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► **To cite this version:**

Matthieu Dhenne. Technical Character in European Patent Law. SSRN Electronic Journal, 2020, pp.47. 10.2139/ssrn.3639200 . halshs-02970538

HAL Id: halshs-02970538

<https://shs.hal.science/halshs-02970538>

Submitted on 20 Oct 2020

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Technical Character in European Patent Law

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ABSTRACT

The technical character, which appeared in 19th century German law in the chemical sector, reappeared in the 1980s in Europe with computer-implemented inventions and biotechnology. Without being expressly mentioned in the texts, this requirement is nonetheless fundamental, as it draws the boundaries of the field of patent law.

Its definition remains little debated, because it is convenient for examiners and judges to propose an assessment of it on a case-by-case basis. Thus, case law has essentially focused on the methods for assessing the notion of technicality.

This approach nevertheless leaves a truncated and commonly accepted view of what is technical in the sense of patent law. Moreover, the silence of the texts also tends to leave a permanent doubt as to the scope of the field of patentability. The gaps in substantive law lead to the proposal to remove the exclusions in Article 52(2) of the Munich Convention and to lay down an explicit and autonomous condition of a technical nature defined by the texts.

* * *

§1. Invention as a condition of patentability. – *De lege lata*, the requirement of technical character in patent law relates to the "condition" of invention, which is inferred from an *a contrario* reading of the list of exclusions from patentability in Article 52(2)(c) of the Munich Convention. According to this provision the elements excluded from patentability are excluded only "*as such*". The notion of technical character is used to distinguish an element excluded "*as such*", within the meaning of Article 52(3) of the European Patent Convention (EPC), from an invention in which this element merely participates. The enumeration of exclusions from patentability in Article 52 of the EPC would thus imply, *a contrario*, a fourth condition of patentability: the condition of invention. The latter is then defined as the requirement of a technical solution to a technical problem.

The directives of the European Patent Office also recognise this condition, on the one hand, and the requirement of a technical nature which it implies, on the other hand¹.

¹ EPO, Guidelines for Examination in Practice, Nov. 2019, Part G, Chapter 1, pt 1 (i) and pt 2 (ii) respectively.

§2. Invention as an object of patent law. — The authors remain divided on the function attributed to the concept of invention. Traditionally, the majority of them agreed with the jurisprudential position that a condition of invention would result from Article 52 of the EPC². The absence of such an express condition within the Munich Convention obliges these authors to confuse the requirement of invention and the requirement of an industrial result, the latter resulting from an *a contrario* reading of the list of exclusions³. Thus, in France, for example, it was considered that the elements of the former condition of industrial character, notably present in Article 7 of the Law of January 2, 1968, would have been divided between industrial application, on the one hand, and the industrial result (or technical result), which would be included in the condition of invention, on the other hand.

However, a growing number of authors are hostile to this interpretation that the invention is a condition of patentability⁴.

The requirement that an invention must constitute an invention in order to be patentable is tautological. Moreover, the content attributed to the requirement of invention is debatable. It is admitted that it is characterized by the requirement of an industrial result, in other words by the requirement of technicality. The elements of the former condition of industrial character would have been redistributed between the requirements of industrial application and invention. However, if the legislator decided to no longer refer to the notion of industrial character, which it was familiar with when the EPC was drafted, it was probably because it no longer wished to enshrine it. The subsequent jurisprudential recognition of the implicit survival of this requirement, *via* the concept of invention, whereas it had been avoided by the legislator, therefore seems *contra legem*. According to Articles 52(1) and 57 of the EPC, an invention is industrial as soon as it is capable of simple application in the industrial sector and therefore does not require that the invention be capable of producing an industrial result, which in addition is *ultimately* confused with a technical result.

Finally, the sole function of the requirement of invention is to provide a basis for the requirement of technical character, which is supposed to facilitate the implementation of the text. Therefore, in our view, the removal of the list of exclusions in favour of a requirement of a technical nature, which would be defined by law, would constitute a significant step towards, from a theoretical point of view, consistency and, above all, from a practical point of view, legal certainty. The French group of the AIPPI also expressed this view in its report on the patentability of computer-implemented inventions submitted in 2017 for the Sydney Congress⁵.

² J. Azéma and J.-Ch. Galloux, *Droit de la propriété industrielle: Précis Dalloz*, 7th ed. 2012, No. 218 et seq. — J. Foyer and M. Vivant, *Le droit des brevets*: PUF, Thémis Droit, 1991, pp. 112 et seq. — J.-M. Mousseron, *Traité des brevets*: Litec, 1984, No. 151 et seq., pp. 173 et seq. — J. Passa, *Traité de droit de la propriété industrielle*, t. 2: Litec, Traité, 2013, No. 54 et seq., pp. 67 et seq. — F. Pollaud-Dulian, *La brevetabilité des inventions*, t. 16: Litec, IRPI, 1998, No. 49, p. 44. — J. Schmidt-Szalewski and J.-L. Pierre, *Droit de la propriété industrielle: Litec, Manuel*, 4th ed. 2007, No. 72, p. 39.

³ See J.-M. Mousseron and A. Sonnier, *Le droit français nouveau des brevets d'invention*, t. 22: Litec, CEIPI, 1978, No. 36, p. 39.

⁴ See M. Dhenne, *Technique et droit des brevets. L'invention en droit des brevets*: LexisNexis, Bibl. dr. entreprise, 2016, No. 192 et seq., pp. 118-119. — And M. Dhenne, *L'évolution du concept juridique d'invention dans la jurisprudence européenne: Légicom* No. 53, 2014/2, p. 37. — See also A. Eichenbaum-Voline, *Le statut des idées en droit des créations immatérielles*: th. dactyl. Université Panthéon-Assas (Paris II), 2003, see No. 20 et seq., p. 158 et seq. and see especially No. 24, p. 160. — S. Gutierrez-Lacour, *Le temps dans les propriétés intellectuelles*: Litec, Bibl. dr. entreprise, t. 65, 2004, No. 67, p. 58, and see especially p. 59. — L. Marino, *Droit de la propriété intellectuelle*: PUF, Thémis Droit, 2013, No. 117, p. 251. — P. Mathély, *Le nouveau droit français des brevets d'invention*: LJNA, 1992, p. 58. — F. Panel, *La protection des inventions en droit européen des brevets*: Litec, CEIPI, 1977, No. 28, p. 108, pp. 25-26. — M. Vivant and J.-M. Bruguière, *Protéger les inventions de demain*, La documentation française: *Propriété intell.* 2003, No. 20, p. 28.

⁵ M. Dhenne, *La protection des inventions mises en œuvre par ordinateur via les résolutions de l'AIPPI*, in *Les inventions mises en œuvre par ordinateur : enjeux, pratiques et perspectives*, ed. M. Dhenne and Ch. Geiger: LexisNexis, coll. CEIPI, 2019, p. 117, see especially pp. 129-130.

§3. **Announcement.** — *De facto*, the invention requirement, which is deduced from the list of exclusions from patentability, is reduced to the requirement of technical character. After a preliminary study of the common meaning of the concept of technique (**Prolegomena**), we will see that the technical character we know in patent law raises questions as to its definition (I) and as to its assessment (II).

Prolegomena: the concept of technique

§4. **A negotiation with Nature.** — The term "technique", from the ancient Greek tekhnè (τέχνη), comes from the ancient verb teukhō (τεύχω)⁶, which referred to the activity of manufacturing. Tekhnè was, in a first sense, manual art, industry, the ability to make something, a know-how, the efficient "doing" of it. It was a practice (πραξις or praxis), in other words an action on Nature (φύσις or phusis) aiming at satisfying a need. In a second sense, the term referred to the product resulting from the implementation of this know-how⁷.

During antiquity, the technique aroused fear because of its influence on Nature. The latter is a matter of the Sacred. It is the work of the gods. Any action concerning it must respond to a need. The technique is, in this sense, a *negotiation* between Man and Nature⁸. The mechanical arts are at the base of the intellectual hierarchy⁹. This contempt is also reflected in the Platonic definition of creation (ποίησις or poiësis, hereafter poetry): "*You know that the idea of creation, of poetry, is very vast. Indeed, the cause of the passage from non-being to being, in any case, is poetry; therefore, works of art in all fields are poetry, and the craftsmen who perform them are all poets [...]. Yet... you know they are not called poets, but by other names. Of the poetry as a whole, one part has been detached, the part that has to do with music and metrics, and it's called the whole. This part only is called poetry, and those whose domain it is are the poets*"¹⁰. Thus, for Plato, craftsmen working in the field of applied arts do not deserve to be called poets, in other words, they are not creators. Aristotle adds that creation is accompanied by true reason, that it is good, and an activity is good if it has an end in itself. However, in contrast to creation, which contains an end in itself, the practice (πραξις or praxis) of the craftsman contains none. Its purpose lies outside of it, in the objective assigned to it¹¹. This lack of consideration of technique explains why Archimedes minimized the importance of his inventions by seeing them as mere surveyor's amusements¹².

The idea of a negotiation with Nature, born in antiquity, has lasted throughout the Middle Ages¹³. We find it in Saint Thomas, for example, when he asserts that only God is capable of creating: Creation designates the divine action that is the source of all beings. Man is only a creature

⁶ A. Court of Gebelin, *Monde primitif, analysé et comparé avec le monde moderne, considéré dans les origines grecques ou Dictionnaire étymologique de la langue grecque*. vol. 2: L'Auteur/Valleyre l'ainé/Sorin/Durand, 1782, s. v. "teuk".

⁷ C. Castoriadis, *Technique*, in *Encyclopaedia Universalis*: Corpus 22, 2002, p. 208.

⁸ P.-M. Schuhl, *Machinisme et philosophie*: PUF, 3rd ed., 1969, p. 41 ff. — J.-P. Vernant, *Mythe et pensée chez les Grecs*: F. Maspero, Textes à l'appui, 1965, p. 214. The absence of creation inherent in the practice of technology elucidates the contempt it inspires in Greek philosophers. According to Plato, the work of the craftsman is degrading (Platon, *La République* (VIII-X), in *Œuvres complètes*. t. VII. Part 2, trans. É. Chambry: Les Belles Lettres, Universities of France, 1982, No. 590, b, p. 78.

⁹ Plato, *La République* (VIII-X), in *Œuvres complètes*. t. VII. Part 1, trans. É. Chambry: Les Belles Lettres, Universities of France, 1982, No. 495, d, p. 118.

¹⁰ Plato, *Le Banquet*, in *Œuvres complètes*. t. IV. Part 2, trans. P. Vicaire and J. Laborde: Les Belles Lettres, Universities of France, 1992, No. 205, b, p. 58 and 59.

¹¹ Aristotle, *Éthique à Nicomaque*, trans. J. Tricot: Librairie philosophique J. Vrin, 1994, No. 1140, b, p. 285.

¹² Plutarch, *Vie de Marcellus*, in *Les vies des hommes illustres*. t. 5, trans. D. Ricard: Dubois, 1830, No. XVIII, p. 173.

¹³ J. Le Goff, *La Civilisation de l'Occident médiéval*: Flammarion, Champs, 1982, p. 173 ff.

participating in this Creation¹⁴, he is therefore incapable of transforming his environment in such a way as to control it.

§5. A mastery of Nature. — The ancient conception of the technique began to be questioned at the beginning of the Renaissance¹⁵. However, it was not until the 17th century that a real paradigm shift took place. Bacon, in his *Novum Organum Scientiarum*, describes a new scientific tool intended to replace the Aristotelian syllogism, which had prevailed until then. The author proposes, contrary to this logical reasoning in the abstract, to base science on concrete experience. The scientific approach should, according to him, be built on the criterion of sensitivity. However, knowledge is only verifiable if it is expressed through a sensitive manifestation. Observation of the sensitive world — of Nature — then becomes the source of all knowledge¹⁶. The Baconian method, based on experience, finally leads us to consider Nature as an exploitable background offered to human enterprise. It is therefore logical that we find in Bacon a technical utopianism through which human action on Creation is boundless. This approach is particularly remarkable in his *New Atlantis*, published in 1627, which describes an ideal city — Bensalem — once ruled by Solomon, but now governed by a college of sages, the House of Solomon, whose Father states: "*The purpose of our Foundation is to know the Causes, and the secret motion of things; and to push back the bounds of the human Empire in order to realize all possible things*"¹⁷. The Baconian Work finally seems to be driven by an idea of the possibility for Man, especially through technology, to return to his original state, in other words, to gain knowledge as well as Adam's dominant position.

This utopian vision, according to which technology would be the instrument allowing Man to recover his original state, is also prevalent in Descartes. Descartes makes his own this Baconian doctrine, which he specifies when he writes that it is up to men to "*make themselves masters and possessors*" of Nature¹⁸. The author of the *Discourse of the Method* thus reverses the ancient logic¹⁹. In Antiquity Nature referred to necessity, that is to say, to what cannot not be or be other than it is, while technique referred to contingency, that is to say, to what can not be or be other than it is. With Descartes, on the other hand, the contingency of technical action is no longer opposed to the necessity of natural phenomena. On the contrary, the latter feed on the power of the former. Henceforth, natural necessity is entirely open to technical transformations.

§6. A transformation of Nature. — Faced with the utopian vision of Bacon and Descartes, the Industrial Revolution, marked by the development of machinism, nonetheless rekindled the fears aroused by the technical phenomenon that had been inherited in Antiquity. Marx evokes the numerous workers' strikes against the introduction of machines into factories throughout the 19th century²⁰. Nietzsche, for his part, takes a very critical stance towards this machinery, which he considers humiliating for its user: "*Mankind uses without counting all individuals as fuel to heat its great machines: but why use machines if all individuals (i.e. mankind) are only good at maintaining them? Machines, which are their ends in themselves, — is this the umana commedia?*"²¹. The devel-

¹⁴ Aquinas, *Pars Prima Summa Theologiae*, in *Opera Omnia*. t. 4 : Romae, 1898, p. 467, question 45, art. 3.

¹⁵ Ph. Forget, *La technique moderne ou le rêve d'ubiquité*, in *Phénoménologie et technique(s)*, ed. P-E. Schmit and P-A. Chardel: Le Cercle Herméneutique Éditeur, Phéno, 2008, p.21. and see especially p. 30 et seq.

¹⁶ F. Bacon, *Novum Organum Scientiarum*, Apud Adrianum Wijngaerde and Franciscum Moiardum, 1645 (1620), No. XXXVI, p. 40.

¹⁷ F. Bacon, *New Atlantis*: Cambridge University Press, 1900 (1627), pp. 34 and 35.

¹⁸ R. Descartes, *Discours de la méthode*, in *Œuvres et Lettres*: Gallimard, Bibliothèque de la Pléiade, 1987 (1637), p. 168. — V. D. Dubarle, *Maîtres et possesseurs de la Nature?: Recherches et débats du Centre catholique des intellectuels français*, 1971, special issue 72, p. 35.

¹⁹ D. Bourg, *Nature et technique. Essai sur l'idée de progrès*: Hatier, Optiques philosophie, 1997, p. 9.

²⁰ K. Marx, *Das Kapital. Band I. Der Produktionsprozess des Kapitals*, O. Meissner, 3rd ed. 1883, p. 438.

²¹ F. Nietzsche, *Menschliches, Allzumenschliches I and II*: German Paperback Publisher/de Gruyter, 1988 (1878), No. 585, p. 336, see especially p. 337.

opment of industry proves that henceforth the mastery of Nature by Man requires operations of transformation of Nature.

§7. An unveiling of Nature. — Defiance of the phenomenon continued to be strong throughout the 20th century. Heidegger's lecture, *Die Frage nach der Technik*, remains the most significant contribution²². For Heidegger, technology is not a mastery, but a "production" (*Her-vor-bringen*; ποιησις) in the Greek sense, i.e. an unveiling. To produce thus means to pass from the hidden state to the un-hidden state. But modern technology is more than an unveiling: it is a provocation of Nature, it imposes its law on her. In this way, Man tends to arrest Nature. The concept of "boarding" (*Gestell*) means that the real only has meaning for Man as an available and exploitable background. Nature is boarded up, in other words, put on notice to provide it with what it needs. Boarding constitutes the supreme peril for Man insofar as his will to control could lead to his considering himself as an available and exploitable resource. Finally, this phenomenon modifies the relationship to reality. This is the essence of modern technique: an unveiling of the real constituting a commandment by virtue of which the real must be made available.

§8. Legal reception of the technical phenomenon. — The technical phenomenon is routinely represented and legally represented. The law, as the object of language, necessarily calls for a representation of what reality is. As a result, the current gap between signifier and signified and the meaning derived from it is found. But, moreover, it requires a second representation, superimposed on the first, because of the legal burden inculcated in words. In such a way that a term used in law is either peculiar to the legal sphere or a common term with a given legal meaning, which may be as much the same as distinct from its common meaning.

§9. Announcement. — The legal meaning of a concept must remain linked to its normative function. We shall see, however, that for technology, as is very often the case elsewhere, traces of the common meaning can be found in the legal definition given to technology, even though the legal meaning given to it by patent law from the outset is quite different (I). Moreover, the methods of assessing technicality have evolved over time as a result of technical developments to which the law should adapt (II).

I. Definition of technical character

§10. Announcement. — The definition of the notion of technical character is very seldom mentioned. There is little or no interest into it. No French case law mentions it; some Boards of Appeal and the European Office consider it impossible. It is in fact easier to make people believe that a definition is impossible, particularly for an Office, in order to be able to assess what technicality is on a case-by-case basis.

Nevertheless, it cannot be denied that a positive and consistent view of technicality remains underlying this so-called lack of definition. A study of the history of the concept reveals precisely two antagonistic conceptions of it, both of which emerged in Germany at the end of the 19th century. Most often it is understood as a mastery of Nature that is confused with the demand for a transformation of Nature, and thus linked to material production (A). However, originally,

²² M. Heidegger, *Die Frage nach der Technik*, in *Vorträge und Aufsätze*: G. Neske, 1954, p. 14.

German jurists had perceived it as the capacity of the invention to ensure the operational utility assigned to it, independently of any material production (B).

A. Requirement of a transformation of Nature

§11. **Announcement.** — The requirement that the invention must involve a transformation of Nature was initially perceived through the condition of industrial character (1) before being attached to technical character (2).

1. Traditional condition of industrial character

§12. **Condition of industrial character.** — The requirement of technicality comes from an interpretation of the former condition of industrial character. Article 1 of the Law of 5 July 1844 provided that patent law concerned "*any new invention or discovery in any kind of industry*". It was inferred from this that the invention which was the subject of the patent right had to have an industrial character. The notion of technical character derives from this old condition. It is therefore necessary, first of all, to clarify its meaning. An education is industrial when it is exploitable in the industrial sector. Such a requirement raises two questions. What is meant by "*industry*"? What is meant by "*industrial exploitation*"?

§13. **Notion of industry.** — The term "industry" comes from the Latin *industria*, itself derived from *industrius*. The latter literally meant "who prepares himself", "active, hard-working, zealous". *Industria* was an activity. It was "*flexibility of mind and intellectual skill no less than manual dexterity*"²³.

