

Confusions from and Reflections on Software Patent Application

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With billion-megabit capacity and computing speed at hundred-million times a second, the compute has almost become an omnipotent slave. Whenever its master inputs an order or command, it performs the function its master hopes it to. No wonder the US National Instrument Corporation (NI) has come up with the saying: “a piece of software is an instrument.”

However, when this special machine enters the patent arena, it has brought, along with its technical surprise, legal confusions, and set us thinking about the relevant issues.

I. Confusions

The most confusing, or perhaps the most fundamental, question is: what should we protect after all of an application for a patent for invention relating to a computer program?

There is a rule in the patent community: a computer program, as such, is precluded from patentability, but “an invention relating thereto” is not, provided that the invention relating to a computer program constitutes a technical solution. Then, what does the word “technical” really mean?

In the provisions of the Chinese Guidelines for Patent Examination on the examination of applications for the patent for invention relating computer program are enlisted three circumstances where the inventions are patentable:

(1) “the purpose of executing or performing a computer program is to realise an industrial process”;

(2) “the purpose of executing or performing a computer program is to process external technical data”;

(3) “the purpose of executing or performing a computer program is to improve the internal performance of a computer system.”

For circumstance (1), the most typical case is example 4 cited in the Guidelines for Examination, involving a method for controlling a method for shaping rubber with die, an example originating from the US Federal Supreme Court’s final judgement made in *Diamond v. Diehr*.

In this case, the claimed subject matter was a tradition-

al industrial product manufacturing method, i.e. a method for shaping non-sulphidised synthetic rubber into sulphidised rubber products. The issue involved in the case arose from use of a mathematical formula in computer to control the temperature in said manufacturing process. That is, the value of temperature survey was input into a computer, and the a mathematical formula was used in a computer for repeated computation of sulphidising temperature, then a device was signaled to open a die at the right time.

It was first affirmed in the ruling that “the industrial method involved in the case was historically a patentable subject matter.” It was further pointed out in the ruling: “it is true that a known mathematical formula was used in the claimed method, but the applicant did not claim priority of said mathematical formula. It merely requested exclusion of any other party from using said mathematical formula together with the other steps of the claimed method.”

It was clearly pointed out, as a principle, in the ruling that “a claim for a former statutory patentable subject matter should not be turned into a non-statutory patentable subject matter merely because of the use of a mathematical formula, computer program or digital computer.”

This case has sent a clear message. Whether said claim is a statutory patentable subject matter or not does not depend on whether a computer program is used. Even according to the conventional conception, it is an industrial manufacturing method protected under the patent law.

As for circumstances (2) and (3), some classical cases are given in the Guidelines for Examination, such as “a method for eliminating video noises” and “a method for increasing memory capacity of a portable computation device.”

From these cases, we seem to be able to draw the following conclusion:

First of all, the so-called “technical data” in circumstance (2) refer to data that need to be mechanically, elec-

tronically or chemically processed in the traditional sense. For example, in the conventional industry field, video noises were processed by adjusting filtering electric circuit, which was a technical process in the conventional sense. For that reason, be the data processed with a mathematical method or a computer program, the process remains one of the “technical data”, so a subject matter protected under the patent law.

The Decision (T0208/84) made by the EPO Board of Appeals in a case involving a video process in 1986 highlighted the conception.

In this case, almost all the features of the claims related to a mathematic method, with claim 1 going like this:

“1. A method of digitally processing images in the form of a two-dimensional data array having elements arranged in rows and columns in which an operator matrix of a size substantially smaller than the size of the data array is convolved with the data array, including sequentially scanning the elements of the data array with the operator matrix, characterised in that the method includes repeated cycles of sequentially scanning the entire data array with a small generating kernel operator matrix to generate a convolved array and then replacing the data array as a new data array; the small generating kernel remaining the same for any single scan of the entire data array and although comprising at least a multiplicity of elements, nevertheless being of a size substantially smaller than is required of a conventional operator matrix in which the operator matrix is convolved with the data array only one, and the cycle being repeated for each previous new data array by selecting the small generating kernel operator matrices and the number of cycles according to conventional error minimisation techniques until the last new data array generated is substantially the required convolution of the original data array with the conventional operator matrix.”

