contribute to technical character of the subject matter of a claim. As regards claims to a program stored on a computer-readable medium, the mere mention of a data carrier or a computer is not dispositive absent a functional relationship between the data carrier or the computer and the program which is to be executed. The latter is especially the case if the data embodying the program comprise functional data in the sense of the decision T 1194 /97 – Data Structure Product. For the sake of clarity, it should be noted that a functional relationship between the program and a computer is also necessary in a method or apparatus claim. If the computer is not controlled or adapted to be controlled by the program, but the program is entirely unrelated to the operation of the computer, *e.g.*, in the sense that it is simply stored in the computer as “cognitive data,” the mention of a computer is, of course, not sufficient.

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<sup>28</sup> T 424/03, section 5.3 of the reasons.

<sup>29</sup> T931 /95 – Pension Benefit Systems Partnership and T258/03 – Hitachi. It should be noted that a claim to a computer provides a protection for all possible uses of the computer, including the operation under the control of the program. Hence, apparatus claims and method claims should reasonably be considered in the same way.

**Question 2(B):** *If question (A) is answered in the negative, is a further technical effect necessary to avoid exclusion, said effect going beyond those effects inherent in the use of a computer or data-storage medium to respectively exclude or store a computer program?*

No. Technical character is required to avoid exclusion under Article 52(2) and (3) EPC. The decision T 1173/97– Computer Program Product referred to a further technical effect as one possible way of establishing technical character (T 1173/97 – Computer Program Product, section 6.4 of the reasons). Technical character can, however, also be established in a different way, *e.g.* by the nature of the data incorporating the program. If there are functional data in the sense of the decision T 1194/97 – Data Structure Product, this establishes technical character as well. Technical character is established if the claim defines a solution to a technical problem by technical means. Additionally, generally if a claim recites technical means that are functionally related to the claimed program, this will be sufficient to establish technical character, as discussed above.

### **2.2.1. Further Discussion**

It is well established that a claim involving a computer program does not fall within the exclusion in Art. 52 (2) and (3) if the claimed subject matter defines a solution to a technical problem by technical means (T 1173/97 – Computer Program Product and T 258/03 – Hitachi).

Although T 258/03 – Hitachi held that any recitation of technical means suffices to place a claim outside the scope of the exclusion of business methods,<sup>30</sup> it is important to note that the approaches in T 258/03 – Hitachi and T 1173/97 – Computer Program Product lead to consistent outcomes with respect to the ultimate question of patentability. As stated by the Board in T 258/03 – Hitachi:

“... Needless to say, however, this does not imply that all methods involving the use of technical means are patentable. They still have to be new, represent a non-obvious technical solution to a technical problem, and be susceptible of industrial application.”

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The decision then goes on to state that:

“... in accordance with the principles set out in decision T 641/00 – Comvik, the invention will be assessed with respect to the requirement of inventive step by taking account of only those features which contribute to a technical character.”<sup>32</sup>

Clearly, the mere mention of a prior art computer or computer-readable medium provides no assistance in demonstrating inventive step, and thus does not help establish the ultimate patentability of the invention. Similarly, simply adding to a method the obvious step of implementing “by computer” or “in a computer” will be irrelevant to establishing inventive step.

Notably, only those elements that contribute to technical character that were (either alone or in combination) not obvious or previously known will be of assistance in establishing novelty and inventive step. Thus, if the recited technical means are known in the prior art (*e.g.*, the claim contains a mere reference to an obvious implementation using a prior art computer or computer readable medium), it will generally be necessary to demonstrate some “further” technical effect as defined in T 1173/97 – Computer Program Product (*i.e.*, something beyond the effects resulting from an obvious implementation using a prior art computer or computer-

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<sup>30</sup> “[Technical character] ... may be conferred to a nontechnical activity by the use of technical means. In particular, the Board holds that the latter cannot be considered to be a non-invention ‘as such’ within the meaning of Article 52(2) and (3) EPC.” T 258/03 – Hitachi, section 4.5 of the reasons.

<sup>31</sup> T 258/03 – Hitachi, section 4.6. of the reasons; *see also* T 1173/97 – Computer Program Product, section 6.5. of the reasons.

