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White Paper

Global Treatment of Software, Business Methods and Related Subject Matter Under Patent Eligibility Laws

This paper was created by the authors for the Intellectual Property Owners Association Software and Business Methods Committee to provide background to IPO members. It should not be construed as providing legal advice or as representing the views of IPO.

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I. Introduction

This memorandum summarizes what constitutes patentable subject matter for software and business methods in Europe, Canada, Japan, Australia, and China, describes a comparison to U.S. law in the treatment of software and business method patents in these areas, and suggests practice tips for drafting valid and enforceable patent applications directed towards software and business methods.

II. Summary of U.S. Patent Eligibility Requirements

The latest authority on the patentability of business methods and software patents is *Bilski v. Kappos*, which issued in June 2010. The Supreme Court in *Bilski* stated that 35 USC § 101 does not categorically exclude business methods from patentability. *Bilski*'s method of hedging risk, however, was not patent-eligible because it was deemed to be an abstract idea "just like the algorithms at issue in *Benson* and *Flook*." Allowing petitioners to patent risk hedging would preempt use of this approach in all fields, and would effectively grant a monopoly over an abstract idea. As such, in the U.S. business methods remain eligible for patent as long as they are not merely abstract ideas.

With regard to software patents, it appears that software will largely remain eligible for patent. The Supreme Court neither endorsed nor rejected the Federal Circuit's past interpretations of Section 101, noting that "nothing in today's opinion should be read as endorsing interpretations of §101 that the Court of Appeals for the Federal Circuit has used in the past. See, e.g., *State Street*, 149 F. 3d, at 1373; *AT&T Corp.*, 172 F. 3d, at 1357."

It does appear, however, that the test determining the patentability of software has become somewhat more muddled. Previously, the Federal Circuit has applied the machine or transformation test as the sole test for determining patentability of software. The *Bilski* court rejected this, noting that the machine-or-transformation test developed by the Federal Circuit *does not* define what is (and is not) a patentable process. Rather, the Court held that the machine-or-transformation test offers a useful and important clue, an investigative tool, for determining whether some claimed inventions are processes under §101. Thus, software remains eligible for patent using the machine or transformation test as a clue and as long as the claims are not abstract or preemptive under *Benson*.

III. Europe (European Patent Convention)

1. Summary of Patent Eligibility Requirements

1(a) The Legal Basis in the European Patent Convention

According to Article 52 (1) EPC, European patents shall be granted for any inventions, in all fields of technology, provided that they are new, involve an inventive step and are susceptible of industrial application. Thus, four conditions have to be met: there must be an invention, it must be new, involve an inventive step and be susceptible of industrial application. Or, in other words two major hurdles have to be cleared:

- the first one: is there an invention at all which is eligible for patent protection; and
- the second one: are the classical requirements novelty, inventive step and susceptibility of industrial application fulfilled.

The European Patent Convention (EPC) does not define the term “*invention*.” It only specifies that an invention must be in a field of technology. However, Article 52 (2) EPC contains a non-exclusive list of items that are not to be regarded as inventions and are, thus, excluded from patent protection:

- Discoveries, scientific theories, mathematical methods
- Aesthetic creations
- Schemes, rules and methods for performing mental acts, playing games or doing business
- Programs for computers, and
- Presentations of information.

These items, however, are only excluded from patentability to the extent that they are claimed “*as such*” (Article 52 (3) EPC). This means that the EPC does not exclude subject-matter in these areas as non-inventions under all circumstances and that these exclusions have to be interpreted narrowly. Over the last twenty years the Boards of Appeal of the EPO have developed criteria how to interpret these provisions.

1(b) Computer Programs – Computer Implemented Invention

It must be differentiated between the technical and the legal definition of the term “*computer program*.” A technical definition of a computer program may be: a sequence of instructions for a computer to bring about a defined effect. However, as stated above, programs for computer are excluded only “*as such*” from patentability under Article 52 (2) and (3) EPC. According to the Boards of Appeal of the EPO (as well as the German Federal Court of Justice) a “*program as such*” is a legal term that has to be construed in accordance with the intent and purpose of patent law, i.e. not in accordance with a general meaning in software engineering. Therefore the term “computer implemented invention – CII” has been created for any invention the performance of which involves the use of a computer, computer network or other programmable apparatus, the invention having one or more features which are realised wholly or partly by means of a computer program or computer programs.¹

1(c) First Hurdle: Is there an Invention Eligible for Patent Protection? - Technical character

¹ EPO Guidelines C IV 2.3.6

The legal question to be answered is: What is the difference between a “*computer program as such*” which is excluded from patent protection and a computer program which is in principle patentable.