If the word “images” was absent in the above claim, almost no one would doubt that it is a method of mathematic computation. In fact, the claim of said application was not defined as image processing, but a “method for digitally filtering data”. In the proceedings of appeal, the Board of Appeals required changing it into image processing, and based on this revoked the former rejection decision.

In its decision, the Board pointed out: “Even if the idea underlying an invention may be considered to reside in a mathematical method, a claim directed to a technical process in which the method is used does not seek protection

for the mathematical method as such. In contrast, a ‘method for digitally filtering data’ remains an abstract notion not distinguished from a mathematical method so long as it is not specified what physical entity is represented by the data and forms the subject of a technical process, i.e. a process which is susceptible of industrial application.”

We can, as well, refer to this method as a “function-object test”. In other words, no matter what mode it functions, the subject matter is protected under the patent law as long as the object it acts on is technical data in the conventional sense.

The “internal performance of a computer system” in circumstance (3) refers to the intrinsic performance of a computer as a machine that can be used for various purposes, and operates different applications, for example, storage capability, computation capability, mode of input and output, and ability to use different files operating inside the system. Programs designed for different application purposes (word processing or playing games) may expand the scope of use of computers, making one computer different from another. But this change is not improvement of the “internal performance of a computer system”. We can now call it a “machine-type test”. In other words, what is focused on is the performance of a machine for general purposes, not its particular utility.

If this reasoning is tenable, the line of thinking becomes clear, which is characterised by the fact that in the conventional industrial field, the computer is only one of the available alternative means, not the key factor for assessing the subject matter of protection. As for the computer itself, it is treated as a conventional machine, and any solution for improving the internal performance of the machine is a patentable subject matter under the patent law, while extension of its use by way of an application is not.

However, things are not that simple. With the emerging of a tremendous number of applications for patents for inventions relating to business methods, the trend of development seems to be a far cry from the above reasoning.

A large number of applications filed for patents for inventions relating to business methods do not involve the industries that fall into circumstance (1), that is, they are not the conventional industrial processes; they deal with matters of currency and transaction, which are obviously not “technical data” mentioned in circumstance (2). Under most circumstances, they do not improve the “internal performance of a computer system”, so they do not fall into circumstance

(3), either. Inventions of the nature are, however, not precluded from patentability.

The most notable is the final ruling made by the US Federal Court in the case involving State Street Bank in 1998.

The high-profiled case involves a data processing system for managing financial service system for joint funds.

As for whether it is a statutory subject matter, the case involves two aspects: is it a “mathematic algorithm”, or a “business method”?

The answer to the first question in the ruling was that claim 1 related to a machine having hub-spoke program and producing “useful, concrete and practical result”, so, it was a statutory patentable subject matter “even if said useful results were numerically shown in the form of prices, profits, percentage, costs or losses.”

The answer to the second question in the ruling was more surprising: “the District Court made its ruling under the judicially-set principle that ‘business method’ was not a patentable subject matter under the law. This court now took the opportunity of this case to declare that said erroneous principle was now dead.”

It should be said that this case is typical of the application for patent for invention relating to business method. In the applications of the kind, the core content is often a new model of business operation, say a method for pension management or auction. If such technical terms as “computer”, “network”, “input means”, and “processing means” are not attached to the claims, they are identical with the conventional business methods. The technical terms *per se* are awfully familiar to people, and the functions of these means are known. The key issue is: what should we protect, the business operation model attached to a compute or the computer or the system that has structurally changed due to use of the software?

If a business operation model attached to a compute is to be protected, it is not substantially different from a business operation model detached from a computer. Without paper or writing system, a business operation model may be exploited by word of mouth. But, now, people obviously use paper or telex to achieve quick communication. Likewise, when the function of the computer is so well known, and the computer is so widely applied, it goes without saying that people would use the computer, as a rational choice, to effect some model of business operation.

Perhaps, it is for this reason that there have arisen quite a number of cases involving pure business methods in the U.