Today, in everyday language, the industry concerns, in the broadest sense, "*all operations that contribute to the production and circulation of wealth*"²⁴. Strictly speaking, it refers to man's ability to dominate matter. This strict approach to industrial activity implies, therefore, a material transformation. It is an activity that must, in other words, result in the production of a new body.

The strict approach to the concept of industry was originally retained in patent law where industry was defined as "*the ability of man to dominate matter*"²⁵. The legislator of the European Union also considered that, with regard to this legislation, industry constituted "*the automated production of material goods*" (Article 2(2)(d) of the proposal for a directive on the patentability of computer-implemented inventions as amended and adopted by the European Parliament on 24 September 2003). Thus, industry has often been reduced to an activity of transformation of Nature. And it has been systematically assimilated to technology because of their so-called common requirement of a mastery of Nature²⁶.

²³ A.-Ch. Renouard, *Du droit industriel dans ses rapports avec le droit civil sur les personnes et sur les choses*: Guillaumin et Cie, 1860, pp. 6 and 7.

²⁴ *Le Grand Robert de la langue française*, t. 5, (ss. dir.) P. Robert, by A. Rey: Dictionnaire Le Robert, 2nd ed. 1996, See "industrie".

²⁵ See in particular M. Plaisant, *Traité de droit conventionnel international concernant la propriété industrielle*: Sirey, 1949, p. 20.

²⁶ F. Damme and R. Lutter, *Das Deutsche Patentrecht*: O. Liebmann, 1925, p. 145. — G. Huard, *Traité de la propriété intellectuelle*, t. 2: Marchal et Billard, 1906, No. 235, p. 41. — P. Kent, *Das Patentgesetz. Band 1*: C. Heymann, 1906, § 1, Anm. 29 a, p. 52. — E. Pouillet, *Traité théorique et pratique des brevets d'invention et de la contrefaçon*: Marchal et Billard, 4th ed. 1899, No. 31, p. 37.

§14. Notion of industrial exploitation. — An exploitation implies a realization of the invention by a transformation of Nature. Such a transformation implies that the invention has an industrial object, application and result. Thus, Article 7 paragraph 1 of Law No. 68-2 of 2 January 1968 provides: "*Any invention is considered industrial if its object, application and result, whether by human hand or by machine, contribute to the production of goods or technical results*".

The object, the application and the result each have their own precise meaning. The invention has an industrial purpose when it is relevant to the field of industry. It has an industrial application when it is feasible in the field of industry. It leads to an industrial result when its realization produces a result.

Several acceptances of industrial character have been considered on the basis of these three elements of purpose, application and result. Emphasis on one of them indicates a choice in favour of a certain approach to exploitation. The legislator gives an *a minima* interpretation of the latter if it retains the object of the invention as proof of its industrial character. Indeed, in this case, it is sufficient that the object of the invention belongs to the industrial sector. The existence of an industrial purpose is therefore sufficient. In other words, a thing has an industrial purpose when it is made by industry; it is only industrial because of what it is. However, emphasis may also be placed on the result produced by the invention, thus giving a maximal interpretation of the requirement of exploitation. In this case, the realization of the claimed teaching must then lead to the production of an industrial result. In other words, a thing produces an industrial result when it is made in industry; it is industrial because of what it does. Finally, the notion of industrial application lies halfway between the two previous limits of object and result. This conception implies only that the thing has the potential to be realized in industry. This potential requires more than a mere industrial purpose, but it does not require that the invention be linked to the production of an industrial result. In the end, it is traditionally the production of such a result, and therefore a maximum acceptance of exploitation, that is retained when qualifying the industrial character.

§15. The industrial character for French authors. — The requirement of transformation of Nature understood by the industrial character led the French authors of the 19th century to link the process, which is essentially immaterial, to the sensitive world. In particular, it is a question of confusing the result of the invention with a material result.

Nouguier thus considers that the notion of process refers to "*all material processes, all scientific combinations that produce a product or a result*"²⁷. Blanc and Mainié adopt an identical point of view by affirming respectively that "*any invention which does not have a material result cannot serve as a basis for a patent*"²⁸ and that an invention is patentable only if it results in "*a palpable, tangible, industrial result*"²⁹. Rendu recognizes that process inventions constitute "*indications, methods, by means of which an industrial result can be achieved*"³⁰. However, the author specifies that this type of thing necessarily generates a product by giving as an example "*the determination of the proportions in which various elements must be combined to obtain a marketable product*"³¹.

This ambiguity of Rendu's opinion is significant: it proves the difficulty that lies in the detachment of the process invention from a thing invented as a result of its implementation. This rapprochement, whose roots seem to lie in its belonging to industry, has continued until today. Thus, according to Professor Pollaud-Dulian, "*the patentable invention has an eminently concrete character, in the materialistic sense of the term*"³². Such a conception is finally reflected in the widespread

²⁷ L. Nouguier, *Des brevets d'invention et de la contrefaçon*: Cosse, 1856, No. 402, p. 147.

²⁸ É. Blanc, *L'inventeur breveté*: Cosse, 3rd ed. 1852, p. 39.

²⁹ F. Mainié, *Nouveau traité des brevets d'invention*, t. 1: Chevalier-Marescq et Cie, 1896, No. 12, p. 9

³⁰ A. Rendu, *Traité pratique de droit industriel*: Cosse, 1855, No. 318, p. 179.

³¹ *Ibidem*.

³² F. Pollaud-Dulian, *La propriété industrielle*: Economica, Corpus droit privé, 2nd ed. 2011, No. 162, p. 111.

idea that an invention is a mechanical achievement³³. It is more generally found in the common confusion between invention, patent and, in fine, the invented thing made from the patent³⁴.

§16. **The industrial character for German authors.** – The first German patent law of 1877 included a requirement of industrial exploitation which, as in France, was understood as the requirement of a transformation of Nature. Thus, Klostermann, in his *Patentgesetzgebung* published in 1876, wrote the following: "*The purpose of industrial inventions is the search for new means of satisfying vital material needs. They extend human dominion over inanimate natural things. They achieve this goal either through the production of new useful articles or through the application of new means to benefit the production of already known articles*"³⁵.

§17. Schanze later clarified this definition: "*A product must be manufactured through the process. This means that the product must not have already existed before the application of the process, even in other forms. The product must owe its existence to the process. This is not enough, when the product is not created through the process, but has only undergone changes, modifications, improvements, which have left its core unchanged*"³⁶.

However, the German condition for industrial exploitation was that of industrial application. The concomitant absence of the requirement of an industrial result made it necessary to seek a criterion capable of hindering the patentability of ideas. It was accepted that the invention must therefore also be technical, in other words that it must consist of a control of natural forces. It was a mastery of Nature not necessarily accompanied by its transformation. And so the requirement of technicality was aggregated to a condition of invention which was itself added to the condition of industrial application.

2. Modern Condition of Invention

§18. **German Genesis.** – In 1953, Lindenmaier proposed a definition of the concept of technical invention as follows: "*A technical invention is a teaching for the use of forces or inanimate or animate matter of Nature or substances which are extracted from such matter with the ambition of achieving some kind of reproducible result in the real world and directly exploitable as such, which hitherto did not belong to the state of the art or to general knowledge by means of oral, written or accessible technical behaviour*"³⁷ [emphasis added].

§19. This definition synthesizes the doctrinal work devoted to the concept of invention between the end of the 19th century and the middle of the 20th century. It is the foundation of the modern requirement of technical character and its definition.

It follows from the above definition that an invention is technical as soon as it involves a use of the forces of Nature capable of impacting the real world. What are these forces? It is assumed that they include the four forces of physics: electromagnetic force, gravitational force, weak nuclear force and strong nuclear force. However, a broader concept has been adopted in patent law to

³³ A. Lucas, *La protection des créations industrielles abstraites*, t. 11: Litec, CEIPI, 1975, No. 271 and 272, p. 177

³⁴ M. Dhenne, *Technique et droit des brevets. L'invention en droit des brevets*: LexisNexis, Bibl. dr. enterprise, 2016, No. 99 and 100, p. 64 and 65.

³⁵ R. Klostermann, *Die Patentgesetzgebung*: I. Guttentag, 1876, No. 1, p. 16.

³⁶ O. Schanze, *Die Register- und Rollen-Einschreibungen*, in *Sammlung industrierechtlicher Abhandlungen*: W. Rothschild, 1907, No. 1, p. 40.

³⁷ F. Lindenmaier, *Zum Begriff der technischen Erfindung*: GRUR 1953, p. 12

include matter and energy. Initially, they were limited to inanimate forces, as opposed to living organisms, in order to prevent the patenting of the latter³⁸.

§20. The limitation to inanimate forces disappeared in the *Rote Taube*³⁹ decision. This fundamental decision of the German Supreme Court, which dates back to 1969, deserves special attention, not least because the EPO subsequently drew inspiration from it.

§21. In this case, an application had been made for a pigeon breeding process. The application was rejected, *inter alia*, because the invention could not be technical because it involved living matter. The *Bundesgerichtshof* upheld that rejection. However, the ground based on the lack of technicality was disapproved. The definition of Lindenmaier's invention was, more or less, taken up by the judges, who defined the invention as follows: "*A teaching for a planned action to obtain a calculable causal result for the implementation of controllable natural forces*".

§22. This definition of invention in the strict sense, independently of the conditions of patentability, thus includes a definition of technicality, which then consists of a mastery of the forces of Nature leading to a causal result.

In his doctoral thesis, Privat Vigand identified four lessons from this *Rote Taube* jurisprudence: (i) the invention is an instruction to act in a determined way; (ii) it concerns a use of controllable natural phenomena; (iii) it aims at achieving a result foreseeable by its causes; (iv) this result is achieved by a direct use of the instruction⁴⁰.

According to the Enlarged Board of Appeal, the *Rote Taube* decision sets a standard that is in line with the terms of the EPC⁴¹. However, some Boards of Appeal pretend to ignore this definition by stating that it does not exist⁴². Such a position is simply contrary to the case law of the Enlarged Board, which should, in any case, prevail within the Office.

§23. **From the mastery to the transformation of Nature.** — Since the invention has been understood as an industrial production, in the material sense of the term, the requirement of a mastery of Nature has been confused with the requirement of a transformation of Nature. Thus, the report of the committee of German experts within the framework of the Reimer project, issued in 1954, which preceded the preparatory work for the 1973 EPC, is very clear: "*Technology does not refer to the intellectual world, but to the sensitive world; it acts according to physico-chemical principles*"⁴³.

However, the technique consists in the control of natural forces and not in the transformation that may result from them. The forces under control can, of course, have an impact on matter, or even transform it. But these transformations are only possible and are not contingent on this control. However, it seems difficult, even almost impossible, to apprehend a mastery as such. In practice, we are not able to take into account what mastery is, but only what it leads to, so that we inevitably come to confuse it with a transformation of Nature. All the more so since this confusion seemed, at first sight, justified in patent law, since technical character was understood as synonymous with industrial character. Such an assimilation between technique and industry is, however, also inaccurate. It is true that, strictly speaking, industry is a production activity that brings about

³⁸ J. Kohler, *Handbuch des Deutschen Patentrechts*: J. Bensheimer, 1900, No. 40, p. 115.

³⁹ BGH, 27 March 1969, *Rote Taube*: GRUR 1969, p. 672, note Heydt.

⁴⁰ P. Vigand, *L'invention brevetable en droit européen des brevets*: Université de Montpellier, 1979, No. 45, p. 28.

⁴¹ EPO, EBA, 9 Dec. 2010, G 2/07, *Broccoli*: OJEP 2012, p. 130, pt 6.4.2.1.

⁴² EPO, TBA 3.5.06, 22 Sept. 2015, T 1461/12, *Two unlock keys c/UNILOC*.

⁴³ Draft European Convention on Patents for Invention: Doc. EXP/Brev (53) 1, p. 2.

a material transformation. But technology covers a wider sector, since it consists, at the most, in an activity of mastery of the forces of nature. No requirement of material transformation is contingent upon it. Moreover, the technical activity is characterized by a search for efficiency. However, industrial activity has never been associated with the latter. Finally, a technical thing is not necessarily industrial, any more than an industrial thing is necessarily technical⁴⁴.

B. Requirement of operational utility

§24. **Announcement.** — Although the technical character is commonly understood as a requirement of transformation of Nature (see no. 6 et seq.), its genesis in German law makes it possible to show that it was in fact conceived from the outset as a requirement of operational utility (1). The evolution of the distinction between invention and discovery (2) and the distinction between the tangible and the concrete (3) are in the same direction. Moreover, the development of artificial intelligence leads to the question of a possible renewal of the definition of technology and therefore of technicality in the future (4).

1. German genesis of the technical character

§25. **The exclusion of the patentability of chemicals and the process of analogy.** — The first German patent laws included an exclusion of the patentability of chemical products (L. 25 May 1877, on patents for inventions in the German Empire. — and L. 7 Apr. 1891, on patents for inventions). The important development of the chemical industry, however, prompted the economic actors to look for a way to circumvent the exclusion.

The particular case of the analogy process provided the litigant with a way around it. One process is analogous to another when it achieves an identical result with known constituents. When a process is completely analogous, it is an infringement. On the other hand, the question arose as to whether a partially analogous process, with identical constituents but leading to a distinct result, also constituted an infringement. In principle, since a process consists of a path leading to a result, its contribution may not consist of that result.

§26. **Kongorot case law: the consecration of the theory of reflex effect.** — Several theories have been developed to extend protection to the result of the process, in other words to the product resulting from the process. The *Reichsgericht* reversed its decision⁴⁵ and accepted the theory of reflex effect in the *Kongorot* case⁴⁶. In this case, an application had been made for a process for the preparation of an azo colouring known as "Congo Red". This dye had the characteristic of dyeing textile fibres without the need for chemical treatment. The novelty of the invention therefore lay in the properties of the product to which it led. However, the invention was considered patentable because the technical effect of the product "radiated" from its preparation process.

The *Kongorot* decision thus enshrined the theory of reflex effect in German law, which bases the patentability of an invention on the technical effect it produces. The effect resulting from the result of a process radiates throughout the process. This reasoning proves that technicality does

⁴⁴ J. Kohler, *Handbuch des Deutschen Patentrechts*: J. Bensheimer, 1900, No. 126, p. 319.

⁴⁵ RG, 14 March 1888, *Methylenblau*: RGZ vol. 22, p. 8.

⁴⁶ RG, 20 March 1889, *Kongorot*: Bl. f. PMZ 1889, p. 209.

not depend on a transformation of Nature. Indeed, technicality does not come from the primary effect of the invention, of its product, but from a secondary effect coming from this product.

§27. Distinction between the technical effect and the industrial result. — German case law proves that as early as the end of the 19th century the technical effect was distinguished from a tangible body. Moreover, Schanze distinguished between technical character and industrial exploitation of the invention. Schanze dissociated two approaches to technicality⁴⁷: the narrow sense according to which it actually involves production, and the broad sense according to which it only aims at achieving a given end. However, according to the author, it is the latter meaning that should be retained. Thus, a method in the exercise of intellectual activities was likely to constitute a technical achievement. However, this did not mean, according to him, that a method in the exercise of intellectual activities was patentable under the condition of industrial character, which then required industrial exploitation.

German case law and doctrine have dissociated the technical nature of a transformation of Nature. Thus, in the preparatory works of the 1973 EPC, we find the legislator's will to separate the invention (immaterial thing) from its object (product or process): "*it is the invention which is patented and not a certain product or process*"⁴⁸. In this way, the legislator tried to avoid any confusion between the invention and its object, in other words, any confusion of the invention with the material world.

2. Evolution of the distinction between invention and discovery

§28. Naturalist approach to distinction. — The evolution of the distinction between invention and discovery also leads to distinguish the former from a transformation of Nature. The discovery is traditionally considered as a natural given that is opposed to the man-made construct that invention constitutes. It would be, in other words, something found in Nature. This interpretation, however, is called into question by the evolution of positive law. The adoption of the condition of inventive step since the Strasbourg Convention goes in this direction (*Convention on the unification of certain elements of patent law*, 1963). Indeed, if the patentable invention requires an inventive act on the part of its author, it is *a fortiori* that the invention *stricto sensu* does not imply such an act.

§29. Operative approach to distinction. — Some authors consider that an invention is distinct from a discovery in that it constitutes a human contribution⁴⁹. It does not matter what effect the invention may have. It is sufficient to note the existence of an operative contribution, i.e. a human contribution resulting in a revelation by man of a relationship between an object and a result. This idea of the unveiling of a relationship comes from Professor Schmidt's doctoral thesis⁵⁰; it is also in line with Heidegger's definition of the technique⁵¹.

Thus, the invention would constitute a link established by the inventor between a product or process and a desired effect. Such a proposal avoids a strict separation between invention and

⁴⁷ O. Schanze, *Das Recht der Erfindungen und der Muster*: Rossberg, 1899, p. 244 et seq.

⁴⁸ Results of the first session of the Working Party on Patents held in Brussels from 17 to 28 Apr. 1961, Doc. IV/2767/61-E.

⁴⁹ M. Vivant and J.-M. Bruguière, *Protéger les inventions de demain: Propr. intell.* 2003, No. 48 et seq., p. 63 et seq.; *Réinventer l'invention? : Propr. intell.* 2003, No. 8, p. 286.

⁵⁰ J. Schmidt, *L'invention protégée après la Loi du 2 janvier 1968*: Litec, CEIPI, 1972, p. 82.

⁵¹ M. Heidegger, *Die Frage nach der Technik*, in *Vorträge und Aufsätze*: G. Neske, 1954, p. 14.

discovery. The proposed criterion allows an easier admission of the patentability of biotechnologies. For example, it can be accepted that the invention may relate to a product different from what it is in Nature or that it may relate to a use of the product different from the function it performs in Nature. However, this approach remains very close to the classical approach. It is always a question of starting from a natural datum to determine what the patentable human contribution would be. It continues to be part of the classical dialectic between natural (discovery) and artificial (invention).

§30. Finalist approach to distinction. – Positive law proves that the natural/artificial opposition, which persists in the recent conception mentioned above, is now tending to disappear. Human intervention directed towards a technical purpose has become the sole criterion for qualifying the invention. Invention and discovery are not antonyms. They are complementary achievements. This idea made its appearance in doctrine at the end of the 19th century. Gareis, in his work published in 1877, considers that invention is a species belonging to the genus of discoveries. It is characterized by two elements, the action it requires and the result it achieves: "*The word discover is a broader term, inventing is narrower; when the discovery results [...] from a technical action [...], that a result is taught through it, it is an invention; the invention is differentiated as a species of the genus of discovery through the moments of action and result*"⁵².

It is not the act at the origin of the thing that qualifies it, but the aim pursued by that act. This position is found in Munier's doctoral thesis published in 1925. According to Munier, invention and discovery are not dissociated because of their origins. They are dissociated thanks to their purposes : "*There are therefore scientific discoveries and inventions, industrial discoveries and inventions, but the latter are in fact only scientific discoveries or inventions to which the possibility of making their object industrial has been added. If one can thus confuse discoveries and industrial inventions, it is not with regard to their origin, but with regard to their result, and since it is this result that the law takes into consideration, it is the discovery that is at issue: thus the patent would more appropriately be called a patent for an industrial discovery than for an invention, it being understood that it is the possibility of obtaining from a discovery, but also from a purely theoretical invention, an industrial result*"⁵³.