<sup>32</sup> TT 258/03 – Hitachi, section 5.3. of the reasons.

readable medium).<sup>33</sup> Accordingly, where a computer program is claimed (either alone or in combination with a computer or computer-readable media), under either T 1173/97 – Computer Program Product or T 258/03 – Hitachi, the ultimate patentability of the invention will depend on whether the claimed subject matter results in an inventive “further technical effect.” Accordingly, the analyses of both T 1173/97 – Computer Program Product and T 258/03– Hitachi base their ultimate conclusions regarding whether claimed subject matter can be patented on precisely the same criteria. And, to the extent there is a different approach to the examination, this difference is not one that alters the ultimate outcome. They differ only on the question of whether a further technical effect is examined in the context of applying Article 52(2) and (3) or in the context of inventive step. Because the requirements of being an invention (in the sense of Article 52(1)) and of involving inventive step are requirements that give rise to concurrent objections to patentability, any difference is logically irrelevant to the ultimate outcome in examination.

As noted above, however, given this lack of any significant effect on what subject matter ultimately receives patent protection, we agree with the comments in several decisions in recent years, recognizing that the practical difficulties and concerns regarding the contribution approach argue strongly in favor of the approach taken in T 258/03 – Hitachi. (*See, e.g.*, sections 3.5 and 3.6 of the reasons).

### 2.3. Question 3

**Question 3(A): *Must a claimed feature cause a technical effect on a physical entity in the real world in order to contribute to the technical character of the claim?***

No. To be considered technical, a feature can relate *either* to a physical entity *or* to physical effects (*i.e.*, “technical effects”). A feature comprising a physical entity is “technical” *per se*

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<sup>33</sup> In other words, if the technical means (and corresponding implementation) are not inventive, the only remaining option for establishing an inventive step is by demonstrating technical effect. And, because the normal operation of a computer is obvious, the only technical effect that can suffice to establish inventive step is precisely the same “further technical effect” described in T 1173/97 – Computer Program Product.

without any requirement that an independent technical effect be identified. Absent physical structure, a feature may nonetheless be considered technical if it has technical effects. Accordingly, identifying technical effect is not invariably required to establish that a feature is technical in nature.

Moreover, although claimed subject-matter as a whole must have “technical character” to qualify as an “invention” within the meaning of Article 52(1) EPC,<sup>34</sup> there is no requirement that each feature or element of the claimed subject matter have an independent technical effect in order to contribute to technical character. Rather, the inherent character of the claimed subject matter must be assessed by considering the invention as a whole. Accordingly, the technical effects of specific features are not required to be considered independently or in isolation. Rather, it is the technical effects caused by the claimed invention as a whole (to which the specific features contribute) that is ultimately relevant to establishing technical character.<sup>35</sup> Thus, a feature that does not directly cause the technical effect can nevertheless contribute to technical character so long as the feature is one of several “necessary means” that – in combination – produce a technical effect.<sup>36</sup>

Finally, we would note that some care is appropriate in understanding what constitutes a “technical effect on a physical entity in the real world.” Assuming a straightforward, literal understanding of the term “physical” renders the reference to the “real world” completely redundant. However, as noted in our answer to Question 3(c) below, the discussion in parts of the Referral could be read to suggest implicitly that the internal operations of a computer somehow do not occur in the “real world.” To be applied appropriately, the concept of “physicality,” which defines the real (or physical) world must be properly understood and

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<sup>34</sup> T 931/95 – Pension Benefit Systems Partnership; T 258/03 – Hitachi; T 619/02 – Quest, OJ 2007, 63; T 914/02 – GEC.

<sup>35</sup> “Where said further effects have a technical character or where they cause the software to solve a technical problem, *an invention which brings about such an effect* may be considered an invention, which can, in principle, be the subject-matter of a patent.” T1173/97 – Computer Program Product, section 6.4 of the reasons.

<sup>36</sup> As stated in T 1173/97 – Computer Program Product, section 6.5 of the reasons “a patent may be granted ... where a program for a computer is *the only means, or one of the necessary means, of obtaining a technical effect.*” (emphasis added). As is clear from this statement, it is not required that a specific feature directly cause a technical effect, but rather the feature may be only one of the “necessary means” that – in combination – produce a technical effect.

consistently applied. And of course the physical world comprises the computer and its internal operation.