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In September 2006, the Patent Appeals and Conflicting Board of the USPTO (the Board of Appeals for short) made its reexamination decision on an application for a patent for a pure business method (Ex Parte Bilski). Said application was not complicated at all, nor was the legal issue involved therein. But, the five patent administrative judges held two court sessions to hear the case respectively in 2003 and 2006, and upheld, in the end, the USPTO’s rejection decision with a seventy-page-long decision.

In the seventy-page-long decision, the Board of Appeals reviewed from a historic perspective the issue of patentability of the subject matters, particularly the patentability of the subject matter relating to a business method, with an analysis of its present significance. Some views presented in the decision are worth noting.

The case involved invention patent application 08/833, 892, with the date of filing on 10 April 1997. It was entitled energy risks management method, and contained 11 claims.

The background of the invention was that “consumers of energy recourses are faced with two risks: the price risk and consumption risk. In the past five years, there had emerged a lot of tools for controlling the price risk, making the price risk management comparatively easier. But, there lacked management of the consumption risk (for example, more or less energy had to be used/consumed due to climatic change) in the energy market, which is the problem the present invention was meant to resolve.” Claim 1 of said invention went like this:

“1. A method for managing the consumption risk costs of a commodity sold by a commodity provider at a fixed price comprising the steps of:

(a) initiating a series of transactions between said commodity provider and consumers of said commodity wherein said consumers purchase said commodity at a fixed rate based upon historical averages, said fixed rate corresponding to a risk position of said consumer;

(b) identifying market participants for said commodity having a counter-risk position to said consumers; and

(c) initiating a series of transactions between said commodity provider and said market participants at a second fixed rate such that said series of market participant transactions balances the risk position of said series of consumer transactions.”

Obviously, it is a typical claim for a pure business method. Especially, the applicant admitted: “it is not neces-

sary to run the steps of said method on a computer.”

But, it was not easy for the Board of Appeals to deal with the case. As stated in the decision made in the case, “the question of whether this type of non-machine-implemented subject matter is patentable is a common and important one to the U.S. Patent and Trademark Office (USPTO), as the bounds of patentable subject matter are increasingly being tested. In recent years, the USPTO has been flooded with claims to “processes,” many of which bear scant resemblance to classical processes of manipulating or transforming compositions of matter or forms of energy from one state to another. Many of these applications are referred to as so-called “business methods,” but claims to methods of meditation, dating, physical sports moves, etc., are also presented.

It is pointed out in the decision: “the State Street Bank case and the AT&T case, often said to be ‘revolutionary’, involved patented machines or machine-implemented processes that examiners have for sometime regarded as non-exceptional. Perhaps inspired by certain general terms or expressions in these cases, however, a wide range of ever more generic claims to “processes” come before the office. Many, like the claimed process in the present case, are not limited to implementation via any particular technology or machine.”

In the decision was further raised the issue: “are such “processes” patentable because they are “useful”? Other “process claims” involve what seem to be insubstantial or incidental manipulations of physical subject matter-e.g., the mere recording of a datum: are these patentable processes? Still other process claims involve human physical activity-methods of throwing a ball or causing a fumble. Do these process claims cover patentable subject matter? Must the examiners analyse such claims for compliance with the written description and enablement requirements, and search the prior art for evidence of novelty and non-obviousness?”

It seems that assessing patentable subject matter on the basis of the “useful, concrete and sensible result” is very puzzling to the Board of Appeals of the USPTO, an examination authority that is technically and legally competent.

Things are slightly different in Europe. While it is pointed out in the Proposal on the Directive on Patentability of Inventions Relating to Computers the EU Committee submitted to the European Parliament and European Council: “to create a level playing field regarding the conditions for protecting computer-implemented inventions between Europe and

the U.S., it could have been considered desirable to widen the scope of protection and bring European patent law in this field more in line with the U.S. law. One could have conceived, in particular, to allow for the patentability of computer implemented business methods.” But we have noticed, so far, that the European standards for assessing computer-implemented business method are obviously more conservative than the US standards.