Universal computer hardware with specific software is today used to assist in all types of fields in which men made achievements like mechanics, chemistry, electronics, physics, mathematics, business, linguistics or art. The question is which of these achievements of men can be seen as inventions under the EPC and which not. One of the criteria for an invention defined in Article 52 (1) EPC is that it must be in a field of technology. This means that technical achievements are inventions which are potentially patentable if the further patentability requirements are met, while mere intellectual achievements, mental acts, purely abstract or non-technical concepts without technical character are not inventions and, therefore, not patentable.

During examination, in a first step, it has, thus, to be assessed whether the claimed subject-matter has a technical character, i.e. is an invention. In a second step it has to be assessed whether the invention meets the other requirements for patentability, i.e. novelty, inventive step and industrial applicability.

What is technical? The term “*technical*” is not defined in the EPC but is generally understood in the sense of “*technological*.” Furthermore, its general understanding is not static and may change over time. First of all, all items on the list of exclusions of Article 52 (2) EPC “*as such*” should be regarded as non-technical. However, they should not be interpreted too narrowly.²

According to the jurisprudence of the EPO all products/devices/apparatus have *per se* a technical character.³ Methods/processes have a technical character if they use technical means, irrespective of whether or not these means are conventional, provided they are explicitly recited in the claims of the European patent application.⁴

The field of application is then irrelevant and can relate to business or administration. A claim related to a business method that is implemented with a computer is considered to have technical character and is assessed as a computer-implemented business method in the same way as other computer-implemented inventions.

A claim without any technical means, e.g. only reciting a business method, is rejected as a business method as such.

Hence, according to the current practice of the EPO the first hurdle to overcome – an invention with technical character – is rather low. The use of technical means is sufficient. In a so-called mixed type claim, i.e. a claim combining technical and non-technical features, the technical features, e.g. use of a computer, lend the whole claim the required technical character.

1(d) Second Hurdle - Assessment of the Further Requirements of Patentability

² T 1173/97 – Computer program product/IBM, reasons 5.3

³ T 937/97 – Controlling Pensions Benefits System/PBS Partnership

⁴ T 258/03 – Auction method/Hitachi

Once the first hurdle has been cleared, the second hurdle - assessment of novelty, inventive step and susceptibility of industrial application – must be cleared, too.

Computer-implemented inventions are, in general, susceptible of industrial application. This requirement rarely poses a problem. The novelty requirement is fulfilled if there is no single prior art document showing all technical features of a claim in combination.

If a claim is novel, inventive step has to be examined. According to the case law of the EPO Boards of Appeal, the normal physical effects of all computer programs running on a computer, for example the electrical currents, cannot be used to distinguish patentable computer programs from computer programs as such. There must be something more – a further technical effect.

This further technical effect must be achieved by the internal functioning of the computer under the influence of the computer program. As an example, a further technical effect is always present when a technical device or industrial process is controlled by a computer program. Further examples are the improved operation of the computer itself or the computer network, i.e. improvement of reliability, of security (e.g. encryption), of resource savings (e.g. memory, bandwidth, etc.) or higher efficiency (e.g. increased operating speed). If the invention is based on technical considerations, this can also be seen as a further technical effect. No further technical effect is present, for example, if non-technical requirements are straightforwardly implemented or if aspects relate to cognitive or aesthetic content only. Such a further technical effect is considered a technical contribution that is required for the establishment of an inventive step.