As discussed in the T 163/85 – BBC, physicality does not require permanence, but merely that physical entities or physical effects can be discerned. Accordingly, electromagnetic signals used to transmit information over the airwaves and the transient signals used to communicate information within a computer are both “physical” and both have effects in the “real world.” We find problematic the attempt to distinguish T 163/85 – BBC from T 424/03 – Microsoft on the basis that the former involved “a technical effect on a physical entity in the real world” while in the later “the technical effects were essentially confined to the respective computer programs.” However, based on our reading of T 1173/97 – Computer Program Product, it is – by definition – impossible to have a “technical effect” on a computer program, inasmuch as computer programs standing alone are not physical entities. In fact, the data structures at issue in the decision T 424/03 – Microsoft were not only functional data structures that are used independently of any cognitive content and thus have technical character, following the decision T 1194/97 – Data Structure Product, but also provided the computer with a further functionality that went beyond its internal operation in that the computer assisted the user in transferring non-file data into files. (*Cf.* T 424/03 – Microsoft, section 5.2 of the reasons.) The implementation of a program as a method of operating a computer involves the use of electromagnetic signals that are analytically indistinguishable from the signals in T 163/85 – BBC to produce a technical effect by technical means (*i.e.*, the computer), just as the signals in T 163/85 caused a technical effect by means of the physical equipment used in their transmission and reception. In short, these decisions simply cannot be distinguished on this basis, nor does the Referral offer any reasoned analysis for its assertion in this regard.

**Question 3(B):** *If question 3(A) is answered in the positive, is it sufficient that the physical entity be an unspecified computer?*

Yes. Assuming for sake of argument that a claimed feature must cause a technical effect involving a physical entity, it is sufficient that the physical entity be an unspecified computer. There is no limitation on the level of generality with which a class of entities having common

features is claimed, other than the general requirements relating to sufficiency of disclosure and clarity. Accordingly, it is sufficient for a claim to identify an “unspecified computer” as the technical means so long as such description satisfies the requirements of Articles 83 and 84 EPC.<sup>37</sup> However, if an unspecified or generic computer is claimed, it is necessary that the technical effect in question relates to all computers. If it instead relates to a narrower class of entities or to a specific type of computer, the common features of this narrower class must be disclosed. In this regard, all that is necessary is that it be clear from the claim that the computer must possess certain features in order to produce the technical effect. There is no distinction from other fields of technology in this regard.

**Question 3(C): *If question 3(A) is answered in the negative, can features contribute to the technical character of the claim if the only effects to which they contribute are independent of any particular hardware that may be used?***

As an initial matter, there is no requirement in the EPC that a particular device rather than a class of devices be defined in a claim. Thus, it does not matter whether the claim recites particular hardware or a generic class of hardware, as long as the identified technical effect is produced with respect to whatever particular device or generic class of devices is claimed.

Regarding the issue of features that only contribute to effects that “are independent of any particular hardware that may be used,” software cannot have *any* effects (let alone technical effects) in a manner that is truly independent of the supporting hardware. In this connection, we note the passage in the Referral stating that:

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<sup>37</sup> As made clear by the Board in T 208/84 – Vicom, section 5 of the reasons in the context of computer implementation, it is not necessary to define the technical means by reference to specific hardware. Rather, the technical means may be “an appropriately programmed general purpose computer.” All that is required is that “the features mentioned in the claims will be understood by those skilled in the art as referring to the technical means for carrying out the functions specified by such features.” (T 208/84 – Vicom, section 8 of the reasons). Thus, “the overriding requirements [are] that the claim be clear and concise (Article 84 EPC) and that the person skilled in the art can understand what technical means are necessary from the description and/or his general knowledge of the field concerned (in order to comply with Article 83 EPC).” (T 208/84 – Vicom, section 8 of the reasons).

“According to decisions T 163/85 – BBC and T 190/94, a technical effect on a physical entity in the real world was required. This was however not the case in T 125/01 and T 424/03. In these decisions the technical effects were essentially confined to the respective computer programs.”