A new conception of the dissociation between invention and discovery was born in doctrine between the end of the 19th century and the beginning of the 20th century. But it was long forgotten. It was only at the end of the 1980s, with the doctoral thesis of Professor Galloux, that it was systematized⁵⁴. The author takes up the idea that all knowledge is a construct. A discovery requires adopting a method, retaining hypotheses and interpreting the result. It is a construct and not a simple given⁵⁵. The phenomena of discovery and invention are intertwined. The latter is no longer just a creation concerning an artificial thing. It is also possible that it concerns a natural thing. The natural or artificial source of the thing is unimportant. Only the application attributed to it by its user matters. Any invention can be appropriated as soon as it has a technical purpose. Its final use is thus the criterion for its qualification.

It follows from the finalist approach that the quantity and quality of human intervention does not interfere with the distinction between discovery and invention. Any human intervention, no matter how small, can give rise to an invention. Provided, however, that it has a technical purpose. Conversely, the separation between invention and discovery is not based on the requirement of a creative act or human contribution. It need not reside in human production. It is sufficient

⁵² C. Gareis, *Das Deutsche Patentgesetz*: C. Heymann, 1877, § 1, p. 17, spec. p. 28.

⁵³ S. Th. Munier, *Les droits des auteurs de découvertes ou d'inventions scientifiques*: Dalloz, 1925, No. 17, p. 67.

⁵⁴ J.-Ch. Galloux, *Essai de définition d'un statut juridique pour le matériel génétique*: th. dactyl. Université de Bordeaux I, 1988.

⁵⁵ *Ibidem*, p. 353.

that Man instills a technical purpose in the immaterial thing. In other words, an invention may concern the reproduction of a mechanism existing in Nature and the isolation, characterization of a natural product or its application, even if its composition remains identical to that which it possesses in Nature, provided that a technical purpose is attributed to it.

The finalist approach to the invention initially developed by the doctrine is now positive law. EPO jurisprudence accepts two criteria for converting a natural product into an invention: the material criterion and the utilitarian criterion. The material criterion was identified in the *Relaxine* decision rendered in 1994. In this case, the Opposition Division of the Office recognized that the act of isolating and characterizing DNA coding for a human protein constituted an invention⁵⁶. It was held that the characterization of a natural product was sufficient to give rise to an invention. In this case, it was an invention because the inventor had characterized a natural product by highlighting a coding function of the DNA sequence. The isolation of biological material is, in this sense, patentable. It does not matter whether or not a purification can modify the use of the natural product concerned by the invention. As soon as a product is non-existent in the environment or in a mixed state, the mere fact of presenting it in a pure state constitutes an appropriate invention. This case law proves that the determination of the general function of a biological material can constitute an invention.

Certain decisions of the EPO thus recognize that the determination of the general function of a thing is sufficient to confer a technical character on the invention relating to it. But other decisions reject this position. The applicant has sometimes been required to provide a practical application of the general function found. This second approach, which is based on the utilitarian aspect of the invention, considerably restricts the scope of the patent right granted⁵⁷. The reservation of the general function of a gene makes it possible, for example, to prohibit the reproduction of anything requiring the use of teaching relating to that function. The patentee is likely to prohibit all practical applications of the general function claimed in his patent. On the contrary, if the property is limited to a given practical application of the gene, the appropriation relates only to a specific practical application of the general function of that gene. The right holder is only able to prohibit the implementation of the function of the gene in that given application. The patentee's prerogatives therefore stop at a specific application. He cannot prohibit the use of the general function in any other practical application than that claimed.

The question of the distinction between invention and discovery was implicitly regulated by Directive 98/44/EC on biotechnological inventions⁵⁸. Certain provisions of the Directive in fact prove, on the one hand, that the legislator opted for the finalist conception and, on the other hand, that it opted for the material criterion. Article 3(2) of the Directive provides: "*Biological material which is isolated from its natural environment or produced by means of a technical process may be the subject of an invention even if it previously occurred in nature.*" Furthermore, Article 5(2) of the Directive provides: "*An element isolated from the human body or otherwise produced by means of a technical process, including the sequence or partial sequence of a gene, may constitute a patentable invention, even if the structure of that element is identical to that of a natural element*". Finally, recital 21 of the Directive states: "[...] *an element isolated from the human body or otherwise produced is not excluded from patentability since it is, for example, the result of technical processes used to identify, purify, and classify it and to reproduce it outside the human body, techniques which human beings alone are capable of putting into practice and which nature is incapable of accomplishing by itself*".

⁵⁶ EPO, Opp. division, 8 Dec. 1994, *Relaxine*: OJEPO 1995, p. 388; D. 1996, jurispr. p. 44, note by J.-Ch. Galloux.

⁵⁷ Th. Marteu, *Les informations génétiques saisies par le brevet d'invention*: thesis, Université de Nice Sophia-Antipolis, 2009, No. 218 et seq., p. 129 et seq.

⁵⁸ J.-Ch. Galloux, *Premières vues sur la directive 98/44/CE relative à la protection juridique des inventions biotechnologiques*: JCP G 1998, I, 172.

It follows from these provisions that it is possible to reserve the general function of a biological material. However, Article L. 611-18 of the IPC, which constitutes the French transposition of Article 5(2) of Directive 98/44/EC, restricts the patentability of biotechnological inventions by providing that it is limited to "*the technical application of a function of the human body*". This provision is not in conformity with the text of Directive 98/44/EC, because it limits the protection granted to the practical application of the claimed function and implicitly rejects the patentability of elements isolated from the human body⁵⁹. Such a rejection is not apparent from the Directive, Article 5(2) of which recognises the patentability of elements isolated from the human body.

It is traditionally accepted that the distinction between invention and discovery corresponds to a separation between the natural given and the artificial constructed. The discovery can then only be the support of an invention and the latter is distinguished by the requirement of a creative act. Recent developments in positive law call into question this classical approach. Discovery and invention are not opposites, but complementary steps in an identical process. The invention relating to a natural thing can be appropriated on condition that a technical purpose is attributed to this discovery. Technicality has nothing to do with the material cause of the thing. It concerns only its final cause.

3. Distinction between tangible and concrete character

§31. EPO case law. – In a decision of 11 February 2014, the Board of Appeal 3.4.1 ruled that tangibility was not a condition for patentability. In so doing, the Board also specified that concreteness was, on the other hand, a factor in the assessment of patentability⁶⁰.

The claimed invention involved a defibrillation pulse train. The Examining Division had rejected the patentability on the grounds of lack of novelty. However, the Examining Division stated, via an *obiter dictum*, that the requirement of industrial applicability was also not met, because the claims at issue did not relate to "*a physical phenomenon [...] not sufficiently tangible to be considered a product (or process)*". The Board of Appeal reversed this decision.

With respect to the tangibility requirement, the Examining Division's argument was based on the distinction made by the Grand Board between claims relating to things (product, device) and claims relating to activities (method, process, use)⁶¹. The Examining Division had concluded that things, in particular goods, were reduced to things of the body. In other words, inventions could only be tangible realities in the material sense. In the present case, the claimed signal was intangible and could not, according to the examiners, be a product. Nor could it be described as a process, since it was not an activity either. This signal, which could constitute neither a product invention nor a process invention, therefore had no industrial application.

The Board of Appeal reversed this reasoning, recalling first of all the preparatory work of the Munich Convention referred to above, which proves that the legislature did not intend to link patentability to membership of the categories of products and processes. It was then clarified that the legal concept of thing included both corporeal and incorporeal realities. Therefore, the concrete character of the signal is sufficient to qualify it as a product invention and to consider that it has an industrial application.

⁵⁹ J.-Ch. Galloux and E. Gutmann, *La protection des inventions biotechnologiques selon la loi du 6 août 2004: du génie génétique à la tératogénie juridique* : *Propr. intell.* 2003, No. 9, p. 871.

⁶⁰ EPO, TBA 3.4.1, 11 Feb. 2014, T 533/09: *JCP E* 2015, 1232, note M. Dhenne; *Propr. intell.* 2014, No. 52, p. 322, observations B. Warusfel.

⁶¹ EPO, EBA, 11 Dec. 1989, T 02/88: *OJEPO* 1990, p. 93, pt 2.2.

The distinction made by the Board of Appeal 3.4.1 between concreteness and tangibility is of particular interest, especially in the light of the following EPO Examination Guideline: "*The EPC does not give a definition of 'invention', but Article 52(2) contains a non-exhaustive list of what cannot be considered an invention. It should be noted that the elements mentioned in this list are all of an abstract nature (e.g. discoveries, scientific theories), and/or non-technical (e.g. aesthetic creations or presentation of information). Conversely, an invention within the meaning of Article 52(1) must have both a concrete and a technical character [...]. It may relate to any field of technology*"⁶² [emphasis added].

According to this Directive, a distinction should be made between concrete and technical character. Furthermore, following decision T 533/09, the EPC does not contain any requirement of tangibility, while referring exclusively to the concrete aspect. If one accepts that technicality is a transformation of Nature, then it implies that the invention is tangible. Otherwise, it is impossible to distinguish technicality from concreteness. Therefore, by rejecting the requirement of tangible character, the Chamber rejects this reading of technicality and suppresses the conjunction of coordination "and" in favour of a confusion between what is concrete and what is technical.

§32. French case law. – A decision handed down by the Tribunal de Grande Instance of Paris on November 18, 2016 also supports the search for the concrete character of the invention⁶³. The invention claimed in this case concerned an application management system. The court considered that Claim 1 concerned an abstract scheme which therefore did not offer a solution to the problem of managing computer applications, in particular because the patent did not explain how the management system in question actually helped the user. Thus, one finds the idea that no immediate concrete utility of the invention was specified. The abstraction of the scheme is opposed to the absence of explanation and not to the requirement of a material result.

§33. American case law: the *Alice* case. – Across the Atlantic, since the *Alice* decision, American case law has rejected any reference to usefulness and concreteness in favour of a requirement of tangibility, the definition of which corresponds to that of technical character as traditionally understood.

The United States Supreme Court issued its decision in *Alice Corporation v. CLS Bank International* on June 19, 2014⁶⁴. In that case, Alice Corporation held a family of four patents relating to a platform used to conduct a financial transaction in which a third party intervenes to prevent a party from defaulting on settlement (settlement risk). The claims related in particular to a method of limiting risks in financial exchanges that was implemented on an ordinary computer. CLS Bank, a consortium of banks, subsequently set up a payment system to eliminate settlement risk. Alice brought an infringement action against CLS Bank. The defendant brought a counterclaim for cancellation of the patents relied on.

The District Court for the District of Columbia invalidated the patents on the basis that they related to an abstract idea that was not patentable: the use of an intermediary facilitating the simultaneous exchange of bonds to minimize risk⁶⁵. This judgment was upheld by the Court of Appeals for the Federal Circuit (CAFC)⁶⁶. The trial judges relied on the test identified by the Supreme Court in *Mayo v. Prometheus*⁶⁷.

⁶² *European Patent Office Examination Guidelines* [Nov. 2016], Part G, Chapter II, pt. 1.

⁶³ TGI Paris, 18 Nov. 2016, No. 13/11351, *Xaga v. Ewala*: PIBD 2017, No. 1066, III, p. 114.

⁶⁴ USSC, *Alice Corporation Pty. Ltd v. CLS Bank International et al.*, 134 S. Ct. 2347 (2014); *Propr. industr.* 2016, study 9, M. Dhenne.

⁶⁵ *CLS Bank Int'l v. Alice Corp.*, 667 F. Supp. 2d 29 (D.D.C. 2009).

⁶⁶ *CLS Bank Int'l v. Alice Corp.*, 717 F.3d 1269, 1274 (Fed. Cir. 2013).

⁶⁷ USSC, *Mayo v. Prometheus*, 132 S. Ct. 1289 (2012).

The *Mayo* test consists of two steps. In the first stage, it is up to the judge to determine whether an abstract idea is present. And, in the second stage, if so, the judge must determine whether significant additional characteristics are claimed. In this case, it was held that the method was abstract and that it was only implemented on an ordinary computer. The four patents relating to it were thus annulled.

The Supreme Court has upheld these reversals. In short, the Court recalled that abstract ideas are not patentable and specified, as the CAFC had already admitted, that their implementation on a computer does not legitimize their patentability in the absence of an inventive contribution. It is also stated that additional features may include any technical improvements or improvements in the operation of the computer.

At first glance, *Alice* is just an application of the *Mayo* test to a business method. However, it has destabilized the practice, sometimes calling into question the patentability of computer programs, even though it has been widely accepted since the early 1980s in the United States.

The requirement of tangibility is at the heart of this destabilization. Since this decision, the judges on the merits have constantly rejected the patentability of inventions relating to business methods or even software using this criterion. Moreover, some have not failed to point out that the *Mayo-Alice* test should be reconciled with the "*technological arts*" test, which leads to an identical drift⁶⁸.

This reading of *Alice* is, in our opinion, a drift⁶⁹. This being the case, it has the merit of highlighting both traditional and modern conceptions of technicality. While on the other side of the Atlantic case law seems, wrongly, to be redirecting itself towards a classical vision linked to the material world, European patent law remains uncertain. This indecision is undoubtedly explained by the comfort that seems to be provided by the method of inventive contribution, which consists in mixing the assessment of technicality with that of inventive activity. However, the method is not entirely satisfactory, insofar as, on the one hand, it is specific to the Office and, on the other hand, it still often remains obscure for many practitioners. In short, legal uncertainty reigns, especially in the case of computer-related inventions, for which the criterion of technical character plays a decisive role. What is certain is that in Europe the criterion of technicality no longer boils down to the requirement of a transformation of Nature, but rather to the search for a concrete form of utility.

§34. AIPPI's position. – In addition, the French Group Report of the AIPPI on the patentability of computer-implemented inventions also adopted a definition of technicality based in particular on the concrete character⁷⁰. According to this report, technicality would require that the invention be operational and have a concrete and direct application:

- Operational: the need to be able to execute and reproduce the invention implies that it is completely defined in the patent. On the other hand, it cannot be a general function, nor can it be a function requiring human intervention(s) for its implementation.
- A direct application: *a contrario*, if its utility is only social and remote, for example an economic utility, its patentability must be excluded.
- Concrete application: *a contrario*, the patentability of activities that would remain in the abstract is excluded. However, this does not imply that a material result is required.

⁶⁸ *DDR Holdings, LLC v. Hotels.com, L.P.*, 773 F.3d 1245 (Fed. Cir. 2014) (Judge Mayer, concurring opinion).

⁶⁹ M. Dhenne, *The U.S. Supreme Court's Alice: Farewell to Wonderland?: Propr. industr.* 2016, study 9.

⁷⁰ M. Dhenne, *La protection des inventions mises en œuvre par ordinateur via les résolutions de l'AIPPI*, in *Les inventions mises en œuvre par ordinateur: enjeux, pratiques et perspectives*, (ss dir.) Ch. Geiger et M. Dhenne: LexisNexis, coll. CEIPI, 2019, p. 117, see especially p. 126 et seq.

This definition is similar to the one we had already proposed in our work, where technicality was understood as the requirement of an operational utility, which implies, in our opinion, not only that the invention is executable, but also that it has a direct and concrete application, as opposed to a distant and abstract realization⁷¹. Similarly, we have already proposed to take inspiration from the criterion of sufficiency of description in order to assess this particular form of utility.

4. From artificial intelligence to technical character: a path towards a new paradigm?

§35. Artificial intelligence in the EPO examination guidelines. – The entry into force of the new EPO Examination Guidelines in November 2018 was marked by the arrival of artificial intelligence (hereafter "AI") within their *corpus*. Directive G-II, 3.3.01, devoted to the subject, does not define AI, but classifies it as a mathematical method, on the grounds that it is based "*on calculation models and algorithms used for the purposes of classification, partitioning, regression and reduction of dimensionality*". Thus, neural networks, genetic algorithms, support vector machines, k-means, kernel regression and discriminant analysis are among the methods in this category. Thus, artificial intelligence, in that it is based on mathematical methods, is, as such, not patentable under Article 52 EPC.

This classification of AI led the drafters of the directives to specify, as a preliminary matter, the exclusion of mathematical methods (Directive G-II, 3.3). Firstly, only a purely abstract mathematical method, i.e. one which does not involve any technical means, is excluded within the meaning of Article 52 EPC. Secondly, such a method may contribute to the technical character, provided that it is applied to a technical field or adapted for a specific technical implementation. The technical purpose must, in any case, be specific and not generic ("*ordering a technical system*" would, for example, be insufficient), which implies that a claim is functionally limited to that specific purpose.

As for the specific technical implementation, it simply requires that the mathematical method be "*specifically adapted for the purposes of this implementation in that it is designed on the basis of technical considerations relating to the internal workings of the computer*". As for the application to a technical field, many examples are listed: controlling a specific technical system or process; determining by measurement the number of passes a compaction machine must make to obtain the desired density of a material; enhancing or analyzing digital audio, images or video signals; separating voice signals and providing voice recognition; encrypting, decrypting or signing electronic communications, generating keys in an RSA cryptographic system; optimizing load distribution in a computer network; determining the energy expenditure of a subject by processing data obtained by means of physiological sensors; inferring the body temperature of a subject from the data provided by an ear thermometer; providing an estimate of a genotype based on an analysis of DNA samples and providing a confidence interval for this estimate allowing to quantify its degree of reliability; providing a medical diagnosis by means of an automated system for processing physiological measurements; simulating the behaviour of a sufficiently defined class of technical objects or specific technical processes under technically relevant conditions.

The introduction of AI in the Office's guidelines is to be welcomed. The ability of the patent system to adapt to technical developments is fundamental if it is to continue to stimulate innovation. Especially since the many examples listed will help examiners specialising in fields of application, and therefore without particular appetite for AI and computer-implemented inventions, to make better reasoned decisions than they have done up to now. These examples will also

⁷¹ M. Dhenne, *Technique et droit des brevets*, prec. No. 308 et seq. at 530 et seq.

help applicants, who sometimes find themselves helpless in the face of unclear decisions and/or examination divisions impervious to certain types of AI. In general, these Directives increase legal certainty, thus making the European patent system more attractive from an international point of view. Moreover, the distinction between application to a technical field and adaptation for technical implementation is not without reminding the *Alice-Mayo* test of the US Supreme Court⁷². This rapprochement should facilitate the crossing of the Atlantic in both directions.