If the claim contains a combination of technical and non-technical features, novelty and inventive step must be assessed only on the basis of features which support the technical contribution of the invention. An inventive step requires the solution of an objective technical problem. A feature on which an inventive step is based must, therefore, contribute to the technical solution of a technical problem.⁵

Non-technical aspects that do not contribute to the solution of a technical problem cannot support inventive step. Such non-technical aspects are only constraints for the technically skilled person to implement a technical solution.⁶

The relevant skilled person is a person skilled in the technical or technological arts. He is not competent in non-technological fields and does not take into account non-technical knowledge⁷. However, non-technical design constraints can be given to him by non-technical experts.

For the assessment of inventive step it is then examined if the novel technical features were obvious for the skilled person in view of the technical prior art and the technical problem. The mere automation of non-technical concepts or design constraints (e.g. in the business or financial services) by conventional hardware or software can normally not be seen as inventive.

⁵ T 641/00 – Two identities/COMVIK; reasons 4 and 5

⁶ T 641/00 – Two identities/COMVIK; reasons 4 and 5

⁷ T 641/00 – Two identities/COMVIK, reasons 8; T 0172/03 - Order management /Ricoh

Thus, while the first hurdle of technical character of an invention is relatively easy to overcome by appropriately formulating a claim, the second hurdle, in particular inventive step, is more difficult to clear.

Summarized, the current practice in examining computer implemented inventions at the EPO comprises the following three steps:

- Step 1: Does the claimed subject-matter define or use technical means?
 - If the answer is yes, there is a potentially patentable invention
- Step 2: Differs the claimed subject-matter by at least one feature from the available prior art?
 - If the answer is yes, the invention is novel.
- Step 3: Do the differing features contribute to the technical solution of the technical problem and are those features inventive over the prior art?
 - If the answer is yes, the invention is patentable.

2. Comparison with US Practice

While in the US inventions are not limited to fields of technology, this requirement is explicitly stated in the European Patent Convention. Therefore, business methods and computer programs, in general, are only eligible for patent protection in Europe if they use technical means and solve a technical problem. In claims comprising a mix of technical and non-technical features only the technical features are considered which contribute to the solution of the technical problem. As a consequence, in order to assess patent eligibility in Europe, the state of the art has to be taken into account.

In the US, in principle, business methods which do not use technical means are eligible for patent protection. The assessment if an invention fulfils the requirements of 35 U.S.C. § 101 does not require examination of the state of the art. Once an invention is found eligible for patent protection under 35 U.S.C. § 101 all features of a claim (independent if technical or non-technical) are considered for the assessment of novelty and non-obviousness in view of the prior art.

3. Best Practice for Claiming Computer Implemented Inventions in Europe

First of all, a European patent application shall disclose the invention in a manner sufficiently clear and complete for it to be carried out by a person skilled in the art (Article 83 EPC). Furthermore, the claims shall define the matter for which protection is sought. They shall be clear and concise and be supported by the description (Article 84 EPC). This means that already in the priority document there must be support for all features of the claim. If the European patent application combines the content of several priority documents all features of the claim must be found in one priority document in order to confer the priority date of this document to the subject-matter of the claim. If the features of a claim are spread over several priority documents, the claim will receive the filing date of the European patent application only as priority date.⁸

⁸ G 2/98

3(a) Description

The EPO uses the problem/solution approach to assess inventive step. It is not mandatory to explicitly state the problem and the solution in the description. However, it is helpful to do so, particularly in cases where technicality is an issue.

It is good practice to identify in the European patent application the closest prior art and the technical disadvantage(s) under which the state of the art suffers. The technical problem can then be formulated as to overcome these disadvantages. The solution in general mirrors the wording of the main claim. It is followed by a statement setting out the technical advantage(s) provided by the solution. Subsequently, the wording of the dependent claims is recited, each followed by a statement on the additional technical advantage(s) provided by the additional features of the dependent claim.