We have not been able to identify any significant disagreement of this type among the cited cases. The case law dating back at least to the decision in T 1173/97 – Computer Program Product has been clear that modification of the hardware in this sense is not a prerequisite of a technical effect. In T 1173/97 – Computer Program Product the Board held in section 6.5 of the reasons:

“Consequently, a patent may be granted not only in the case of an invention where a piece of software manages, by means of a computer, an industrial process or the working of a piece of machinery, but in every case where a program for a computer is the only means, or one of the necessary means, of obtaining a technical effect within the meaning specified above, where, for instance, a technical effect of that kind is achieved by the internal functioning of the computer itself under the influence of said program.”

In fact, the requirement of a modification of the hardware ignores hardware-software substitutability. Almost any function in data processing can be realized by hardware or by software or a combination of both. Many functions that were previously performed by hardware are today implemented *via* software. The case law of the Boards of Appeal, however, has consistently held that the question whether a certain feature is embodied in hardware or software is irrelevant. Accordingly, requiring a modification of hardware to establish technical character would impose an arbitrarily criterion, which is neither required nor justified by the EPC or the case law.

Similarly, it is unclear why the Referral makes reference to “uncertainty about where the line is to be drawn between technical effects and effects lying solely in the field of programs for

computers.” In point of fact, the EPC does not contain a reference to the broad “field of programs for computers.” As has been repeatedly made clear by the Boards of Appeal, dating back to the earliest cases in this area, only computer programs *as such* are excluded from patentability. Thus, there is no need whatsoever to “draw a line” between technical effects and effects lying in the field of programs. In fact, to do so would be contrary to the EPC and established case law.

Rather, the question is simply whether there is a technical effect. If there is, it is irrelevant whether it is in the “field of programs for computers.” Furthermore T 1194/97 – Data Structure Product established a clear criterion for distinguishing data structures having a technical effect and data structures that do not. This criterion is based on previous case law, including T 163/85 – BBC. In sum, neither the EPC nor the currently existing case law gives rise to the uncertainties or difficulties alleged in the Referral.

#### 2.4. Question 4

**Question 4(A): *Does the activity of programming a computer necessarily involve technical considerations?***

Yes. As does any use of an actual computer, the activity of programming a computer necessarily produces a technical effect through technical means (*i.e.*, the computer itself) and involves technical considerations.

One classic design choice and accompanying technical considerations resulting from the development of processors that execute software is how much hardware and how much software is needed for a technical problem at issue. For cost, size, and time-to-implement reasons alone, a common design choice has moved toward minimizing hardware customization and maximizing software customization. The result is that a substantial majority of further design choices and technical considerations historically resulting in custom circuitry based control logic, now fall to the creation of software based control logic.

The creator of the "computer program" would consider factors including logic flow, the instruction set supported by the hardware, memory usage and speed, processor speeds, and the like in combination with the problem to be solved and the impact of each factor on the desired solution. Each of these is a technical consideration that occurs in the creation of a computer program, and can be as varied and complex as the solution dictates.

Moreover, some Board decisions suggest that some categories of excluded subject matter listed in Article 52(2) generally involve technical considerations, although they lack technical means and produce no technical effect whatsoever. See, *e.g.*, T 914/02, section 2.3.3 of the reasons ("non-inventions listed in Article 52(2) EPC, such as scientific theories, but also computer programs, typically involve technical considerations"). Inasmuch as computer programs as such typically involve technical considerations, then the activity of producing programs would generally be deemed also to involve technical considerations, even if such activity is carried out mentally, without any involvement of technical means. However, this does not mean that either the activity of programming or the output of such activity is necessarily patent eligible. See, *e.g.*, T 914/02, section 2.3.3 of the reasons ("In the board's opinion, however, the involvement of technical considerations is not sufficient for a method which may exclusively be carried out mentally to have technical character."). Thus, we would note that the activity of programming a computer is rarely, if ever the subject matter of a patent application and there is no dispute that the mental acts relating to programming cannot be patented.

**Question 4(B):** *If question 4(a) is answered in the positive, do all features resulting from programming thus contribute to the technical character of a claim?*

No. As previously discussed, the technical character of a claim must be assessed by looking at the claim as a whole. There is no bright-line test that if a feature results from computer programming it must contribute to the technical character of a claim. Similarly, simply because a feature results from computer programming does not mean that it is excluded when assessing the technical character of a claim. Any multitude of 'features' can be attributed directly or indirectly to a computer program that is executing or has the potential to execute. Any one feature by itself could be the sole contributing factor to the technical character of a

claimed invention, and any combination of features may together contribute to the technical character of a claimed invention. Whether it is one, many, or all features attributed to a computer program that contribute to the technical character of a claimed invention, it makes no difference whether any one or all features are based in software or hardware or a combination of hardware/software.