First of all, it is explicitly provided in Europe that pure business methods are not patentable. Hence, anything relating to mode of doing business in a computer-implemented business method is treated differently, namely, it is held, in the inventive step assessment, “not making any contribution to the prior art.” But, account should be taken of the features of a business method if they produce “interaction” with the technical information, and need to be “technically considered” in the inventive step assessment.

The classical case that is often cited as embodying the “technical considerations” is one in which the Board of Appeals of the EPO made the decision (T 0769/92) on 31 May 1994.

In the case what is claimed is: “a computer system for performing several mutual independent management tasks, wherein it at least comprises the financial and inventory management functions.”

In the case, the applicant highlighted that the technical features of claim 1 were especially embodied in the features of single format of “single check for transfer” and the possible “file management” due to this single format. Regarding the features of financial and inventory management in the claim, the applicant expressly stated: “it is not the financial and inventory management which are regarded as technical, and neither the meaning of the data nor the details of their transactions. The claims could just as well have been expressed in an abstract way, referring to “files A, B, ...”, but that would have made comprehension more difficult; the explicit management application could be seen as a voluntary limitation of the scope of protection.”

The Board of Appeals supported the applicant’s view, pointing out: “according to the appellant, claims 1 and 2 have been restricted to financial and inventory management and, consequently, to the input items being debit, credit and commodity items, for the only reason of rendering the invention more easily understandable. The important point would not be the particular kinds of management mentioned but only that the managements are of different, “specific” types to

be performed “independently” of each other; thus, for the claimed invention, it would not be important by what meaning the input items differ from each other, but only that their significance is governed by different types of management to be performed. Moreover, for the specific features defining the particular way in which the different files are handled it would not make an essential difference whether the “managements” to be performed are managements in a narrow sense or activities in a wider sense, the only important point being that they are different.”

“In the Board’s view the non-exclusion from patentability also applies to inventions, where technical considerations are to be made concerning the particulars of their implementation.

The very need for such technical considerations implies the occurrence of an (at least implicit) technical problem to be solved (Rule 27 of the Regulations for Implementing the EPC) and (at least implicit) technical features (Rule 29 of the Regulations for Implementing the EPC) solving that technical problem.”

Under this principle, the Board made the following analysis of the technical information of the case:

“Dealing first with the pure hardware features mentioned in both claims, it is noted that a display unit, an input unit, a memory unit, a digital processing unit and an output unit are all parts of any conventional computer, and this is still the case if the memory unit includes a plurality of files of different information contents and the processing unit executes a plurality of processing steps so that it may be regarded as comprising a plurality of processing means.

What is not, in claims 1 and 2, part of any conventional general-purpose computer is, apparently, the particular significance of all the different files in the memory and the manner in which, by the different processing means or in the different processing steps, the input data and the data stored are handled.

It would thus appear that no hardware unit which as such would be novel from a technical point of view is contained in the system claimed as such (claim 1) or in operation (claim 2).

Turning, therefore, to the more specific functions defined (by way of means) in claim 1 and (as steps) in claim 2, the Board considers it appropriate to follow, for the time being, the appellant’s argument that, although the claims are restricted to at least financial and inventory management, the question of whether their subject-matter is of a technical na-

ture should be answered on the basis that the types of management to be performed could, in principle, be of other kinds or even be activities in a wider sense than normally attributed to the term “management”; i.e. what matters for the invention as claimed would be only that said managements, or activities, are independent of each other and of different types. More particularly, it is provisionally considered not to be relevant for this question that the first kind of input items, necessary for the first type of activity (management processing), are financial (debit and credit) items and that the second kind of input items, necessary for the second type of activity (management processing), is an inventory (commodity) item, but that the only thing that is relevant is that the first and second kinds of input item are different (in accordance with their necessity for the first and second type, respectively, of further processing).”

So similar generalisation was made of the file of daily transaction account books, main idea files, main goods files, accumulative files of daily transaction account books, and the inventory files.

Based on this generalisation, the Board pointed out: “Against claims so generalised in the Board’s view, no objection that they relate only to “doing business” as such could be raised. In other words: in their generalised version as outlined above, the subject-matter of these claims would not be judged as being abstract or non-technical in the sense this is normally attributed to the subject-matter and activities excluded from patentability by Article 52 (2) as such in accordance with Article 52(3) EPC. More particularly, the teaching to provide, in the memory, the afore mentioned five files intended for different purposes (as outlined in point 3.5) and to cause the processing unit to perform the afore mentioned five functions would clearly require technical considerations (in the sense mentioned under 3.3).”