There is therefore no doubt that these new guidelines will improve the Board's practice. It should be noted, however, that the Prévert-style inventory of patentable types of AIs leaves a black hole all around it. What about, for example, the so-called "NLP" AIs (of a linguistic or semantic nature), to which the Boards of Appeal, strangely enough, systematically refuse to grant patents? Without forgetting that once we are lost inside this black hole, according to the new directives, the inventive contribution of the invention realizing a mathematical method must result either from an application of this method to a technical field or from its specific technical implementation. Would this twofold dimension of the technical effect be generalizable to all exclusions or specific to mathematical methods? The Office's silence should lead us to consider that this is a limit specific to mathematical methods, although we do not understand what justifies such special treatment. In any case, in the end, we always come back to the same question: how is the technical nature, in this case of a specific field of application or implementation, characterised? Practitioners will also note the redundancy which such an assessment of technicality at the Article 56 stage leads to in the presence of a computer program, since the latter will already have required the search for an additional technical effect at the Article 52 stage (Directive G-II, 3.3). Such a tangle of rules for assessing patentability is ultimately perplexing. Above all, it reveals the limits of the Office's casuistry system. Its case-by-case reasoning, applied to the assessment of the technical character, offers a freedom that can ultimately only come up against legal certainty. However, contrary to a very widespread common belief, and as the Report of the French group of the AIPPI for the Sydney Congress in 2017 proves, it would be quite conceivable to define a condition of a technical nature likely to reduce the uncertainties inherent in the present system⁷³. However, it must be noted that the Office is not ready to sacrifice its freedom on the altar of security and that only an intervention of the legislator seems today to be in a position to make this sacrifice.

§36. EPO case law. – In Case T 1849/17, the Technical Board of Appeal 3.5.06 held that providing relevant search results more quickly could constitute a technical effect. However, in the present case, the comments of users on relevance did not reliably achieve that effect.

The request concerned search engines, generally on the Internet, and was aimed at improving the quality of search results. More specifically, the invention was intended to make search results more "relevant" to the user. In order to do so, the applicant proposed to allow users direct feedback on the individual results returned in response to a query and to adjust a relevance model based on user feedback. Independent Claim 1 included a feature to do this by determining a relevance score for a document based on a mathematical formula.

This application, which was rejected by the Examining Division on the ground of lack of inventive step, was upheld by the Board of Appeal. However, the Board states that it does not exclude the possibility that the production of relevant search results faster (or higher in the list of results, thereby reducing the time necessary for the user to find a "hit" in the search results) may constitute a technical effect (pt 7.2), in accordance with Decision T 643/00, according to which providing a

⁷² See *supra* No. 30.

⁷³ See *supra* No. 31.

technical tool for efficient search, retrieval and evaluation of images may be considered a technical advantage⁷⁴.

However, the claimed effect must be reliably achievable and reproducible. Without knowing the details of how relevance models are calculated from (or based on) user feedback and group identification, there was, in this case, no basis for assessing the very likelihood that relevance feedback is actually relevant to an individual user. The Board therefore concluded that the relevance formula was any mathematical formula – and as such excluded from patentability under Article 52(2) and (3) EPC – which does not contribute to the technical character of the claimed invention and therefore could not contribute to the inventive step (pt 7.3 to 9.1).

Although we are at the stage of the inventive step examination and then Article 52 is cited, it is the requirements of executability and reproducibility of the invention that are reflected in these reasons. These requirements are in principle apparent from the examination of the sufficiency of the description (EPC, Art. 83), but are nevertheless, as the reasons show, inherent to the requirement of technicality, a requirement inferred from an *a contrario* interpretation of the exclusions of Article 52(2). As a reminder, the executable character of an invention presupposes first of all that it has been completed. It goes without saying that an achievement whose result is uncertain, plausible or even uncertain, as in the present case, cannot be considered technical, except in the field of biotechnology. It is moreover particularly with a view to avoiding the appropriation of such speculation that the Munich Convention lays down a condition of sufficiency of the description, according to which the latter must contain sufficient elements to authorise the reproduction of the invention. However, the abstraction of scientific theories and mathematical methods, and therefore their lack of technical character, is the basis for their exclusion from the field of patentability⁷⁵. The need for a concrete result is therefore common to the requirements of sufficiency and technicality, which leads the Chamber to refer, in the present case, to reproducibility, while referring to the exclusions in Article 52.

With regard to the exclusion of mathematical formulae, the decision appears to be well-founded, even if the Board sketched out, albeit appropriately, a surreal work by mixing insufficient description and technical character at the stage of the examination of inventive step. All the more so since the Office regularly gives reasons for rejections of this type on the basis of the condition of industrial applicability⁷⁶. The said reasons, however, stem from widespread confusion between the industrial character of yesteryear, which effectively required the attainment of a technical result, and industrial application as it has been known since the Munich Convention, which only requires manufacture or use in industry in the broad sense of the term⁷⁷. Conversely, industrial application does not call for an examination of the nature of the result: it does not matter whether it is technical or not. The existence of the result is sufficient. In fact, since the Munich Convention, in the silence of the texts, the requirement of a technical result has been inferred from the "condition" of invention inferred from an *a contrario* reading of Article 52(2)⁷⁸. Thus, the question of whether a solution is speculative or concrete is a matter of technicality, or even of the sufficiency

⁷⁴ EPO, TBA 3.5.01, 16 Oct. 2003, T 643/00, *Searching image data/Canon*.

⁷⁵ M. Dhenne, *Technique et droit des brevets*, op. cit., No. 211 and 212.

⁷⁶ EPO, TBA 3.3.08, 10 May 2007, T. 1452/06, *Serine protease/BAYER*: "A basic principle of the patent system is that exclusive rights can only be granted in exchange for a full disclosure of the invention, which includes the need to indicate how to exploit the invention (CBE, Art. 57). This indication must have a sound and concrete technical basis, as a speculative indication of possible objectives that might or might not be achievable by carrying out further research with the tool as described is not sufficient for fulfilment of the requirement of industrial applicability".

⁷⁷ M. Dhenne, op. cit., No. 202 et seq., p. 123 et seq.

⁷⁸ Some authors at the time evoked on this subject a distribution of the requirements of a technical result and an industrial application contained by the former condition of industrial character: J. M. Mousseron and A. Sonnier, *Le droit français nouveau des brevets d'invention*: Litec, CEIPI, 1978, No. 36, p. 39. – On this "condition" of invention see M. Dhenne, *L'évolution du concept juridique d'invention dans la jurisprudence européenne*: *Légicom* No. 53, 2014/2, p. 43.

of the description, which implies that a concrete result must be achieved, and is not a matter of industrial applicability⁷⁹. This is, moreover, what the examination directive recently formulated by the European Patent Office on artificial intelligence reminds us of, which seeks to determine when the latter is technical or not⁸⁰.

§37. Towards a new paradigm? – Technique, and therefore the technicality of artificial intelligence, is therefore at the heart of future debates, as it will draw the line between things that are eligible for protection and those that are not. Ultimately, we are led to wonder about the definition of technicality. The latter appeared in the case law of the European Patent Office at the dawn of the 1980s in the field of computer science, in order to circumvent the exclusion of patentability of computer programs⁸¹. The concept was then reborn from its ashes, since German law, which had been the cradle of the concept in the chemical sector at the beginning of the 19th century⁸², had almost forgotten its very existence. In Germany at the end of the 19th century, as at the European Patent Office around the same time, it was constantly, although in a debatable manner, retained that this technicality implied a transformation of Nature, in other words a transformation of matter, thus making the technical effect synonymous with a material effect. But can we still, seriously, refer to this criterion of Nature, and its materialistic conception historically inherited, for the most part, from Bacon and Descartes⁸³, when Nature is no longer at the heart of the technical phenomenon, because it has been domesticated to such an extent that its preservation has become a major priority for Humanity? Nothing is less certain. Technology is less and less an instrument at the service of Man, of which Nature would be the antonym, so that after the former has domesticated the latter, he now tends to exhaust it, to destroy it, and that technology today tends more and more to find its antonym in Man himself, as is the case with artificial intelligence and biotechnologies.

This is one of the fundamental reflections, and one that goes beyond our subject matter without sparing it, because it will condition its survival, which we are already facing with these technical revolutions: when technology tends to surpass or even dominate Man, how can we (re)define the former? In our opinion, this question should lead, in the future, to a (re)definition of the technical character, and thus to a review of the boundaries of patent law, without abandoning the traditional dialectic between technology and Nature, as we have already proposed in the past⁸⁴. It will therefore be a question of either profoundly modifying the list of exclusions set out in Article 52(2) EPC; or of simply deleting it in favour of a defined criterion of technical character. This reflection, to which the reception of artificial intelligence by patent law should lead in the first place, so that the latter cannot become the prisoner of a technique which it is supposed to be the guardian of protecting, in order to promote its development.

⁷⁹ Rapp. of the French Group of AIPPI on the patentability of computer-implemented inventions for the Sydney Congress (2017): available on the [website www.aippi.fr](http://www.aippi.fr). – On the whole of question, see M. Dhenne, *La protection des inventions mises en œuvre par ordinateur via les résolutions de l'AIPPI*, in *Les inventions mises en œuvre par ordinateur: enjeux, pratiques et perspectives*, ed. Ch. Geiger et M. Dhenne: LexisNexis, coll. CEIPI, 2019, p. 117. – See especially p. 126 et seq.

⁸⁰ See *supra* No. 35.

⁸¹ On the whole of question see S.-V. Steinbrener, *L'appréciation de la patentabilité des inventions mises en œuvre par ordinateur par l'OEB*, in *Les inventions mises en œuvre par ordinateur: enjeux, pratiques et perspectives*, *op. cit.*, p. 89.

⁸² See *supra* No. 25 et seq.

⁸³ See *supra* No. 5 et seq.

⁸⁴ See in this regard M. Dhenne, *op. cit.*, No. 530 et seq., p. 308 et seq. We had made a proposal for a definition taken up by the report delivered by the French group of the AIPPI in 2017 on the question of the patentability of computer-implemented inventions. – See M. Dhenne, *La protection des inventions mises en œuvre par ordinateur via les résolutions de l'AIPPI*, *prev.*, see especially p. 129.

II. Assessment of technical character

§38. Article 52 of the Munich Convention provides for an exclusion from patentability of elements "as such". However, the claims most often relate to hybrid implementations using, for example, computer programs. In this context, the criterion of technical character has enabled case law to determine whether a claim relates to an invention or to an exclusion *per se*.

However, the methods of assessing technicality tend to vary over the years. Essentially, the following four approaches can be distinguished: incorporation approach (A); essential element approach (B), technical contribution approach (C), additional technical effect approach (D), inventive contribution approach (E).

A. Incorporation Approach

§39. **Definition.** — According to the incorporation theory, the integration of a non-technical thing into a new technical set gives rise to a new patentable device. However, in principle, the incorporation of a non-technical process into a known apparatus does not constitute such a device, since the novelty of the whole lies solely in a non-patentable element. The incorporation theory thus ignores what is actually claimed, in order to ensure circumvention of the field of patentability.

§40. **Genesis.** — This theory of incorporation appeared in the field of computer science *via* the notion of the virtual machine. A virtual machine consists in the illusion of a new machine: it is the use of a known machine according to a new program. This concept has been used, *inter alia*, by the Board of Appeal of the Netherlands Office, which held, in a decision of 12 September 1985, that the loading of a new program into a known computer created a new technical device⁸⁵. The Board of Appeal subsequently acknowledged that the loading of a new program into a machine gives rise to a patentable process⁸⁶.

British practice prior to the entry into force of the Munich Convention reveals a similar position. In a 1970 decision, the *Patent Appeal Tribunal* (PAT) admitted the admissibility of the application relating to a machine in which punched cards provided a method of compiling an international trademark index. The machine was known. But the punch cards on which the computer program was printed made it work in a new way⁸⁷.

The Federal Patent Court of Germany (*Bundespatentgericht*) used the concept of virtual machine for a while. The idea is to consider that the new programming of this machine makes it virtually a new thing. In other words, the novelty of the computer program is the basis for the novelty of the programmed machine. However, from the 1980s onwards, the *Bundespatentgericht* developed a body of case law that favoured this approach. It was a question of determining whether the claimed invention was, as a whole, seen from the outside, a technical thing⁸⁸. However, the *Bundesgerichtshof* intervened to put an end to this approach and to reaffirm the essential element theory.

⁸⁵ *Octrooiraad, Afdeling van Beroep*, 12 Sept. 1985: BIE 1985, p. 435.

⁸⁶ *Octrooiraad, Afdeling van Beroep*, 11 May 1987: BIE 1987, p. 174; OJEPO 1988, p. 75; GRUR Int. 1988, p. 71, pt 6, *Method for decoding linear bar codes*.

⁸⁷ PAT, 23 Oct. 1969, *Gever's Application: RPC* 1970, p. 91. — See, however, PAT, 25 Nov. 1965, *Slee and Harris's Application: RPC* 1966, p. 194. — PAT, 27 Feb. 1968, *Badger's Application: RPC* 1970, p. 36.

⁸⁸ BPatG, 12 Aug. 1987, 19 W(pat) 56/85, *Electronic signal box: GRUR* 1987, p. 799. — BPatG, 10 Jul. 1990, 18 W(pat) 135/89, *Grinding method: GRUR* 1991, p. 197. — BPatG, 13 Feb. 1992, 23 W(pat) 24/90, *Electronic device manufacturing process: GRUR* 1992, p. 681. — BPatG, 14 June 1999, 20 W(pat) 8/99, *Automatic paragraph control: GRUR* 1999, p. 1078.

§41. **EPO case law.** — In decision T 603/89, the Technical Board of Appeal 3.5.01 specified that the technical contribution of the invention must result from a reciprocal interaction between the technical and non-technical elements of the invention⁸⁹. This contribution could not be based on the mere juxtaposition of a known technical element and a new non-technical element. These two types of elements had to interact in order to give rise to a technical contribution. The same Board expressly excluded the notion of virtual machine in Case T 26/86⁹⁰.

§42. **Appreciation.** — The incorporation theory postulates that the integration of a non-technical element into a technical element is sufficient to guarantee patentability, even though only the first one is new. This highly questionable method of assessment was designed to circumvent the exclusion of patentability of computer programs. The acceptance of the concept of the virtual machine in the early 1970s is explained, in part, by the original nature of computer programs. At the time, computer programs were embedded in punch cards. Their introduction into a machine resulted in production. The machine became a physical thing separate from the previous one. The claimed thing could be qualified as technical, provided that the plaintiff formulated the claims in an adequate manner, by referring to the device created and not to the process carried out. This confusion of what the programmed machine is and what it does with the aid of the program is perceptible in the English decisions referred to above. But the recognition of the notion of virtual machine has not systematically been the result of confusion. It has sometimes even been adopted deliberately, particularly in the decisions handed down in the 1980s. The position of the Dutch Office falls into this category. The Office had already distinguished between punched cards containing software and the machine programmed before 1985 in a decision of 16 December 1970⁹¹. In that case, the Board had held that the circuit system for telephone connections implemented by a program was not patentable. It was held that the claimed invention did not constitute a new product, as its only novelty lay in the program. Moreover, by 1987, software had long since been separated from operating machines. The admission of the concept of virtual machine by the Dutch Office in 1987 appears to have been an alternative conception of the computer program. A conception in which it is merged with the programmed machine. The program is not a set of instructions, but the function performed by a machine.

B. Essential Element Approach

§43. **Definition.** — According to the essential element theory, an object can be qualified as technical when its essential element belongs to the field of technology. This approach comprises three stages: decomposition; delimitation; characterization. First the thing must be decomposed, i.e. its technical and non-technical parts must be identified. It is indeed necessary to investigate whether the whole includes a non-technical element whose patentability is excluded. Secondly, one must determine which is the essential element of the invention. What is the essential element? It is the element without which the invention would not exist. This requires identifying the contribution of the claimed invention. Finally, once this element has been delimited, it must be characterized, i.e. it must be determined whether it is technical or not.

⁸⁹ EPO, TBA 3.4.1, 3 July 1990, T 603/89, *Benchmark scale v. Beattie*: OJEPO 1992, p. 230; PIBD 1992, No. 527, III, p. 428, pt 2.5. — EPO, TBA 3.2.1, 12 March 1992, T 636/88. — EPO, TBA 3.2.1, 13 March 2002, T 767/99.

⁹⁰ EPO, TBA 3.5.01, 21 May 1987, T 26/86, *Koch & Sterzel*: OJEPO 1988, p. 19.

⁹¹ *Octrooiraad, Afdeling van Beroep*, 16 Dec. 1970, IIC 1971, vol. 2, p. 308, note T. N. — Compare with *Amt für Geistiges Eigentum*, 3 Sept. 1968, IIC 1970, vol. 1, p. 148.

§44. **Genesis.** — The approach based on the essential element of the invented thing was retained for a long time by the German courts, which gave it the name of *Kerntheorie* (kernel theory). It has been applied in the field of information technology in the *Seitenpuffer* case, among others. The patent at issue concerned a page buffer. When a computer program is executed by a machine, it is temporarily stored in a buffer page, in order to avoid a slower access to the main memory. A buffer page thus makes it possible to limit the execution time of a program. However, when several computer programs are running simultaneously, the loading time of the programs increases because access to the data stored in the buffer page becomes longer. Thus, the claimed invention initially collected the data relating to the execution of the program within the buffer page, by assigning to it the necessary memory pages. It then transferred the data to the buffer page not individually each time it was called, but as a block at the time of the first loading. This prevents the same information from being called up several times by the main memory, which correlatively improves the performance of the microprocessor's data processing unit. The *Bundesgerichtshof* accepted the technicality of this procedure, finding that it was essentially technical because the program used improved the internal functioning of the computer⁹².

§45. **EPO case law.** — The Board of Appeal 3.5.01 of the EPO has twice applied the essential element theory in the IT sector. The essential element theory has been applied there in two decisions. The first of these was in Case T 22/85 in 1988⁹³. In that case, a claim was made for a method of summarising a document, memorising the contents obtained and then retrieving them by interrogating the computer. In fact, it involved storing a dictionary containing basic everyday vocabulary, marking certain words as relevant, comparing those in the input document with those in the dictionary in order to select only the marked words. The aim of the process was to produce a summary consisting of the terms selected and other elements not found in the dictionary, such as numbers, names and acronyms. The Examining Division rejected this application on the grounds that it was for a computer program as such, which is not patentable. This decision was confirmed by the Board of Appeal. According to the Board of Appeal, rules intended to establish a procedure for seeking information, in other words purely intellectual rules, cannot be considered to be technical in nature. It is clear, however, that in the present case it is essentially that set of rules which constitutes a new technical input⁹⁴. The Technical Board of Appeal 3.5.01 again applied the essential element theory in a 1989 decision T 38/86⁹⁵. In that case, an application had been made for a system to correct a file and to automatically detect and replace words in the text exceeding a threshold of incomprehension for documents intended for the public. The Examining Division rejected this application on the ground that it was for a computer program as such. The Board upheld this decision, holding that the claimed method proposed nothing more than (*ibid.*, pt. 18): "[...] *the use of a computer program running on conventional hardware and controlling the latter for the purpose of performing conventional operations arranged in a method designed to accomplish an intellectual activity*".

The essential element theory has also been used by the EPO in the biotechnology sector, in particular in relation to processes for the production of plants and animals. It appeared in the case law of the European Patent Office at the end of the 1980s. It first appeared in the 1988 decision T 320/87⁹⁶. An application was filed for a process for the rapid breeding of hybrid plants and the production of hybrid seeds on a commercial scale. The applicant claimed a process invention (a method of inserting plant genes) and the resulting product inventions (the resulting cells

⁹² BGH, 11 June 1991, *Seitenpuffer*: *OJEPO* 1993, p. 241, IIC 1992, vol. 23, p. 824, note by M. W.