Arguments in favour of the technical contribution of an invention are much more likely to be accepted if they are contained already by the description. It is therefore important to include concrete technical implementation details in the description of the European patent application. It must clearly disclose all technical aspects and effects achieved by the invention and, in particular, how the invention is implemented. Ideally, the description should explicitly formulate a technical problem. At the least it should state one or more technical advantages and effects of the invention, which can then be used in the granting procedure to argue in favour of a solution to a technical problem. If the claim contains technical and non-technical features it should be described how technical and non-technical features interact to provide a technical effect. Helpful for arguing technical character of an invention are, for example:

- Block diagrams on the software structure, modules, memory maps, interfaces among software modules or between hardware and software etc.
- Formats of data and signals
- Timing diagrams
- Flowcharts

Technical advantages may include: running programs more efficiently (faster, saving storage space, saving energy); increasing interoperability, reusability, security. For graphical user interfaces: facilitating or accelerating data input; giving user better manual control; providing better visual feedback for human interaction with the system; tool for more efficient or faster search, retrieval or evaluation of data objects like images or files.

Non technical are: linguistic aspects; business aspects; mere data modelling on a logical level; conveying information in a particularly appealing or visually attractive way (but a way of achieving a certain visual or acoustic effect can be technical). Borderline cases are: presenting information in a more logical way; improving readability; lowering the cognitive burden of a user.

In general, the entire specification should use as much technical language as possible, in particular the “*field of the invention*” and the title. E.g., title “*Data processing system*” is better than “*Booking System for Tourism Industry*.”

3(b) Claims

Allowed is only one claim per category (product (apparatus), process (use); Article 82 EPC). This requirement is now handled very strictly. There is an exception only for inter-related products like plug/socket or transmitter/receiver for each of which one independent claim is allowed. Further, the EPO currently allows multiple claims in the same category in

certain cases, e.g. for a computer comprising a program and for a storage medium comprising the program. Multiple dependent claims are allowed.

In principle, the number of claims is not limited. However a claims fee of 200 Euro for every claim in excess of 15 claims and of 500 Euro for every claim in excess of 50 claims is due. In general, a maximum of 20 claims should be enough including, for example, a product, a method and computer program claim. Dependant claims should define further inventive features as a fall back option during prosecution. Dependent claims on generally known features should be avoided. However, such features should be described in the description so they could be integrated into the independent claim if necessary.

Whether the means for solving the problem of the invention are technical is largely determined by the claim language. The claims must clearly recite the technical features of the invention in combination with the non-technical features that achieve the technical effects. To this end, the claim language can be optimized:

- use as much “hardware language” as possible;
- give data objects a name having an analogy in the world of real, physical objects;
- use software engineering language like “formatting” or “conversion” of “data structures”;
- talk of “processes,” “memory/storage,” “instructions,” “operations”;
- relate visual indications by the GUI to internal states of the underlying system.

Allowed are the usual types of claims: product, system, method, product-by-process and means-plus-function. In most cases computer implemented inventions are claimed as a method. However, because computer programs are only excluded from patentability “as such” and not in general, claims even on a “program itself” are allowed according to the present practice of the EPO if they define a patentable invention.⁹ Examples of allowed claim formulations are:

- A method of operating a data-processing system comprising steps A, B, ...
- A data processing apparatus/system comprising means for carrying out the method of claim 1.
- A data processing apparatus/system comprising means for carrying out step A, means for carrying out step B. . .
- A computer program [product] adapted to perform the method of claim 1.
- A computer program [product] comprising software code adapted to perform steps A, B, ... [when executed on a data-processing apparatus/system].
- A computer program [product] adapted to perform the method of claim 1, carried on an electrical carrier signal.
- Computer-readable medium ...
- Data carrier with program code to execute the method according to claim . . .
- Signal adapted to generate a picture ... (if it is characterised by technical features of the system in which it occurs).¹⁰

All non-method claims belong to the category of product claims and thus give rise to direct infringement.

⁹ T 1173/97 – Computer program product/IBM

¹⁰ T 0163/85 – Colour TV signal/BBC; T1194/97 – Data structure product/PHILIPS

In the instance of "distributed" inventions like client-server architectures, it is common to use both system claims defining the whole system and geocentric claims defining clients and servers separately while specifying the interface from the server to the client and vice versa.