As is shown in the analysis of the decision in the case, embodied assessment principle is closer to said “mechanical assessment method”, but the way in which the claim is drafted make people feel that there were something implicitly shown. They have no idea whether the real use resides in some mode of doing business or improvement of the performance of the internal system of a computer.

In an application relating to a business method, a means or device may be defined in terms of function or use as claim 1 involved in the State Street Bank case was drafted:

“1. A data processing system for managing a financial services configuration of a portfolio established as a partner-

ship, each partner being one of a plurality of funds, comprising:

(a)computer processor means [a personal computer including a CPU] for processing data;

(b)storage means [a data disk] for storing data on a storage medium;

(c)first means [an arithmetic logic circuit configured to prepare the data disk to magnetically store selected data] for initializing the storage medium;

(d)second means [an arithmetic logic circuit configured to retrieve information from a specific file, calculate incremental increases or decreases based on specific input, allocate the results on a percentage basis, and store the output in a separate file] for processing data regarding assets in the portfolio and each of the funds from a previous day and data regarding increases or decreases in each of the funds, [sic, funds'] assets and for allocating the percentage share that each fund holds in the portfolio;

(e)third means [an arithmetic logic circuit configured to retrieve information from a specific file, calculate incremental increases and decreases based on specific input, allocate the results on a percentage basis and store the output in a separate file] for processing data regarding daily incremental income, expenses, and net realized gain or loss for the portfolio and for allocating such data among each fund;

(f)fourth means [an arithmetic logic circuit configured to retrieve information from a specific file, calculate incremental increases and decreases based on specific input, allocate the results on a percentage basis and store the output in a separate file] for processing data regarding daily net unrealized gain or loss for the portfolio and for allocating such data among each fund; and

(g)fifth means [an arithmetic logic circuit configured to retrieve information from specific files, calculate that information on an aggregate basis and store the output in a separate file] for processing data regarding aggregate year-end income, expenses, and capital gain or loss for the portfolio and each of the funds.”

In said claim, we see two kinds of definitions following some “means”: functional definition in the parentheses, and use definition outside the parentheses.

It should be emphasised that we often put the two kinds of definitions in the “means plus function” type. In fact, this is a misunderstanding as function and use are two different concepts. The function of a means is the intrinsic performance of a structure, and is not to vary for the way it is used.

While use is a mode chosen to put it into use. A device that allows this mode of use must have some identical functions, and some different functions as well. Take the definition of the third means for example, its use is defined as “for processing data regarding daily incremental income, expenses, and net realised gain or loss for the portfolio and for allocating such data among each fund”; but a means so defined obviously is not limited to the “arithmetic logic circuit” having the function of configuring to retrieve information from a specific file, calculate incremental increases and decreases based on specific input, allocate the results on a percentage basis and store the output in a separate file.” It may even be said that an abacus can have this use. Likewise, an “arithmetic logic circuit” having this function is evidently not limited to said use, either.

In the traditional fields, cases of defining means with use are rare. In most cases, use does not have the function of defining means. For example, a drug having a fixed structure remains unchanged regardless of what disease it is used to treat. Definition of function often has to meet several conditions due to its wide scope, and one of the most important conditions is that the description should sufficiently support the claims.

But, in an application for patent for invention relating to a business method, the use or function supported in the description is often another version of the use or function as embodied in the form of “flowchart”. Then, we would ask, does such support meet the requirements set forth in the patent law? Or has the description fully disclosed the invention?

When we try to answer the two questions, we are in a dilemma.

On the one hand, performance of the function depends on computer program; on the other, the patent law does not protect computer program, and disclosure of the source program of the computer is generally not required.

A computer program has dual characters: expressive character, which is the theoretical basis to attribute it to copyright protection; and instrumental character, which is a foundation of invention relating to computer program. As a tool, a computer program *per se* is the most specific solution for exploitation. Now the resultant question is: without this most specific solution, on what basis should we assess its exploitability? And on what basis should we determine whether the claims are supported?