⁹³ EPO, TBA 3.5.01, 5 Oct. 1988, T 22/85, *Summary and document search v. IBM*: *OJEPO* 1990, p. 12.

⁹⁴ *Ibid.*, pt 7.

⁹⁵ EPO, TBA 3.5.01, 14 Feb. 1989, T 38/86, *Word Processing v. IBM*: *OJEPO* 1990, p. 384.

⁹⁶ EPO, TBA 3.3.02, 10 Nov. 1988, T 320/87, *Hybrid plants v. Lubrizol*: *OJEPO* 1990, p. 71.

and derived plants). In fact, it was a technique for the genetic transformation of plants using the bacterium *Agrobacterium tumefaciens*. The technique was applicable to alfalfa, as indicated by the applicant. But it was also, more generally, applicable to any other type of plant that could be modified in the same way. The application was rejected by the Examining Division on the grounds that several of the claims concerned essentially biological processes excluded from patentability by Article 53(b) of the EPC. The examiners considered that the presence of a single human intervention was sufficient to characterize an essentially biological process. This rejection was reversed. According to the Board, the nature of an invention lies in its essence. All the human interventions required in a biological process must be examined and then their effects on the result obtained. The existence of a single insignificant human intervention does not preclude the technicality of the process as a whole. It only demonstrates that it is not purely biological. Conversely, a single stage of a process may determine its nature if it is essential to it.

In Case T 356/93, the Board of Technical Appeal 3.3.04 used the essential element doctrine in relation to an application for a transgenic plant⁹⁷. The application was specifically filed for a transgenic plant whose genome was modified to develop resistance to herbicides. That application was rejected by the Examining Division and subsequently by the Board of Appeal. It was found that the technical process used was not the core of the application. The claimed invention was essentially a plant variety excluded by Article 53(b) EPC according to which "*a process for the production of plants comprising at least one essential technical step, which cannot be carried out without human intervention and which has a decisive impact on the final result, does not fall within the exceptions to patentability under Article 53(b), first sentence, EPC*"⁹⁸. It follows from this decision that a biological process ultimately becomes technical when significant human intervention is involved, i.e. when such intervention is indispensable to the achievement of a technical result intended by the process. Finally, the essential element doctrine was also applied to a process for obtaining an animal in Case T 19/90. In that case, an application had been made in respect of a process for obtaining an oncogenic mouse⁹⁹. It was held that this process was mainly technical on the ground that the oncogene was inserted into the animal by technical means at an early embryonic stage.

§46. Appreciation. — Essential element theory involves focusing on the structure of the invention in order to identify the essential element. It is this element that will make it possible to determine the technical or non-technical nature of the claimed invention. The analysis of this method, which has been applied in particular in the computer and biotechnology sectors, reveals important flaws. The essential element theory invites first of all to investigate what is the essential element of the claimed invention. This amounts to seeking what is the element in which the inventive character of the thing resides. It is not surprising that this conception has been so well received by German law, since in Germany the requirements of inventiveness and technicality have always been linked. German case law has indeed deduced both of them from the requirement of invention. The idea of inventive height even stemmed from a degeneration of the notion of technical progress, which itself constituted a degeneration of the notion of technical character. Secondly, the essential element theory denies the existence of a possible inventive combination. In principle, a new combination of known means is likely to give rise to an invention. The inference is that the combination of two things that are not patentable as such can make up a new patentable whole. The novelty then lies in the new arrangement made to achieve a given result. In the absence of a new arrangement, it is only an unpatentable juxtaposition. In this case, the possibility of a combination is denied. The arrangement of two unpatentable elements forming a new combination

⁹⁷ EPO, TBA 3.3.04, 21 Feb. 1995, T 356/93, *Plant Genetic Systems v. Greenpeace Ltd*: OJEPO 1995, p. 545.

⁹⁸ *Ibid.*, pt 28.

⁹⁹ EPO, TBA 3.3.02, 3 Oct. 1990, T 19/90, *Mouse oncogene v Harvard*: OJEPO 1990, p. 476, pt 4.7, 4.8 and 5.

would not be patentable in this sense¹⁰⁰. Finally, this approach is difficult to apply. It implies a decomposition of the thing, which sometimes proves to be impossible except to decompose it in an arbitrary manner. The inadequacies of the essential element theory have sometimes led to the adoption of the incorporation theory.

C. Technical contribution Approach

1. Technical contribution

§47. **Definition.** — The European Patent Office has introduced the notion of technical contribution to be able to apprehend the contribution of a mixed invention, which contains both technical and non-technical elements. The notion first appeared in an examination guideline published in 1985: *"If the claimed subject matter makes a contribution of a technical nature to the state of the art, patentability should not be questioned merely because a computer program is involved in its implementation"*¹⁰¹. This method thus consists of taking into account the claimed invention as a whole to determine whether it makes a contribution to the state of the art. The nature of the contribution of the invention is the criterion for qualifying its technicality. If this contribution is technical, so too is it. Conversely, if the contribution is not technical, the thing is not technical either.

§48. **EPO case law.** — The criterion of technical contribution was implemented for the first time in Decision T 208/84 of the Board of Appeal 3.5.01 in 1986¹⁰². An application was made in this case for an ordinary computer with a new image filtering function. This function was implemented by software. The Examining Division rejected this application on the ground that the claimed invention constituted a computer program as such. The Technical Board of Appeal 3.5.01 reversed this decision, ruling: *"An invention which would be patentable according to the classical criteria of patentability should not be excluded from protection merely because modern technical means in the form of a computer program are employed for its realization; the decisive criterion here being the contribution to the state of the art of the invention as defined in the claim and considered as a whole"*. The chamber thus implicitly excluded the essential element theory. There is no question, in fact, of breaking down the invention in order to examine its various elements. On the contrary, one must examine whether the claimed thing, as a whole, contributes to the state of the art.

The Board of Technical Appeal 3.5.01 clarified the method of assessing the technical contribution in Decision T 26/86¹⁰³. A patent had been granted in this case for radiological equipment consisting of a data processing unit operating by means of a program. This processing unit regulated X-ray tubes, in order to obtain optimal exposure, while ensuring reasonable safety against tube overload. This patent was the subject of two oppositions. According to the first opponent, the title referred to a computer program as such. According to the second opponent, although the claimed invention had a technical effect, this effect was only the result of the integration of a new computer program into a known device. The software was the essential element of the thing invented. Therefore, the patent had to be invalidated. The Board rejected these requests and upheld the validity of the title. The essential element theory was explicitly excluded. It was

¹⁰⁰ A. Scheuchzer, *L'invention brevetable en 2002. Réflexions sur la notion de l'invention et les conditions de brevetabilité*, in M. Vivant and J.-M. Bruguière, *Protéger les inventions de demain: Propr. intell.* 2003, p. 215, see especially p. 230.

¹⁰¹ Examination Guidelines of the European Patent Office, Part C, Chapter IV, 2.1 (March 1985).

¹⁰² EPO, TBA 3.5.01, 15 July 1986, T 208/84, *Invention concerning a calculator v. Vicom*: OJEPO 1987, p. 14.

¹⁰³ EPO, TBA 3.5.01, 21 May 1987, T 26/86, *Radiological equipment see Koch & Sterzel*: OJEPO 1988, p. 19.

in fact held that technicality had to be assessed in relation to the invention as a whole. It was the contribution of the invention as a whole to the state of the art that made it possible to decide on its technicality.

§49. German case law. — The approach based on technical input was first applied by the Boards of Appeal of the EPO. The national courts were unfavourable at the time to this type of global approach to the invented thing. German case law, in particular, was hostile to it. The German courts have moreover long remained faithful to *Kerntheorie*¹⁰⁴. A claim had been filed in this case concerning a device recording the data of a dive, then indicating the corresponding decompression times, with a vision of the optimum decompression for each dive. The claim further included a depth gauge, a memory and a converter, all focused on the indicator capable of automatically giving decompression conditions. The application of the core theory, which had been upheld on appeal, was rejected by the court. According to the High Court, the judges on the merits had not correctly interpreted the claim, because they had focused on the intellectual method, without taking into account the technical means of achieving it. It was thus held that the claimed invention, taken as a whole, was technical. It did indeed contribute to the state of the art. The contribution lay in the cooperation of the technical elements (the diving apparatus) and the non-technical elements (the method and the computer program) to achieve the technical result, i.e. the display of decompression information. The *Kerntheorie* has thus been replaced by a global approach to the invention based on the notion of technical contribution.

§50. English case law. — The approach based on the technical contribution of the claimed invention aims to focus the assessment of technicality on the result of a combination of means and not on the combined means. This approach has been particularly favourable to the patentability of computer-related inventions. However, English and French case law essentially presents examples of rejections based on this conception. The *Merrill Lynch* decision is the first British decision to apply the EPO's global approach. An application was made in this case for a stock exchange trading system capable of analysing clients' buy and sell orders according to a given criterion. Satisfying this criterion meant that the transaction would be carried out automatically. The Court of Appeal dismissed this application with reference to case law T 208/84, holding that the claimed invention did not contain any technical progress: "*Genentech decided that the reasoning of Falconer J. was erroneous. On the other hand, it seems clear to me [...] that it is not permissible to patent a unit — that is, in the case of a computer program, the patentability of an ordinary computer containing a program. Something more is needed. The nature of this addition must, I think, be found in the Vicom case in which it is stated that: "What is decisive is what technical contribution is made to the state of the art". There must, I think, be some kind of technical advance over the previous art in the form of a new result [...]*"¹⁰⁵.

Thus, the Court of Appeal confused the technical contribution referred to by the Board of Technical Appeal 3.5.01 in its decision T 208/84 with the requirement of technical progress. That interpretation was incorrect. The Board of Appeal never required any technical progress. It was merely seeking a contribution to the state of the art, which might not be progress or might even be a regression.

The *Merrill Lynch* precedent led British judges to adopt a strict conception of the notion of technical contribution. The decision in *Gale* illustrates this trend¹⁰⁶. An application was made in that

¹⁰⁴ BPatG, 3 Feb. 1987, 17 W (pat) 62/85, *Elektronisches Kurvenzeichengerät*: OJEPO 1988, p. 59.). That theory continued to be applied by the *Bundesgerichtshof* after Case T 208/84 (BGH, 12 Dec. 1989, *Computerträger*: GRUR 1990, p. 594, note by Mr. Brandi-Dhorn). The *Bundesgerichtshof* finally adopted the concept of technical contribution in the *Tauchcomputer* decision given in 1992 (BGH, 4 Feb. 1992, *Tauchcomputer*: GRUR 1992, p. 430; OJEPO 1993, p. 250, IIC 1993, vol. 24, p. 645.

¹⁰⁵ Court of appeal, 21 Nov. 1989, *Merrill Lynch's Application*: RPC 1989, p. 561; OJEPO 1988, p. 61.

¹⁰⁶ Court of Appeal, 13 Dec. 1990, *Gale's Application*: RPC 1991, p. 305.

case for a new method of calculation. The contribution of the invention resided in a method of calculating square roots that eliminated divisions and limited multiplications to specified binary functions. The contested claim was for a ROM executing this method. The Court of Appeal rejected this claim, distinguishing between mathematical procedures and the ROM, holding that the integration of the former into the latter did not prove their technicality. The Gale case law shows that the approach adopted by the British judges was more akin to the essential element theory than to the theory based on the contribution of the invention. They required a separation of the machine and the method of calculation in order to weigh the importance of each. Similarly, in the *Aerotel* case, it was held that the method for making telephone calls from any telephone with a special prepaid code was technical, since the application concerned the new technical apparatus intended for the implementation of this method¹⁰⁷.

A true functional approach to invention appeared in British case law with the Genentech decision of the Court of Appeal in 1989. The invention at issue related to a protein that is contained in human tissue in small quantities and which can be useful from a medical point of view when produced in large quantities. The patent concerned the process for obtaining a genetic sequence capable of increasing the production of this protein¹⁰⁸. The title was invalidated because the invention was not sufficiently described and was not inventive. However, the court rejected the essential element theory¹⁰⁹. It was held that the technicality of a mixed thing did not result from its essential element, but from its contribution to the state of the art.

§51. French case law. — To our knowledge, French case law presents only one example of the application of the concept of technical contribution¹¹⁰. The patent at issue concerned a process and apparatus for accessing information on television programmes. Starsight exploited this patent until its expiry in several countries, including France, in the form of licences granted to television network operators and suppliers of equipment for the interactive monitoring of television programmes. The patentee sued the Numéricable companies for infringement, claiming that they were implementing his invention. The defendants filed a counterclaim for invalidation of the title. The question raised regarding the validity of the title was the following: does the claimed invention relate to a presentation of information whose patentability was excluded by L. 611-10, par. 2, of the IPC? In the decision handed down on June 7, 2013, the judges indicated, first of all, that "*the patentability of an invention must be assessed in a global manner with regard to the claimed invention*". Secondly, they specified that "*at this stage of the validity examination, there is no need to look for novelty or inventive step of the invention [...] on the other hand, the assessment of its patentability implies determining the technical contribution that the patent claims*". *On the other hand, the assessment of its patentability presupposes determining the technical contribution that the patent claims*". With these premises in mind, the claimed invention is qualified as a presentation of information. It was held that the patent did not contain any indication of the existence of a technical contribution. Finally, the judges firmly reiterated, *via an obiter dictum*, that a computer program is not a patentable feature.

§52. Appreciation. — The technical contribution approach, initiated by the European Patent Office, invites to assess the technicality of an invention in view of its contribution to the state of the art. This method is in principle very favourable to the extension of the field of technology. However, national courts have often used it as a basis for rejection decisions. In any event, the technical

¹⁰⁷ Court of appeal, 27 Oct. 2006, *Aerotel v. Telco & Macrossan's Applications*: RPC 2007, p. 117.

¹⁰⁸ High Court of Justice, 7 July 1987, *Genentech Inc.'s Patent*: RPC 1987, p. 553.

¹⁰⁹ High Court of Justice, 21 Nov. 1989, *Merrill Lynch's Application*: RPC 1988, p. 1, especially p. 12.

¹¹⁰ TGI Paris, 7 June 2013: RLDI 2014/108, No. 3575, observations M. Dhenne; PIBD 2013, No. 991, III, p. 1421. — Comp. with High Court of Justice, 26 March 2014, *Starsight Telecast Inc. v. Virgin Media Ltd*: EWCH (Pat.) 2014, p. 828.

contribution approach is the subject of much criticism similar to that already made against the essential element theory. Generally speaking, it is a two-step analysis. First, it is necessary to determine what the contribution of the invention is and then to qualify this contribution. These two steps are identical to those of the essential element theory. The search for the technical contribution requires a prior determination of the core of the invention, i.e. the element in which its inventive character resides. This amounts to confusing the assessment of technicality with that of inventiveness. Consequently, the only difference between these approaches, compared to the essential element theory, is the absence of weighting of the technical and non-technical elements. This specificity is nevertheless fundamental, since it makes it possible to recognize the technicality of things whose structure is not essentially technical. The assessment of technicality is focused on the contribution of the combination and not on the combined elements. Moreover, the notion of technical contribution has never been defined. It was merely stated that this contribution could be found in the technical effect produced by the education, in the problem solved and in the means of solving it. A consultation carried out by the European Commission during the discussions on the draft Directive on computer-implemented inventions indicates that "*a technical contribution occurs when, for example, technical aspects have to be taken into account in order to arrive at the computer-implemented invention for which a patent application is filed*"¹¹¹. This passage states the obvious: designing an invention with a technical contribution requires technical knowledge. This vagueness surrounding the notion of technical contribution ultimately tends to jeopardise the legal certainty that should be guaranteed by the rules of patentability.

Focusing the assessment on the technical contribution of the invention makes it possible to take into account what the invention does. Thus, inventions of combinations of technical and non-technical elements can be taken into account. The approaches developed, however, have two identical major flaws. Firstly, they lead to confusion between the assessment of technicality and inventiveness. Secondly, they are difficult to apply in practice. These shortcomings explain why case law has sometimes sought proof of a technical contribution in the conception of the invented thing.

2. Technical considerations

§53. EPO case law. – The absence of a definition of the concept of technical contribution makes its determination difficult. This explains why case law has developed a method intended to facilitate its assessment by focusing on the conception of the invented thing. This approach was inaugurated by the Board of Appeal 3.5.01 of the EPO in Decision T 769/92 of 1994. An application had in this case been filed for a computerised management system operating by means of a single transfer voucher¹¹². The claims related to both the computer system and the method it used. The Examining Division rejected this application on the ground that the features of the claimed invention consisted of a computer program and a presentation of information, as such not patentable. The appeal against this rejection was based on the intervention of technical considerations at the time of conception. Indeed, a solution is not realised in the same way when it is realised by a computer or when it is realised by a human being. Its design implies, in the first case, the taking into account of technical considerations, i.e. it calls for technical knowledge. The Board of Appeal validated this argument. Thus, it was held that the technical considerations, which were required in the present case, implied the existence of a technical problem, which resulted in the existence of technical characteristics.

¹¹¹ Proposal for a Directive of the European Parliament and of the Council on the patentability of computer-implemented inventions, COM/2002/0092 final, *Official Journal* 151 E, 25/06/2002 p. 129-131.

¹¹² EPO, TBA 3.5.01, 31 May 1994, T 769/92, *Système de gestion universel v. Sohei*: OJEPO 1995, p. 525.

The Technical Board of Appeal 3.4.01 held in its decision T 914/02 of 2005 that the technical considerations could be taken into account, but only if they concerned an additional technical effect¹¹³. In this case, an application had been filed concerning a method for the design of the core of an arrangement for the loading of fuel bundles inside a reactor. The Examining Division rejected this application, *inter alia*, on the ground that it concerned a non-patentable intellectual method. The Board upheld this rejection. It was held that the argument of technical considerations, put forward by the appellant, was not sufficient to prove the technicality of a thing: "*The Board's opinion is, however, that the implication of technical considerations is not sufficient for a method, which can be fully realised mentally, to have a technical character. Indeed, the other non-inventions listed in Article 52(2) EPC, such as scientific theories, but also computer programs, typically involve technical considerations*"¹¹⁴.

The technical considerations involved in making something can be used to demonstrate its technicality. But they can only be taken into account if they have an additional technical effect. This reasoning was endorsed by the Enlarged Board of Appeal in Case G 03/08: "*It appears that the fact that the formulation of all computer programs requires technical considerations in the sense that the programmer has to construct a procedure which can be executed by a machine is not sufficient to ensure that the program has a technical character (or that it constitutes a 'technical means' to use the expression from T 258/03 Hitachi). By analogy it can be said that it is only guaranteed if the writing of the program requires additional technical considerations*"¹¹⁵.

§54. French case law. – The criterion of technical considerations has rarely been used by national courts. Two French decisions handed down by the Tribunal de Grande Instance de Paris refer to it. In the first one, delivered on 20 July 2006, a patent relating to a process for making a page of data remotely consultable through a communication network available *via* the telephone network was held to be valid, in particular because of the technical considerations involved in the invention¹¹⁶. However, a second decision of the same court rejected the technical considerations¹¹⁷.