There may be different definitions of the term “programming” and in fact the referral does not make clear what this term is intended to mean. However, it is common ground that only technical features are to be considered to contribute to the technical character. Moreover, if and to the extent that non-technical features result from programming, these are not to be considered as contributing to the subject matter to be considered for assessing inventive step. (*Cf.* T 285/03 – Hitachi).

**Question 4(C):** *If question 4(a) is answered in the negative, can features resulting from programming contribute to the technical character of a claim only when they contribute to a further technical effect when the program is executed?*

No. As discussed in the answer to Question 4(b), the technical character of subject matter must be assessed by considering the claimed invention as a whole. Any one feature by itself could be the sole contributing factor to the technical character of a claimed invention, and any combination of features may together contribute to the technical character of a claimed invention.

#### **2.4.1. Further Discussion**

The objective problem to be solved by a computer-implemented invention is not to establish a program, but to provide a method or a related apparatus, which may be defined by implementing or executing a program. The solution to this problem may comprise establishing, loading and, given the case, executing a program. However, an invention, understood as the technical solution to a technical problem, has to be considered as a whole. It is neither necessary nor

appropriate to assess whether a certain aspect or part of this solution, taken *per se*, has technical character. Hence, the question of whether the activity of programming necessarily involves technical considerations, taken *per se*, is immaterial. The above is clear for method and apparatus claims, but also applies to program and program product claims. According to the case law of the EPO, especially the decision T 1173/97 – Computer Program Product, the technical character of a program stems from the fact that it has the potential to solve a technical problem, when executed or implemented. Its patentability is dependent on whether the method performed when executing the program is patentable, irrespective of whether the invention is claimed as a method or not.

Moreover, it appears that Question 4 is a question of fact rather than a question of law. The essential legal questions are whether there is technical character and/or a further technical effect. As the follow-on questions 4(B) and 4(C) already indicate, these questions have to be answered based on the merits of the case. The case law of the EPO did not establish a legal presumption that programming – in whatever definition – involves technical considerations.

The Referral points to the statement in T 1177/97– Systran that implementing a function on a computer system always involves, at least implicitly, technical considerations. In the first place, this is *obiter dictum*. Moreover, it is clear that the basic consideration of the Board was that if there is an improvement in the functionality of a technical system, there is technical character. From this, one can infer that if a new functionality is *implemented* by a computer program in a device, this implementation has technical character.

## CONCLUSION

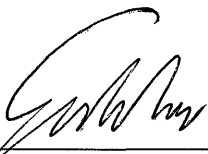
As described above, the principles underlying the jurisprudence of Boards of Appeal have established a consistent set of core considerations in assessing whether computer-implemented inventions have a technical character. While there have been some minor differences in the case law over the past two decades, most of the issues and purported diver-

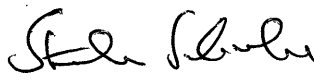
gences identified in the Referral are either illusory or relatively inconsequential when considered in their proper context.

In sum, as discussed above, it is our view that the Board's case law as it stands today reflects a natural evolution in the interpretation of Article 52(2) and (3) EPC over the past two decades and has produced a stable and predictable framework for determining what subject matter is eligible for patent protection under the EPC. Predictability and stability have proven important for applicants for patent protection before the EPO, and further allow affected parties and the public in general to predict the validity and scope of patents that have been or may be granted by the EPO. In light of this, we caution against introducing changes to well established law and practice without a clear understanding of the consequences particularly regarding the interaction with other exclusions to patentability in the EPC. Even small changes can have a significant impact on practice particularly in complex areas.

Accordingly, if it is determined that the questions raised in the Referral are admissible pursuant to Article 112(b) EPC, we would urge the Enlarged Board to address only those aspects of the case law that –in the Board's judgment – involve a consequential divergence on an issue of law *and* relate directly to the points of law raised by in the specific questions referred by President Brimelow.

FORRESTER & BOEHMERT

  
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