As for this issue, prophets have long raised their criticism. In his legal analysis of patentability of mathematical al-

gorism and computer program made on 5 September 1989, Lee E. Barrett, in house council to the USPTO pointed out: "If the functionally-defined disclosed means and their equivalents are so broad that they encompass any and every means for performing the recited functions, the apparatus claim is an attempt to exalt form over substance since the claim is really to the method or series of functions itself. In such cases the burden must be placed on the applicant to demonstrate that the claims are truly drawn to specific apparatus distinct from other apparatus capable of performing the identical functions. If this burden has not been discharged, the apparatus claim will be treated as if it were drawn to the method or process which encompasses all of the claimed "means".¹ The statutory nature of the claim under 101 will then depend on whether the corresponding method is statutory."

However, this is debatable in the software community that the so-called "special device or means" is no longer an entity of a geometrical shape or a piece of equipment comprising circuits in the conventional sense. A piece of different software inevitably constitutes a different device. Therefore, if a computer workflow is described in the description, a computer running according to the workflow constitutes said "device". Now, we return to the former questions: what does the Patent law protect? Does it protect computer software?

Presumably, a computer program is a three-leveled model, wherein the first is a demand/function level, demand raised by a user; function pre-determined according to demand; the second a logical level, the logical design converting function into mathematical problems and their solution under computer rules; and the third is a programming level, expressing the logical design result in algorithm language. Of the three levels, the programming level generally falls into the domain of copyright protection; invention of the logical level often emerges as inventions for data processing, such as graphic processing. But, in inventions relating to business method, we see mostly inventions on the function/use level.

According protection to inventions on the function/use level is likely to involve the fundamental concepts and requirements of patent protection. According to the requirement for full disclosure in the description under the patent law, the case is deemed not to comply with the full disclosure requirement where "the description only shows the task and/or presumption, or only express a desire and/or result, without providing any technical means for a person skilled in the

art to work the invention."

Perhaps, the opponents may argue that with the present state of the compute technology a person skilled in the computer art is well able to come up with a piece of exploitable software according to the given functional demand. One would associate this with an imaginative boss and a group of employees of superb competence. The employees are able to realise all the boss's ideas. For that matter, people do not need to doubt whether an idea is realizable or not, nor does the boss need to be told how his idea is realised. Now the question is: "who should be rewarded, the boss or the employees? Especially, when the boss claims that his idea can be realized by his employees, should we still think that the boss should be rewarded? Of course, coming up with an idea *per se* may involve efforts, and contributes to the society. But, this does not fully justify patent protection as is the case with business method or the rules of a game that also involve efforts, and contributes to the society.

Perhaps, it is readily acceptable to protect inventions on the logical level. But, they are sometimes hard to be set apart from mathematical algorithms. Further, there are some difficulties in judging patent infringement. For an alleged infringing computer, what can be directly seen is its function. It is difficult to determine its logic design on the basis of product. The claims of a product are infringed, can anyone bring an action on the ground of identical function of products? How to proceed with evidence adduction? Is the defendant obliged to provide the source program (which is usually confidential document of a company) for the plaintiff and court to analyse to find out whether its logic design is the same as that of the patented product?

All sorts of like confusions send us wondering: does the patent system suitable for inventions relating to computer programs, particularly to computer-implemented business methods?

II. Reflections

The patent system, which has been in place for hundreds of years, plays an important and proactive role in promoting progress of technology and prosperity of economy.

It is undeniable, however, that confronted with the need imposed by the development of computers, the patent system and copyright system both appear to be quite limited.

When Apple did not win its lawsuit against Microsoft for copying its Macintosh interface and when Lotus lost in its litigation against Borland for use of its "Look and Feel" electronic tables, the copyright protection was found to be limit-

ed. Since the copyright protection is limited to “reproduction”, the software community hope that the patent protection is open to them to give computer software a stronger protection?

However, is the existing patent system suitable for protecting computer software?