§55. German case law. – The *Bundesgerichtshof* also used the concept of technical consideration in the *Logikverifikation* case¹¹⁸. An application was made in this case concerning a process for the logical verification of highly integrated circuits. The court ruled that this type of process was technical. The judges referred to the technical considerations, but only as additional evidence. The technicality of the final products resulting from the process was the main evidence of the existence of a technical contribution. This idea that technical considerations are only additional evidence is also at the origin of some rejection decisions of the European Patent Office.

Case law shows that the idea of technical considerations, such as the idea of technical contribution, has proved to be particularly vague. In Case T 769/92, the Board indicated that such considerations occur at the stage of the conception of the invention, more precisely before programming. What elements characterised the technical nature of the invention? The problem posed by the prior art lay in the improvement of administrative management: how to centralise the management of several distinct types of management? The solution provided consisted in managing these different types of management by means of a single docket. At this stage, the use of a single docket was only an idea intended to improve administrative management. However, such an idea is, in principle, excluded from the field of patentability, since it corresponds only to

¹¹³ EPO, TBA 3.4.01, 12 July 2005, T 914/02, *Method for determining nuclear core loading arrangement v. General Electric Co.*

¹¹⁴ *Ibid.*, pt 2.3.3.

¹¹⁵ EPO, EBA, 12 May 2010, G 03/08, *Programmes d'ordinateur: OJEPO* 2011, p. 10, pt 13.5.01.

¹¹⁶ TGI Paris, 20 July 2006, No. 02/11198, *SA Cafetel v. Sté Index Multimédia*.

¹¹⁷ TGI Paris, 7 June 2013, No. 10/08326.

¹¹⁸ BGH, 13 Dec. 1999, *Logikverifikation: GRUR* 2000, p. 498, note J. Betten, IIC 2002, vol. 33, p. 231.

a presentation of information. If in the present case the technicality did not lie in the idea itself, it could only lie in its computer implementation, i.e. its programming. However, the Chamber held that the technicality did not come from that programming, but from the implementation of the interface, which did not constitute a "mere act of programming" and involved a "set of activities involving technical considerations"¹¹⁹. Therefore, the technical nature necessarily came from activities upstream of the programming. Its proof had to be sought in the functional and organic analyses preceding that programming. In other words, the determination of the management function of the docket system justified its technicality. The technical considerations are therefore placed upstream of the programming, within the grey area of the analysis, i.e. between the idea of the programme and its programming. The aim is to find out whether during this phase the analyst-programmers used technical knowledge. The notion of technical considerations imposes, in other words, to place oneself at the design stage, that is, between the idea of the thing invented and its realization. There are many obstacles to this type of method. Firstly, the examiner must be able to place himself at this stage of the conception between the idea and its realization. Second, it must be determined what knowledge has come into play at that point. Third, this knowledge must be classified as technical or non-technical.

§56. The classification of technical and non-technical knowledge unveils the final question that we arrive at with the criterion of technical considerations: what is technical knowledge? A consultation of interested circles carried out during the discussions on the draft Directive on computer-implemented inventions indicates that: "*Technical considerations may be deemed necessary in particular where knowledge of the material functions of the computer itself or of the functions of other hardware is necessary to produce the claimed invention. The result of the technical considerations may be regarded as a technical contribution to the state of the art*"¹²⁰.

Two lessons can be inferred from this definition. First, there is a link between the technical considerations and the function performed. Indeed, technical considerations are technical knowledge related to the function performed by a machine. Secondly, the purpose of these considerations is to produce a technical contribution. It is a question of investigating whether the design of the thing invented is likely to reveal the existence of a technical contribution. This definition is thus limited to stating the obvious: technical considerations are knowledge related to the technical contribution of the invention.

In fact, the determination of technical considerations proves to be very complex. One is obliged to place oneself at the stage of the conception of the invention in order to seek knowledge in relation to its technical contribution. This reasoning is circular. We are returned to the question considered earlier: what is a technical contribution? Moreover, to examine the conception of the invented thing in relation to a possible contribution is to examine whether this knowledge relates to an essential element of the invention. In other words, it is necessary to examine what knowledge is required by the inventive element of that thing. This amounts, as in the assessment of the technical contribution, to mixing the examination of technicality with that of inventiveness. Moreover, this association with the technical contribution leads to linking the technical considerations to the requirement of material production. Thus, this criterion ultimately proves incapable of overcoming the limits of the criterion of technical contribution.

¹¹⁹ EPO, TBA 3.5.01, 31 May 1994, T 769/92, *Système de gestion universel v. Sohei*, pt 3.7. — See also EPO, TBA 3.5.01, 16 April 1993, T 833/91, *Simulation of computer program external interfaces v. IBM*. — EPO, TBA 3.5.01, 29 Oct. 1993, T 204/93, *System for generating software source code components v. American Telephone and Telegraph Co.* — See contra EPO, TBA 3.5.01, 9 July 2002, T 1177/97, *Translating natural languages/Systran*.

¹²⁰ *Patentability of computer-implemented inventions*, consultation document drawn up by the services of the Directorate-General for the Internal Market, p. 8

D. Further technical effect Approach

- §57. **Definition.** — The further technical effect approach is to disregard the first technical effect if it is an ordinary and/or trivial effect (e.g. the electric current produced by inserting the program into the computer). The invention will be patentable if it generates a second technical effect in addition to this first effect.
- §58. **EPO case law.** — The Board of Appeal 3.5.01 of the EPO relied on an additional technical effect to accept a product claim on a computer program in its 1998 decision T 1173/97¹²¹. The claimed invention related to a method of resource recovery within a computer system. The Examining Division rejected the application. The rejection concerned in particular independent claims 20 and 21, which referred to a computer program as a product. These claims related to a computer program as such. The examiners concluded that they were inadmissible under Article 52(2)(c) and (3) EPC. This rejection was reversed. The Technical Board of Appeal 3.5.01 recalls that it is the lack of technicality which justifies the exclusions listed in Article 52 EPC. Each of the listed elements is capable of being the subject matter of an invention, provided that it produces a technical effect. This technical effect does not lie in the electric current produced by inserting the program into the machine. In this case, the technicality depends on the production of a second, additional technical effect: "*The technical character in the above sense must therefore be sought elsewhere: it could be due to other effects resulting from the execution (by the hardware) of the instructions given by the computer program. When these other effects have a technical character, or when they lead the software to solve a technical problem, it can be considered that the invention producing this type of effect can, in principle, be patented*"¹²².

Case T 1173/97 is the basis for the acceptance of product claims for computer programs in Europe¹²³. However, patentability there remains limited to computer programs whose execution is capable of producing an additional technical effect. This limitation disappeared with decision T 424/03. The invention claimed in the present case concerned a method executed by a computer which made it possible to carry out data transfers using a clipboard format. The Examining Division rejected the application on the basis that the contested claim related to an intellectual method excluded from patentability under Article 52(2)(c) and (3) of the EPC. That rejection was reversed. The Board held that the claim was admissible because the use of a computer-readable medium was sufficient to ensure the technical potential of the method. The insertion of a machine-readable medium in a claim therefore automatically guarantees the technical potential of the invention. This case law recognizes the patentability of the invention relating to a computer program as such, as long as its recording on a machine-readable medium ensures the technicality of the invention.

Decisions T 1173/97 and T 424/03 prove that the patentability of an invention relating to a computer program as such is admitted by means of a claim relating to a machine-readable medium. In Case T 935/97, the Board of Appeal 3.5.01 also admitted the admissibility of a claim of the program-product type, which did not relate to the computer-readable medium, but to the source codes contained in that substrate¹²⁴. The application contained claims for computer programs in the form of source code. These were Claims 7 and 8 which dealt with "*means computer program*

¹²¹ EPO, TBA 3.5.01, 1st July 1998, T 1173/97, *Computer program product/IBM: OJEPO* 1999, p. 609.

¹²² *Ibid.*, pt 6.4.

¹²³ EPO, TBA 3.5.01, 23 Feb. 2006, T 424/03, *Clipboard formats I/Microsoft*.

¹²⁴ EPO, TBA 3.5.01, 4 Feb. 1999, T 935/97, *Produit programme d'ordinateur II/IBM*.

code means" and "a computer program element comprising means program code means", respectively. The Examining Division rejected the application on the basis that Claims 7 and 8 were computer programs as such excluded from patentability under Article 52(2)(c) and (3) of the EPC. The Board reversed that rejection. It was held that the application was admissible if the claimed means were likely to produce an additional technical effect.

The EPO Enlarged Board of Appeal used the criterion of additional technical effect in cases G 02/07 and G 01/08. In the first case, the claimed invention concerned a method for the selection of the anti-carcinogenic glucosinolates in Brassica¹²⁵. In the second case, the claimed invention concerned a method for selecting tomatoes containing a reduced quantity of water and the tomato resulting from that method. Those two cases gave the Board of Appeal an opportunity to refer three questions to the Court of Justice for a preliminary ruling¹²⁶. Those three questions relate to the requirement of technicality:

"1. Is a non-microbiological process for the production of plants consisting of the crossing and selection stages covered by the exclusion of Article 53(b) of the European Patent Convention if only those stages reflect and correspond to a phenomenon which cannot occur in nature without human intervention?"

2. Does a non-microbiological process for the production of a plant which contains the steps of crossing and selection of plants escape the exclusion of Article 53(b) of the European Patent Convention in particular because it contains, as an additional step in addition to crossing and selection, an additional characteristic of a technical nature?"

3. If the answer is no, what is the relevant criterion for distinguishing non-microbiological plant production processes excluded from patent protection? In particular, is it relevant when the essence of the claimed invention lies and/or if the additional characteristic of a technical nature adds something to the claimed invention beyond a trivial level?"

The first question put to the Grand Chamber concerns the assessment of the technicality of an invention of a process for obtaining a plant variety. What criterion makes it possible to determine the technicality of this type of achievement? According to the Grand Chamber, the purpose of the exception introduced by Article 53(b) of the EPC is to prevent the patentability of inventions relating to processes for the production of plants which are essentially biological. The introduction of an additional technical step, in addition to crossing and selection to assist them, is not sufficient to prove technicality. More generally, the use of technical means to carry out a process does not preclude the application of Article 53(b). The Grand Chamber considers, moreover, that no analogy should be drawn with the case-law on methods of therapeutic and diagnostic treatment. The presence of a single human stage is not such as to justify the absence of technicality. Similarly, no analogy should be made with computer inventions. Nor is the presence of a technical step likely to justify technicality.

The approach of the Enlarged Board of Appeal in Cases G 01/08 and G 02/07 demonstrates that the case-law has shifted the focus of the assessment of technicality compared to the decisions delivered in the 1980s. The structure of an invented thing is no longer examined. The aim is no longer to determine whether the technical aspects are essential within that achievement. The assessment now focuses on the function of the invention. In the biotechnology sector, the criterion of the additional technical effect has been adopted. Only an additional technical effect over and above the trivial steps of production allows the claimed function to be identified¹²⁷.

¹²⁵ EPO, TBA 3.3.4, 22 May 2007, T 83/05, *Brocoli/Plant Bioscience*.

¹²⁶ EPO, TBA 3.3.4, 4 April 2008, T 1242/06, *Tomates/État d'Israël*: OJEPO 2008, p. 523.

¹²⁷ EPO, EBA, 25 March 2015, G 02/12, *Tomates II*. — EPO, EBA, 25 March 2015, G 02/13, *Brocoli II*.

§59. French case law. — The criterion of additional technical effect has been used on several occasions by national courts. In France, the concept was used by the Court of Appeal of Paris in a decision of 2005¹²⁸. The claimed invention concerned a process for preparing a trademark application. The application was rejected by the General Director of the National Institute of Industrial Property (*Institut national de la propriété industrielle*; INPI) on the grounds that it concerned an intellectual method that fell within the field of economic activities. The court confirmed this rejection, as the process consisted in the implementation of a non-technical method by known technical means. The invention did not produce any additional technical effect.

In addition, the Tribunal de Grande Instance de Paris referred to the notion of additional technical effect in a decision rendered on 18 June 2015¹²⁹. The claimed invention concerned a switchover of multimedia sessions from a mobile terminal to equipment in a local network. The title included: a program-product claim; another claim relating to the source codes of the said program; another claim relating to the support of the program. The court invalidated all three claims under Article 52(2)(c) of the EPC. It was held that a program-product constituted a computer program as such excluded from patentability and that the fulfilment of the other two claims did not give rise to any additional technical effect, which also precluded their patentability.

A decision of the Paris Tribunal de Grande Instance of November 18, 2016, also implicitly relies on the additional technical effect¹³⁰. In this case, the patent concerned an application management system. The defendant argued that the system constituted a computer program as such, the patentability of which was excluded under Article 52(2)(c) EPC. However, the court accepted this interpretation, *inter alia*, on the grounds that it was a computer program whose technical effect had not been proven. However, all programs produce at least one technical effect with the electric current they generate. The court therefore required, *a fortiori*, proof of an additional technical effect in relation to the production of an electric current.

§60. German case law. — The *Bundesgerichtshof* has used a concept equivalent to that of the additional technical effect: particularity. This criterion was used in *Suche fehlerhafter Zeichenketten v. Tippfehler*¹³¹. The claimed invention related to a system for identifying and correcting typing errors in a text registered by digital means. The application contained, in particular, a product claim relating to the program carrying out this correction. The Court of Appeal upheld the dismissal on the ground that the solution was a computer program as such. The High Court overturned this decision on the basis that the interpretation of the phrase "*as such*" was too strict. It was held that inventions which solve a concrete technical problem in a conventional technical field, such as physics or biology, were in principle appropriate. In the field of computer science, the question was whether the claimed invention had a particularity with regard to the day-to-day operation of a computer. The introduction of the requirement of peculiarity has sometimes been interpreted as a reversal of case law in relation to the *Sprachanalyseeinrichtung* decision. In that case, the *Bundesgerichtshof* held that the claim to a program with known technical means fulfilled the requirement of technicality. However, a claim of that kind is no longer admissible under the criterion of particularity¹³².

The criterion of particularity is not a praetorian creation. It appeared in an article by Schanze dating from the end of the 19th century¹³³. According to the author, the patentability of the in-

¹²⁸ CA Paris, 9 Sept. 2005, No. 00/12397, *Malemont v. Ordipat*.

¹²⁹ TGI Paris, 18 June 2015, No. 14/05735, *SA Orange v. SAS Free and SAS Freebox*: *JurisData* No. 2015-024803. — This decision was disapproved of by commentators, see J. Raynard, *Un an de droit des brevets: Propr. industr.* 2015, chron. 11 and M. Dhenne, *Technique et droit des brevets, op. cit.*, No. 622, p. 359 and 360.

¹³⁰ TGI Paris, 18 Nov. 2016, No. 13/11351, *Xaga v. Ewala*: *PIBD* 2017, No. 1066, III, p. 114.

¹³¹ BGH, 17 Oct. 2001, *Suche fehlerhafter Zeichenketten v. Tippfehler*: *GRUR* 2002, p. 143; *GRUR Int.* 2002, p. 323.

¹³² BGH, 11 May 2000, *Sprachanalyseeinrichtung*: *GRUR* 2000, p. 1007.

¹³³ O. Schanze, *Was sind neue Erfindungen?*: *GRUR* 1899, p. 5.

vention requires the meeting of three criteria: novelty, which requires that the invention is not included in the state of the art; originality of the invention (*Ursprunglichkeit*), which requires that the invention results from the creative activity of Man; particularity (*Eigenartigkeit*), which requires that the invention be particular in relation to prior art. The last condition implies that the claimed thing is not really known in the state of the art. This peculiarity requires that the known things are actually known, whereas novelty only requires that they are only theoretically known. This reasoning prefigures the requirement of inventive height, which was expounded seven years later by Wirth¹³⁴. A patentable invention must not only be new. It must add something special to the state of the art. In other words, it must result from an inventive step.

§61. Appreciation. — The additional technical effect approach introduced by the Technical Board of Appeal 3.5.01 in 1998 has been adopted several times by the European Courts. This trend stems from the division between technicality and inventiveness that it appears to achieve. There is apparently no longer any question, as with the concept of technical contribution, of confusing the assessments of technicality and inventiveness. One must only concentrate on the technical effect produced by the thing. But one must distinguish the additional technical effect from the common technical effect, such as an electric current. However, the comparison with the notion of particularity reveals all the ambiguity of the notion of additional technical effect. The latter seems, at first sight, to avoid confusion between the assessments of technicality and inventiveness, which has often been made before by the EPO. Analysis of the criterion nevertheless proves that this confusion persists. The additional technical effect is the particularity of the invention. The particularity implies that the thing is not only new. The invention must also present a particularity in relation to the state of the art, i.e. it must result from an inventive step. The additional technical effect, in addition to the ordinary technical effect, therefore necessarily results from an inventive step.

Moreover, the lack of definition of the criterion of additional technical effect makes its use difficult in practice. It is known, for example, that in the field of information technology, the electric current produced by the insertion of software into a machine does not constitute an effect to be taken into account. But can a subsequent effect generated by the invention in the machine be taken into account? On the contrary, is the additional technical effect necessarily external to the machine? Case law does not answer these questions. The criterion turns out to be a vague notion whose contours are determined on a case-by-case basis. This practice ultimately proves to be synonymous with legal uncertainty that is neither negligible nor desirable.

E. Literal interpretation (the "*Hitachi* Approach")

§62. Definition. — The "*Hitachi*" approach to interpretation consists in adopting a literal reading of Article 52 of the EPC: the inclusion of an excluded element in a technical assembly is sufficient to ensure that it is not considered to be covered as such and therefore to justify its technicality. However, only an inventive step of a technical nature can satisfy the inventive step requirement.

§63. EPO case law. — Decision T 931/95 lays down the first stone of the literal interpretation approach¹³⁵. The invention claimed in the present case concerned a computerised system for controlling pension funds facilitating their management by centralising all contributions. Two claims

¹³⁴R. Wirth, *Das Mass der Erfindungshöhe: GRUR* 1906, p. 57.

¹³⁵EPO, TBA 3.5.01, 8 Sept. 2000, T 931/95, *Controlling pension benefits system/Pension Benefit Systems Partnership (PBS): OJEPO* 2001, p. 1441; *Propr. intell.* 2001, No. 1, p. 80, observations B. Warusfel.

were at issue. The first was a method of controlling the system. The second related to the system implementing that method. The Examining Division rejected the application on the grounds that it related to a method in the field of economic activities whose patentability was excluded by Article 52(1)(c) of the EPC. The Board of Appeal 3.5.01 reversed this rejection. According to that board, the patentability of an invention depends on the type of claim to which it relates. The claim relating to an intellectual method belonging to the field of economic activities is to be rejected strictly. Such a method exists when the claimed invention has an economic purpose and does not produce any technical effect. Its mere implementation by a machine is insufficient to make it technical. Conversely, the claim relating to a device is intrinsically technical. In the present case, the invention relating to the device used to control the pension scheme was technical. But the improvement in the management of pension funds, which was brought about by the device, was a matter for the economy. The inventive contribution of the claimed thing was, in other words, not technical. The invention was obvious from a technical point of view, because it concerned the simple implementation of a method. It was not patentable because of a lack of inventive step.