First, patent protection is based on full disclosure, especially when claims are functionally defined, the requirement is even more demanding for disclosure of the technical means to achieve a function. But inventions relating to computer program, especially application for patent for invention relating to business method contain a wide range of claims, but with the specific means missing in the disclosure.

Second, as for many computer programs, intellectual costs lie in accumulative efforts or labour of average intelligence. The work done for many large-scale software is counted on the basis of hundreds or thousands of people working for it per year. So, what should be protected is the input of the labour or efforts, not an idea. Therefore if the intellectual labour should be protected in this field, it is exactly the software *per se* that should be protected. At least, the logical, not the functional, level should be protected. But as is pointed out about the confusions in the former section, it is hard to set it apart from mathematical algorithm and information expressions. Furthermore, it is hard to determine in infringement litigation.

Third, the software industry is under constant change or development, but it takes at least more than two years to grant a patent from filing an application therefor; hence it is difficult to solve the problem for a piece of software in need of quick patenting to grab the market.

Forth, patenting an invention requires substance examination. But the condition for search in the field is not ripe. As the US Supreme Court points out in the Benson case: “the Patent Office now cannot examine applications for programs because of a lack of a classification technique and the requisite search files. Even if these were available, reliable searches would not be feasible or economic because of the tremendous volume of prior art being generated. Without this search, the patenting of programs would be tantamount to mere registration and the presumption of validity would be all but nonexistent.”

Similar concern was also identified in the EU Directive Proposal Report: “However, the study also clearly identifies concerns about the patentability of computer-implemented inventions in the U.S. They relate, first, to the grant of al-

legedly “clearly invalid patents” (in particular for e-commerce), that is patents which are granted for inventions that are either not new or where inventive step is on the face of it lacking. Second, patents for computer-implemented inventions might strengthen big players’ market positions. And, third, patents for incremental innovation which is typical of the software industry entail the economic costs of figuring out the patent holders and negotiating the necessary licenses.”

Therefore, the current system for patent protection, especially the present framework of protection in terms of mode, term, grant prosecution procedure and way of disclosure, does not lend itself well for the protection of computer programs. Similarly, a computer with extended application and function in a non-technical field merely because of use of a different application in the absence of any change in the performance of its internal system is not susceptible to patent protection.

To conclude, this writer believes that while the three circumstances as enumerated in the Guidelines for Examination are not exhaustive, the generalized doctrines and the concepts based thereon are clear, consistent and comparatively workable.

There are no more than two types of applications relating to computer programs: Programs acting upon external objects, including those having effect on external work or those processing external data; and programs transforming the internal system, for example, enlarging internal memory space.

The key to determine whether the former are technical solutions resides in determination of the character of the external processes or objects. If said process is technical or said data are technical in the conventional sense, then its technical character will be changed for use of a computer as a tool. But, if the process is non-technical in the conventional sense, such as business method, then use of a computer as a tool should not change the non-technical character. This is the so-called “use-object test”.

The key to determine whether the latter are technical solutions resides in determination of whether it has changed the “internal performance of the computer system.” That is, whether the computer, as a machine applicable for different purposes and running different software, changes due to said computer program. This is the so-called “mechanic test”.

This is likely to exclude a lot of applications for patent for invention relating to business method because the objects or

processes they work on are non-technical, and there is no change in the internal performance of the computer system. As for applications implying “technical considerations”, such as that involved in the case of T 0769/92 decision, even the applicant himself did not deny that the specific definition of business model is a redundant designation. Therefore, strictly speaking, for these applications, according to the requirement for clarity of the claims and that for full disclosure in the description, an application should be presented in such a way that the solution of improvement of the internal performance of the computer system should be directly embodied.

This way of determination is perhaps too conservative. But, before we can come up with a way to make more explicit

determination, and before we can predict the effect of a radical practice on the economy and society, acting cautiously is an alternative next to the best because anything that has been done would not be undone once the Pandora’s box was open. ■

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¹ See *In re Maucorps*, 609 F.2d at 485, 203 USPQ at 815-816; *In re Johnson*, 589 F.2d at 1077, 200 USPQ at 206; *In re Freeman*, 573 F.2d at 1247 197 USPQ at 472.