It follows from Decision T 931/95 that the type of claim alone would be capable of determining the patentability of an invention. Anything is technical, provided that it is represented in the form of a device. An invention relating to an intellectual method is thus capable of being indirectly claimed in the form of a device. The use of conventional technical means, such as the computer implementation of a method, is sufficient to justify the technicality of a thing. However, in a press release of 26 March 2002, the EPO reminds applicants that: "*Claims which appear in European patent applications and relate to such methods or merely indicate trivial features relating to the technical implementation of such methods will not be searched if the examiner [...] has not been able to define a technical problem the solution of which could possibly involve an inventive step*"¹³⁶.

§64. Decision T 258/03 gave a decisive inflection to the approach outlined in Case T 931/95¹³⁷. The invention claimed in the present case concerned an automatic bidding method executed by a server computer. This method had the advantage of not requiring the presence of the bidders at their terminals. The Examining Division rejected the application as a method in the field of economic activities. The Technical Board of Appeal 3.5.01 reversed this rejection. It was held that the inclusion of known technical means in the claim was sufficient to guarantee the technicality of the invention.

Decision T 258/03 is the origin of the literal interpretation method. It is a question of interpreting Article 52(2) and (3) of the EPC in a literal manner. An excluded element is no longer an element "*as such*" within the meaning of Article 52(3) as soon as it is linked to known technical means. The presence of a single technical step in a process allows it to be qualified as a technique in its entirety. This approach is a variation of the incorporation theory. According to this theory, the incorporation of an element into a technical invention confers a technical character on that element. This new concept of patentability is therefore independent of the category of claim. An invention relating to an intellectual method is technical as soon as it is made by known technical means.

§65. In the *PayPal* case, the Board of Appeal applied the *Hitachi* method considering that non-technical features could contribute to the inventive step in combination with technical features. The invention claimed in this case concerned a method of authenticating a user by using a transaction test

¹³⁶ OJEPO 2002, p. 260 ; PIBD 2002, I, p. 67.

¹³⁷ EPO, TBA 3.5.01, 21 April 2004, T 258/03, *Méthode d'enchères/Hitachi*: OJEPO 2004, p. 575, pt 3.5. — See RTD com. 2006, p. 341, observations J.-Ch. Galloux; *Propriété intellectuelle*. 2005, No. 16, p. 352, observations B. Warusfel.

with a bank or credit card account. The Board accepted its patentability by holding that the business method was based on the resolution of a technical problem. Indeed, the invention could be underpinned by a procedure for authenticating a user, which by definition was non-technical, the transaction testing operation nevertheless remained technical.

In other words, while in *Hitachi* a business method (a bidding method) was modified to circumvent a technical problem (order transmission delays), in *PayPal* the method included non-technical steps (such as transaction testing), but as a whole it solved a technical problem.

The position taken in the *PayPal* case seems to be consistent with the position already taken in the *Comvik* case where the Technical Board of Appeal 3.5.01 held that a claim could refer to a goal to be achieved in the exercise of an intellectual activity. However, this purpose had to be part of the framework of the technical problem to be solved, in particular when the purpose in question constituted a constraint that had to be complied with¹³⁸.

§66. Broken chain theory. — The EPO has recently developed a special method for assessing the inventive contribution of graphical user interfaces: the so-called broken chain theory.

The decision T 1741/08 of the Board of Technical Appeals 3.5.06 of 2 August 2012 inaugurated this approach¹³⁹. The patent application then concerned an improvement of a graphical user interface. The Board dismissed the appeal. The process produced a technical result. However, the chain of effects leading to that result was broken by human intervention on which the process depended. The technical result — a reduction in the resources used by the computer — was linked to a faster reaction of the user to the graphical user interface.

§67. Classical French case law. — In France, the decision rendered by the Tribunal de Grande Instance of Paris in the case *Infomil v. Atos* adopts a position in accordance with the jurisprudence T 931/95 in order to found the cancellation of a patent¹⁴⁰. The patent at issue concerned a device, a process and a computerised system for the automatic issue of commercial advantage tickets. It was held that the intellectual method developed by the device did not preclude the patentability of the invention relating to it. It was the lack of inventive step that motivated the cancellation of the patent. Indeed, the purpose of the invention was to "*personalize the different types of tickets, by registering the payment and commercial advantages and by issuing several types of tickets, that of payment and that of advantages which may be other than discounts*". However, "*this different feature is provided within an already designed system and does not require any inventive effort; it is sufficient for a computer technician to program this additional feature into the contents of one of the files already in place to obtain this improvement and no inventive activity is then carried out*". It follows from this reasoning that the claim of known technical means guarantees the technicality of an invention relating to an intellectual method. On the other hand, the inventive contribution must be technical. In the present case, the nullity was pronounced because this contribution resided in the granting of commercial advantages. It was therefore not an inventive contribution of a technical nature.

§68. Recent French case law. — More recently, in a case opposing the company Thalès to the General Director of the INPI, the Paris Court of Appeal seems to have handed down the first French decision adopting a position in line with the so-called "*Hitachi*" case law (T 258/03) to recognise the patentability of a computer-implemented invention.

¹³⁸ EPO, TBA 3.5.01, 26 Sept. 2002, T 641/00, *Deux identités v. Comvik*: OJEPO 2003, p. 352.

¹³⁹ EPO, TBA 3.5.06, 2 August 2012, T 1741/08, *Gui Layout v. SAP*.

¹⁴⁰ TGI Paris, 20 Nov. 2007, No. 01/11641, *Infomil v. Atos*. — See S. Bouvier-Ravon, *La brevetabilité d'un système informatique : selon quels critères?*: *Expertises* 2008, p. 17.

Thales had filed a French patent application for a method of displaying the mission of an aircraft in time. It had been notified of a rejection decision. The rejection was based on two grounds: the application was for the presentation of information as such, for which Article L. 611-10, par. 2, of the IPC excludes patentability; the said subject matter of the application did not allow a search report to be drawn up due to the lack of sufficient technical characteristics. This decision was overturned by the Paris Court of Appeal. The court recalled, as a preliminary point, that the purpose of a presentation of information is to transmit information, thus distinguishing itself as much by the cognitive content of the information as by the way it is presented. In this case, claim 1, which was at issue, was characterized as follows: on the one hand, in that the different steps were displayed in a first graphic window comprising a graduated time scale or timeline, the different steps being displayed in relation to the time corresponding to their completion; on the other hand, in that if the length of the timeline was greater than the length of the first graphic window, the graphic window displayed only a part of the timeline, a part imposed by the user of the display device. The court held that if the first characteristic effectively implies only a transmission of information, which is unpatentable, the same does not apply to the second characteristic, which constitutes a technical means, such that this means, distinct from the information per se, makes the claim admissible as a whole. At the same time, the court rejected the argument that it was impossible to establish a search report, recalling that such an argument falls within the scope of an examination of the insufficiency of the description, which is not within the power of rejection of the General Director of the INPI.

It is interesting to note that the court made it clear that the first characteristic, which was considered non-technical, was "central" to the patent. This did not prevent it from ruling that the mere presence of a technical means allowed the patentable invention to be considered as a whole. This was the first time that the French judge clearly adopted a reasoning similar to the *Hitachi* approach to recognize the validity of a title and not to annul it, as had been the case in the *Infomil* case. This position appears all the more remarkable since the INPI's rejection was linked to a refusal to draw up the search report from the EPO examiner. The French application was in fact sent to the EPO for the search for prior art, as is the case for all French applications not claiming a foreign priority. And the EPO examiner refused to carry out the search on the grounds that the claims "*related to an abstract and generic process of displaying data, independent of any technology. This subject matter is excluded from patentability, like any abstract method of graphic representation as such, because it is equivalent to a mathematical method*". In other words, the EPO examiner did not even bother to examine the application, considering it obvious that the claimed invention constituted a presentation of information.

The argument that a search report could not be established seemed, in fact, unconvincing. Indeed, it is indeed clear from the texts that the examiners, in particular at the EPO, can only refuse to draw up a search report if it is in fact impossible to carry out a meaningful search (for the EPO, Rule 63 of the Implementing Rules of the EPC provides for this possibility precisely "*if the European Patent Office considers that the European patent application does not comply with the provisions of the Convention, to such an extent that a meaningful search of the state of the art cannot be carried out in respect of all or part of the claimed subject matter*"), except in the particular case of Euro-PCT applications for which Article 39 of the PCT Implementing Regulation expressly provides that a search may not be carried out solely on the ground that the application relates to an element excluded from patentability, such as a presentation of information. This practice of refusing to draw up the search report in the presence of exclusions from patentability, which has developed over the last ten years or so at the EPO within the Examining Divisions competent in the computer sector, therefore seems to us to take the easy way out as a poor guide while unjustifiably undermining legal certainty, in so far as it appears somewhat arbitrary.

This rejection is all the more surprising given the subtlety of the Agency's jurisprudence specifically relating to the submission of information. The EPO has often taken the view that features

allowing a better visualization of information did not imply a technical contribution. For example, the use of colour coding to display the solidity of building structures rather than numerical values has, for example, been judged to have subjective effects depending on the person to whom it is addressed, and therefore effects of a non-technical nature¹⁴¹. Similarly, a process for entering data with a particular layout of input fields (with a number of field lines, line orientation, and separation between fields) that allows the user to better capture the nature of the data to be entered and thus "*reduce the cognitive burden on the user*" was described as information presentation as such¹⁴². However, in 2013, the Technical Board of Appeal 3.5.06 found in Decision T 0862/10 that a notification system capable of displaying an information object (e.g. a pop-up window) to a user on one or more screens and using different sounds to help the user locate the position of the information object implied the presentation of information of a technical nature¹⁴³. In particular, it was considered that the display combined with a specific sound made it easier for the user to locate the position of the information item, and that the effect did not depend on psychological or other subjective factors, but on precisely definable technical parameters, including those based on human physiology.

However, this judgment already seems anachronistic, in a way, because the reform of the INPI resulting from the PACTE law gives more power to the INPI in the examination of French patent applications. Indeed, the PACTE law introduces an opposition procedure before the INPI and an examination of inventive activity by the latter. The establishment of an inventive step examination at the grant procedure stage is intended, among other things, to improve the quality of French patents and to facilitate their possible cancellation.

Specifically concerning the examination of the application, it is reformed by an amendment to Article L. 612-12 of the IPC, notably in its 4°, in which the word "*manifestly*" is deleted, and in its 5° and 7°, which now provide respectively that a patent application "*whose subject matter cannot be considered as an invention within the meaning of par. 2 of Article L. 611-10*" and/or "*whose subject matter is not patentable within the meaning of par. 1 of Article L. 611-10*" is rejected. The controlled grant procedure established by the new wording of Article L. 612-12 will come into force within one year of the promulgation of the law.

Thus, the French office will soon be able to raise the lack of inventive step. However, in the patent application which was the subject of the judgment, this was certainly the most important aspect. The court was only questioned on the application of L. 611-10 of the IPC and L. 612-12 of the IPC, which concern respectively the exclusions from patentability and the inadequacy of the description. But the *Hitachi* approach, as applied by the Paris court, will imply, after the entry into force of the PACTE law, that the INPI will investigate whether the inventive contribution is of a technical nature. Nothing was less certain than the technical nature of the said contribution in this case, since the court ruled that the graphic window with a timeline, which was deemed "central" in the claim at issue, was not considered technical. This implementation in France of the method initiated at the European Patent Office could, in any case, usefully draw inspiration from the founding jurisprudence of the European Patent Office in the computer sector¹⁴⁴.

§69. Two recent pronouncements on computer-implemented inventions suggest that the Paris Tribunal de Grande Instance has also adopted the EPO's *Hitachi* approach.

¹⁴¹ EPO, CRT 3.5.01, 30 April 2008, T 1567/05, *Designing of building structures/ENU*.

¹⁴² EPO, CRT 3.5.06, 2 Aug. 2012, T 1741/08, *GUI layout/SAP*.

¹⁴³ EPO, CRT 3.5.06, 15 May 2013, T 0862/10, *Notification system/Microsoft*. — See also EPO, CRT 3.4.03, 31 March 2016, T 1375/11. — See nevertheless EPO, CRT 3.4.03, 14 April 2016, T 651/12.

¹⁴⁴ We are thinking in particular of *Comvik*. See M. Dhenne, observations, *Propr. industr.* 2018, chron. 12.

Firstly, four judgments were handed down on July 11, 2019, concerning the same three patents belonging to Philips: one against HTC, one against Asus, one against Archos and one against Wiko¹⁴⁵. Philips accused all defendants of not having adhered to its Touch enabled device licensing program and therefore brought an infringement action against each of them on the basis of European patents No. EP 1384134, EP 0888687 and EP 1571988. The four judgments appear to be substantially identical, so only one need be studied.

Claim 1 of EP'134 reads as follows:

"A data processing apparatus (100) having a user interface that assists in finding information from an ordered list (110) in a data set, the apparatus comprising: a scrolling array (120-140) responsive to user actuation; an assist character generator (150), which is actuated by continuous actuation of the user (160) of the scrolling assembly, the assist character generator being operative to display an assist character representative of a portion of the list (110) being scrolled".

It's basically a user interface invention. In order to make it easier for the user to retrieve data from a long list of information, an "assistance character" appears. The patent discloses a data processing apparatus with a user interface that assists in retrieving information from a large amount of data, comprising a scrolling assembly that is sensitive to user actuation. Further actuation by the user of this scrolling set generates the display of an assistance character. For example, this support character may represent the first letter of a name or the first digit of a telephone number. It is representative of a group of entries in this list. The user can then use the help character to select the desired group to browse through it instead of the entire list.

The defendants argued that this is a mere presentation of information and therefore not a technical solution within the meaning of Article 52 EPC.

The court rejected this argument:

"It is recalled that the patent EP 134 aims at improving the user interface adapted to portable electronic devices, providing, in order to facilitate the search for information in a set of data, for an actuation of the user which will generate the appearance of assistance characters representative of a part of the current list, which will thus enable him to find the information he is looking for more easily.

The display of the assistance character implies a continuous actuation of the user in a scrolling set.

The patent therefore implies an active role of the user, through an improved interface interacting with him, creating a particular technical effect due to the voluntary actuation of the user, allowing him to make a faster choice in a set of elements.

By combining several modes of scrolling through a list of items, the patent teaches an adaptive user interface for searching and displaying, notably through the help provided by help characters, and thus does not merely present information "as is". It is also recalled that the objective claimed by the invention is to facilitate the selection, on small devices, of an element in a large number of data, taking into account their particular ergonomics.

Therefore, patent EP 134 unquestionably implements technical means to obtain a technical solution to a technical problem. Its subject matter is therefore patentable.

Three lessons emerge from this reasoning regarding the interpretation of Article 52 EPC. Firstly, the Court seems to adopt the *Hitachi* approach by admitting that the mere use of technical means

¹⁴⁵ TGI Paris, 11 July 2019, No. 15/16933, 16/00753, 16/02073 and 16/02683.

is sufficient to provide a technical solution to a technical problem, and thus an invention. Then, the judges go even further by considering that the technical character may reside in the ergonomic character of the human/machine interface. Finally, the court notes a statement in the patent description that human-machine interaction is particularly difficult when the device is small, due to the physiology of the user.

The last two teachings of the judgment seem all the more astonishing since it seems to go beyond the EPO's position. While it is true that the Boards of Appeal of the EPO have sometimes adopted a similar approach¹⁴⁶, the fact remains that the Examination Guidelines do not take a clear position on the technical nature of such implementations. Section G-II, 3.7.1 of the Guidelines even suggests that only a "*physical ergonomic benefit*" related to user comments could be considered as a technical contribution. Similarly, the court also noted a statement in the patent description that human-machine interaction is particularly difficult when the device is small, due to the physiology of the user. While effects based on human physiology are recognized by the EPO guidelines (Section G-II, 3.7), they are not generally recognized as technical by examiners.

§70. In a judgment rendered on February 1, 2019, the Tribunal de Grande Instance de Paris rendered a decision admitting the validity of a claim relating to the automation of an intellectual process¹⁴⁷. While the issue of technicality is not directly raised by the judges, it is nevertheless underlying.

In this case, a company which offered fraud detection solutions to telecommunication operators was the owner of a patent EN 2 908 572 entitled "*Method and system for generating planned communication operations on information networks and systems, and implementation of this method in a billing verification process*". Following a formal notice from her competitor, she had an infringement seizure made at the premises of a third party company using robots which, according to her, implemented her patented process, before bringing an infringement action based on claim 8 of her patent.

The French patent concerned a device for generating planned communication operations and its use in a billing verification process. It proposed a process for generating planned communication operations (voice calls, SMS messages or MMS content services) by automatically correlating data in order to detect anomalies. The patent contains 8 claims, 7 of which are process claims and the last claim for implementation of the process, which was the only one invoked, reads as follows: "*Application of a process according to any one of claims 1 to 5, for the purpose of detecting traffic diversion operations by third parties, implementing a comparison of theoretically expected caller IDs with those actually observed by the call receiving robot*".

With regard to the assessment of inventive step, the court held that it was not obvious for the skilled person to rely on the closest prior art (D1), which contained lessons relating to a system for verifying an invoicing process, in order to apply them to a device for verifying the derivation of traffic – i.e. fraud – which pursues "*a completely different perspective*". The court based the inventive step of the subject matter of Claim 8 on this difference combined with a "*comparison of identifiers*" step.

Although the reasons do not directly address the issue of technicality, it is likely to be underlying. In this case, the Court accepted the patentability of the autonomization of an intellectual method, implicitly acknowledging that its automation made it technical and that its inventive step could reside in the intellectual method itself. Hitherto, French case law had rejected such a position, in particular in *Infomil v. Atos*¹⁴⁸. The Paris Court of Appeal has also ruled, with regard to a

¹⁴⁶ EPO, TBA 3.5.05, 16 March 2018, T 1779/14, *Selbstlernende Insulinpumpe/ROCHE*.

¹⁴⁷ TGI Paris, 1st Feb. 2019, No. 15/15784, *Araxxe v. Sigos*.

¹⁴⁸ See *supra* No. 67.

process for the electronic ordering of products from a sales centre, that "the fact that this method uses technical means, such as telecommunications networks, for non-technical purposes does not give it a technical character, given that the technical means used, which are already known, are not claimed"¹⁴⁹.

§71. English case law. — In England, the Court of Appeal rejected the literal interpretation approach in *Aerotel* and *Macrossan*¹⁵⁰. The invention claimed in the *Aerotel* case related to a system for making telephone calls from any telephone using a special prepaid code. The invention claimed in the *Macrossan* case related to a computerized method for gathering the documents necessary to incorporate a company. The Court of Appeal upheld the decision in the *Aerotel* case. The Court of Appeal reversed the decision in *Macrossan*. According to Justice Jacob, the approach developed by the EPO in Case T 258/03 is not "intellectually honest". The judge adopts an approach consisting of four stages: interpretation of the content of the claim; identification of the subject matter of the contribution it contains; delimitation of the contribution; assessment of the technicality of the contribution. In other words, the approach based on the technicality of the contribution should be retained. In the *Aerotel* case, it was held that the contribution resided in the new apparatus required to carry out the method. The invention was essentially technical and therefore patentable. In contrast, in *Macrossan*, the contribution was an unpatentable intellectual method. The invention was essentially non-technical and therefore unpatentable.

However, the Court of Appeal brought the English position closer to that of the European Patent Office in the *Symbian* decision¹⁵¹. The invention claimed in this case concerned a system of internal interfaces. The application was rejected. The examiner considered that it concerned a computer program as such. This decision was overturned by the Board of Appeal of the UKPTO. It was held that the claimed invention gives rise to a technical effect consisting in the modification of the internal functioning of the computer produced by the implementation of the program. This achievement was patentable because the system of internal interfaces resulted in a change in the internal workings of the computer. In other words, the insertion of an intellectual method into a machine ensures its technicality. And only an invention relating to information processing as such is not technical. This decision by the UKPTO Board of Appeal in the *Symbian* case was upheld by the Court of Appeal. In *AT&T Knowledge Ventures*, Justice Lewison specified the four signposts of technical effect: whether the claimed technical effect has a technical effect on a process implemented outside the computer; whether the technical effect occurs at the level of the computer architecture, i.e. whether the technical effect is produced without regard to data or applications; whether there is an increase in the speed or reliability of the computer; whether the technical problem is overcome and not circumvented¹⁵².

§72. German case law. — In Germany, the *Bundesgerichtshof* adopted an approach identical to the approach of the EPO in a 2006 decision. The claimed invention was identical to that claimed in the *Aerotel* case¹⁵³. It was a system allowing telephone calls to be made with any type of device using a special prepaid code. The court held that the presence of known technical means guaranteed the technical character of the entire invention. In this case, the use of a known technical device to carry out the method ensured the technicality of the method.

¹⁴⁹ CA Paris, 10 Jan. 2003: *PIBD* 2003, No. 760, III, p. 145; *Propr. intell.* 2003, No. 7, p. 191, observations B. Warusfel.

¹⁵⁰ Court of appeal, 27 Oct. 2006, *Aerotel v. Telco Holdings Ltd et Macrossan's Patent Application*: *RPC* 2007, p. 117.

¹⁵¹ Court of appeal, 8 Oct. 2008, *Symbian Limited v. Comptroller General of Patent*: *RPC* 2009, p. 1.

¹⁵² High Court of Justice, 3 March 2009, *AT&T Knowledge Ventures LP and CVON Innovations Ltd v. Comptroller General of Patent*: *EWCH (Pat.)* 2009, p. 343. — See also HCJ, 4 Sept. 2013, *Lantana Ltd v. Comptroller General*: *EWCH (Pat.)* 2013, p. 2673.

¹⁵³ BGH, 7 March 2006, *Voraus bezahlten Telefonanrufen*: *GRUR* 2006, p. 663.

§73. Definition of the objective technical problem: "Comvik" case law. – The positioning of the assessment of technicality at the stage of the examination of the inventive step obliged the EPO to adapt the criteria of assessment of the latter.

The approach reached in Case T 641/00, known as "Comvik", finally made it possible to frame the formulation of the technical problem, in particular in the field of computer-implemented inventions, in order to avoid that the inventive step cannot derive from trivial technical aspects¹⁵⁴. It lays down the principle that non-technical elements may be included in the definition of the objective technical problem when they correspond to constraints to be respected.

In the present case, the technical problem did not consist in the identification procedure implied by the assignment of two identities to a SIM card, but in the establishment of two identities in the context of the GSM standard, which then required a specific identification procedure. The integration of non-technical aspects in the formulation of the objective problem ensures an "upgrading" of the assessment of inventive step in the presence of applications for inventions that combine technical and non-technical elements. It was necessary, however, to ensure that the inventive step stems only from technical aspects. It was to this end that the collaboration of a businessman with a person skilled in the art was conceived. The former entrusted the latter with all the non-technical elements that the latter had to implement.

§74. Skilled man and businessman. – The appearance of the business man in a team of skilled men is in line with Decision T 641/00¹⁵⁵. Today, the whole difficulty lies in the delimitation of the competences of this businessman, on which will depend the contours of the objective technical problem, which ultimately establish the threshold of the requirement of inventive activity. This difficulty seems all the more significant since it is in fact a function of the notion of technical character, insofar as it involves separating the non-technical skills that belong to the businessman from the technical skills that belong to the person skilled in the art, in order to determine which characteristics are relevant when assessing the inventive step. However, it is an understatement to say that this notion of technicality, which is at the heart of this new trend, remains vague and that the jurisprudence of the Office is not very helpful in understanding it.

The decision T 1463/11 delivered on 29 November 2016 is the touchstone of the jurisprudence on the competence of the businessman¹⁵⁶. The application concerned a method of authentication of the means of payment chosen by a consumer making on-line purchases. The technical implementation of authentication involves plug-ins (software used for authentication) located on the merchant's server, which then exchanges with the computer of the company managing the means of payment. The claimed invention was aimed at centralizing the plug-ins: instead of being installed at the merchant's server level, they were installed on a separate authentication server to which a large number of merchant servers had access. The interest of this system lies in simplifying the installation as well as the maintenance of the plug-ins. The Examining Division rejected the application on the basis that the decision to centralize the plug-ins on an independent server was part of the businessman's requests to the businessman and therefore could not require an inventive step. This rejection by the Examining Division was reversed by the Board. As a preliminary point, the Board recalled, on the one hand, that the fictitious business man provided the specification of non-technical needs to the skilled person, while specifying, on the other hand, that this business man was fictitious in that he did not necessarily correspond to reality. For the purposes of patent law, this character must in particular be understood, according to the Board, as lacking any technical knowledge, however trivial or notorious it may be, and he is likely to

¹⁵⁴ EPO, TBA 3.5.01, 26 Sept. 2002, T 641/00, *Two identities/Comvik*: OJEPO 2003, p. 352.

¹⁵⁵ EPO, CRT 3.5.01, 7 Oct. 2008, T 331/06, *Order processing v. Advanced Transactions Systems*.

¹⁵⁶ EPO, CRT 3.5.01, 29 Nov. 2016, T 1463/11, *Universal merchant platform/CardinalCommerce*.

take opposing decisions. Secondly, the Board considered that in this case the authentication of transactions was not limited to a commercial activity, since it involved technical means, such as the use of plug-ins and servers. The businessman, for his part, was not supposed to have any knowledge of the server, so that he was not supposed to ask the businessman to use a server independent of the merchant server for the plug-ins. Thus, the decision to centralize the plug-ins on an independent server belonged to the man of the art. The question raised then became: was it obvious for a professional seeking to simplify the installation and maintenance of plug-ins to consider the said centralization? The Chamber answered in the negative, considering that certain technical considerations were opposed to the centralization of plug-ins and that reversing this prejudice required an inventive activity (pt 31).

Decision T 630/11 of 13 July 2017 clarified that non-technical considerations with technical implications should also be excluded from the scope of the objective technical problem¹⁵⁷. The application concerned an online betting game, such as poker. The invention was intended to bring together online players waiting in several casinos to form a new game. In particular, an additional game server was claimed for the exploitation of the game among the grouped players and for the distribution of winnings as well as losses. The Examining Division rejected this application on the ground that the claimed invention did not involve an inventive step for a businessman whose business required the establishment of a system capable of bringing together players from several casinos. The appellant argued that the specification of non-technical requirements should rather be formulated as finding more players and not as bringing together players from several casinos, since the latter formulation had technical implications in that it required modifications to the servers and networks. However, under the *CardinalCommerce* case law, non-technical requirements with technical implications could not be addressed by the business man. The Board rejected this sibylline distinction and upheld the rejection decision. It further stated that only requirements with direct technical implications should be excluded from the business area. Otherwise, any decision could have become technical, since any decision has technical implications.

Decision T 1722/12 of 3 March 2018 also applied the rule identified in *CardinalCommerce*, although it did not specifically refer to the businessman¹⁵⁸. The application concerned a method of placing online advertisements dynamically, taking into account the availability of the advertiser's contact centre to determine both the timing and the content of the advertisement. The reviewing division rejected the application on the grounds that the features relating to storing ads, monitoring the availability of the advertiser's contact centre resources, and proposing ads based on the determination of those resources were not technical and should therefore have been part of the definition of the technical problem as requirements specifications. The claimed method therefore did not involve any inventive activity with respect to a generic networked data processing system. The Board confirmed this rejection while considering that the storage step was technical in nature, even if the stored content (the advertisement) was not. The storage was therefore not part of the specification of the requirements. The appellant argued that the dynamic placement of advertisements, by targeting customers, served to deter them from contacting the call centre, thereby reducing the network load resulting from customer requests. It was held that this argument was unsuccessful in that it amounted to recognizing that a characteristic inherited its technicality from the context of its implementation. A message passing through a network has an effect on traffic, but this does not make the content of the message or the decision of when to send it technical. Therefore, the selection and placement of advertisements based on the availability of the advertiser's call centre should be included as a requirement specification and the technical problem is the implementation of these specifications. In this case, the person in the trade would have provided the appropriate technical means (data storage medium, network, router, etc.).

¹⁵⁷ EPO, CRT 3.5.01, 13 July 2017, T 630/11, *Gaming server v. Waterleaf*.

¹⁵⁸ EPO, CRT 3.5.01, 3 March 2018, T 1722/12, *Dynamic ad placement/Alcatel Lucent*.

It appears from these cases that the business man would be fictitious in the sense that his contours adapt to the needs of the patentability examination. Thus, although in reality this principal is not totally ignorant of technology and can express certain technical needs, the businessman, in the sense of patent law, would be, for his part, a character just as fictitious as the man of the trade. This "fictitious business man" would be incapable of expressing the slightest technical need while being able to go beyond "business prejudices" by proposing solutions contrary to the smooth running of his business.

This reasoning leads to a reminder of certain fundamentals. According to Article 56 of the Munich Convention, an invention requires an inventive step as soon as it does not result obviously from the state of the art for a person skilled in the art. This requirement of inventive step results in the comparison of two terms, the state of the art and the skilled person, with one criterion, non-obviousness. The search for objectivism, which in fact borders on empiricism, confers fundamental roles to the terms of comparison, because they distance inventive activity from the flash of genius of the inventor. In other words, the definitions of the state of the art and of the person skilled in the art are the guardians of legal security.

Like any concept, the skilled person is a representation of a reality and the very idea of such a representation implies that it is impossible to base this concept on an empirical reality whose forms it would take. Nevertheless, this is not a legal fiction, since one does not equate unreal facts with real facts (as is the case with a presumption). Admittedly, the skilled person does not really exist, but he must remain as close as possible to the average professional in the technical sector in question. Jochen Pagenberg rightly concluded that "*in practice the skilled person is not a legal fiction, but rather an empirical and actual value that will be found and defined by means of an examination*"¹⁵⁹.

To assert that the skilled person is "fictitious" is to confuse concept and legal fiction. Any concept implies a representation of reality; a legal concept will, moreover, include a legal burden, which may deflect common sense from it. Invention in common language, for example, does not necessarily constitute a technical solution to a technical problem. First of all, it is not necessarily related to technology. Second, the term may also refer to the act of inventing. Similarly, the concept of a businessman in the sense of patent law may exclude any technical knowledge, even though it is commonly accepted that he may possess trivial technical knowledge. Consequently, and contrary to what is asserted by the Board of Appeal, the businessman is not "fictitious", but corresponds to a reality whose forms he must espouse. That legal concept must, however, be consistent with the purpose of the legal rule which it serves. In this case, it will only be a question of deviating from reality by exception when strict compliance with reality can allow a circumvention of the boundary of technical character, which constitutes the ultimate limit of the field of patentability.

In the end, the concept of businessman undoubtedly has the merit of refining the formulation of the objective technical problem and is a useful reminder of the distinction between the common meaning of a concept (the businessman) and its legal meaning. However, this trend in case law leads to the age-old question of what is meant by "technical nature", a concept which is sometimes considered to be indefinable and for which the Boards of Appeal could at last, salutarily, apply a reasoning similar to that for the businessman by distinguishing the legal concept from its common meaning and by then finally proposing a definition of technicality instead of claiming that it is impossible.

¹⁵⁹ J. Pagenberg, *Die bedeutung der Erfindungshöhe in amerikanischen und deutschen Patentrecht*, C. Heymann, Max Planck Institut, 1975, p. 149: "*Der Durchschnittsfachmann in der Praxis nicht durch eine juristische Fiktion, sondern anhand empirischer Werte und tatsächlicher Erhebungen gefunden und definiert wird*".

§75. What about the "non-technical" state of the art? – In Case T 2101/12, the Board of Technical Appeals 3.5.06 challenged the Office's usual approach to the composition of the state of the art by including non-technical elements.

The application in this case concerned an electronic signature process. The question was whether or not the usual practice of validating a contractual commitment by signing the contract in the presence of a notary could participate in the state of the art in such a way that this type of performance was or was not capable of establishing obviousness of the claimed invention in the context of the assessment of inventive step. The Board of Appeal considered that this practice was part of the general knowledge of the person skilled in the art, which meant that it had to be taken into account during the examination. With a view to ruling out such prior art, the applicant relied on the principle set out in decision T 172/03 (so-called "*Ricoh*"), according to which a non-technical element could not be part of the state of the art. According to the Chamber, Article 54 EPC is very clear when it states that the state of the art consists of "*everything which has been made available to the public before the filing date*", this "*everything*" thus inviting to make no distinction between what is technical and what is not. The Chamber admits at the same time that its position contradicts the position taken in T 172/03. In the present case, it is inferred that the claimed invention is obvious, as it merely proposes the automation of an already known legal and methodological process, which consists in involving a trusted third party in order to validate the signing of a contract.

It follows in principle from the problem-solution approach that the knowledge available to the skilled person is that of the technique in question. In the past, this limitation excluded elements that did not belong to the field of technology. This was the position taken by the Board of Appeal 3.5.01 in Case T 172/03¹⁶⁰. The claimed invention related to a method of organising orders making it possible to control and satisfy the needs of businesses or administrative entities. The Examining Division rejected the application for lack of novelty because similar methods of organisation existed in the state of the art. The Board confirmed the rejection, but stated that the state of the art did not include the commercial arts. The application was ultimately rejected on the ground of lack of technical inventive contribution. And this case law has since remained constant.

Initially, the case law of the EPO therefore clearly and consistently rejected the consideration of non-technical information within the state of the art. This position has subsequently evolved. The evolution has been achieved through the integration of "non-technical" objectives in the formulation of the technical problem. Decision T 1053/98 of the Board of Technical Appeals 3.5.01 in 1999 is the origin of this trend¹⁶¹. The claimed invention concerned a system for controlling the cost of sending facsimiles, whereby the name of the sender and the cost of sending are recorded for each consignment. The Board held that the non-technical aspect of the invention, i.e. the idea of controlling the cost of facsimiles for each department of the company, had to be integrated into the formulation of the technical problem.

The whole logic of which *Ricoh* and *Comvik* are the pillars was undermined by *Vasco*. Admittedly, at first glance, this decision seems to raise the threshold of patentability, more precisely of inventiveness, in the sector of computer-implemented inventions. In particular, the inclusion of non-technical anteriorities makes it easy to reject all inventions where the applicant merely claims the automation of a method in the exercise of intellectual activities. But while the approach adopted by the Chamber may prove useful in certain cases, such as in the reported decision, where there is little doubt that we are dealing with mere automation, it may also prove abrupt in many other, more nuanced cases. The rejection of any dialogue between a businessman and a professional

¹⁶⁰ EPO, TBA 3.5.01, 27 Nov. 2003, T 172/03, *Order Management/Ricoh*.

¹⁶¹ EPO, TBA 3.5.01, 22 Oct. 1999, T 1053/98, *Data communication apparatus/Canon Kabushiki Kaisha*.

confirms this feeling. In so doing, Chamber 3.5.06 seems to oppose again, but this time implicitly, Chamber 3.5.01, which remains more in demand in the field of computer-related inventions. Let us recall that since the Cardinal Commerce jurisprudence, Chamber 3.5.01 has established a method according to which a businessman is likely to dialogue with the person skilled in the art, in such a way that one can distinguish the technical elements from the non-technical elements. Therefore, when the Vasco decision takes into account the non-technical state of the art while refusing the dialogue between a businessman and a skilled person, it seems, in our opinion, to impose a dialectical opposition devoid of the nuance required, in principle, for the assessment of the patentability of so-called "mixed" inventions, which include technical and non-technical aspects. As it stands, we can only note a discrepancy between the case law of Chambers 3.5.06 and 3.5.01.

- §76. The approach of literal interpretation introduced by the EPO has been unanimously disapproved in doctrine¹⁶². The criticisms concern both the method and the solution to which it leads. From the point of view of the method, the test developed by the Board of Appeal 3.5.01 is based on a negation of the exclusions from patentability laid down in Article 52(1) of the EPC. It is sufficient to claim known technical means with one of the listed elements to circumvent its exclusion. Furthermore, technicality is assessed at the inventive step examination stage, whereas technicality and inventiveness are two separate requirements. From the point of view of the solution, this case law amounts to a disappearance of the field of technology established by the aforementioned provision. The latter are considered as abstract creations. However, this abstraction is often perceived as an obstacle to the patentability of inventions concerning them.
- §77. Criticisms of the method of literal interpretation must be qualified. Indeed, it is true that the approach itself is questionable. The close historical link between technicality and inventiveness is not sufficient to justify their confusion, since the Munich Convention has introduced a condition of autonomous inventive step in Article 56. Moreover, this approach leads to technicality becoming a vague concept to be assessed on a case-by-case basis. While the method of literal interpretation is in itself debatable, the solution to which it leads is, on the other hand, to be approved. The field of patentability as laid down by the Convention is too restricted and confused and that the EPO's approach makes it possible to overcome this defective text in favour, finally, of a more comprehensive assessment of the technical nature as regards the scope of patent law. In other words: the Boards of Appeal are doing their best with a text that is as defective as it is anachronistic. Nevertheless, one task remains on the table: the refusal of the Boards to define technical character or, worse still, their refusal to rely on the definition given by the Enlarged Board of Appeal¹⁶³.

¹⁶² J. Passa, *Traité de droit de la propriété industrielle*, t. 2, *Brevets d'invention. Protections voisines*: Litec, Traités, 2013, No. 86, p. 111. — *Propr. intell.* 2005, No. 16, p. 352, B. Warusfel.

¹⁶³ See *supra* No. 22.

Conclusion

§78. The qualification of the technicality turns out to be difficult in the end. On the one hand, the requirement is not explicitly stated in the texts and case law generally refuses to accept a precise definition. On the other hand, many assessment methods have been developed in order to circumvent the exclusions of patentability, in particular that of computer programs. **The main consequence of this practice is a complex system that is understandable to a small minority of specialists and, above all, a great deal of legal uncertainty. It is this observation which leads us to propose essentially two measures: a suppression of the list of exclusions of Article 52(2) EPC; the introduction of an autonomous condition of a technical nature. Defined as an operational utility in the sense mentioned above, technicality would remain a flexible requirement while assuming the role of guardian of the borders of patentability which is its due. *De lege lata*, one should, at the very least, examine the technical character at the stage of the examination of article 52 while defining this requirement, in order to avoid the legal uncertainty engendered by its use as a vague concept in stage of examination of Article 56 EPC.**