The scope of protection, although harmonized by the protocol to Art. 69 EPC, might be slightly different in the Contracting States in particular due to national interpretation of the doctrine of equivalence. Typical "means plus function" features have a broad scope of protection and are not limited to embodiments disclosed in the description. Functional features have a broad scope of protection, too, but are allowed only if the invention either can only be defined in such terms or cannot otherwise be defined more precisely without unduly restricting the scope of the claims and if the result is one which can be directly and positively verified by tests or procedures adequately specified in the description or known to the person skilled in the art and which do not require undue experimentation.¹¹

The EPO is reluctant to allow new or amended claims if the claim language used is not contained literally in the application as filed. It is difficult to claim features that are only disclosed in the drawings. Therefore, the more detailed the description, the better. The wording of the European version of the claims should be mirrored in the description as originally filed. It is difficult to claim features that are an abstraction or generalisation of the originally disclosed feature. E.g., a generalization from a particular embodiment to a "means plus function" feature is admissible only when it is obvious that another particular element can be used.¹² The subject of each claim category ("device," "computer readable medium," "computer program," "method performed by a data-operating system") should be mentioned in the description.

¹¹ T 68/85

¹² EPO Guidelines C III 6.5

IV. CANADA

1. Summary of Patent Eligibility Requirements

1(a) Definition of “Invention”

Any new and useful art, process, machine, manufacture or composition of matter, or any new and useful improvement in any art, process, machine, manufacture or composition of matter is considered an “invention” under Canadian patent law.¹³ As a result, in order to be patentable, every claimed invention must fall under one of the recognized categories of “art,” “process,” “machine,” “manufacture” or “composition of matter” (subject-matter requirement), and also be novel, inventive (non-obvious) and produce the result promised (utility). Abstract ideas, scientific discoveries, forms of energy and mathematical equations are not patentable. Currently, both software and business methods may form the basis of a patentable invention, under certain conditions.

1(b) Software-Implemented Inventions

Qualifying as patentable subject-matter is typically the most difficult requirement for computer-related inventions. For example, signals, databases, computer programs (software) and code, and data structures *per se* are not patentable subject-matter. However, although software *per se* is not patentable, if it has been integrated with traditionally patentable subject-matter such that it is necessary to implement the claimed invention, then it is patentable (assuming the other requirements have been met). Software or otherwise computer-implemented inventions are usually claimed as methods (under the categories of “art,” “process” or methods of manufacture), machines (devices that rely on a computer for its operation) or products (usually as an article of manufacture).¹⁴

According to the Canadian Intellectual Property Office (CIPO) guidelines, namely the *Manual of Patent Office Practice* (MOPOP), every claimed invention must also provide a “technological solution to a technological or practical problem” to qualify as patentable subject-matter.¹⁵ Claimed inventions therefore must relate to a field of “technology” which includes the application of scientific knowledge for practical purposes (especially in industry), machinery and equipment developed from scientific knowledge, and the branch of knowledge dealing with engineering or applied sciences.¹⁶ This appears to exclude games and other “non-technological” subject matter from patentability. Furthermore, all claimed inventions must meet a “form and substance” test. A claimed invention on its face must relate to one of the recognized categories of subject matter (“form”) and its “essential elements” that provide the “technological solution” must contribute to the claimed invention’s novelty and inventiveness (“substance”). “Essential elements” are defined in the MOPOP as those elements of the claimed invention that are necessary to provide the solution problem being addressed by the inventors.¹⁷

¹³ *Patent Act*, R.S.C. 1985, c. P-4, s. 2.

¹⁴ Canadian Intellectual Property Office, *Manual of Patent Office Practice: Chapter 16 Computer-Implemented Inventions*, (Ottawa: Canadian Patent Office, Revised October 2010) at 16.02.

¹⁵ Canadian Intellectual Property Office, *Manual of Patent Office Practice: Chapter 12 Subject-Matter and Utility*, (Ottawa: Canadian Patent Office, Revised December 2009) at 12.04.

¹⁶ *Ibid.*

¹⁷ Canadian Intellectual Property Office, *Manual of Patent Office Practice: Chapter 13 Examination of Applications*, (Ottawa: Canadian Patent Office, Revised December 2009) at 13.05.03.

These requirements were adopted in the recently revised guidelines for the examination of computer-implemented inventions.¹⁸ As a result, a “software-implemented method” may not be patentable if the contribution of the software component is not novel and inventive on its own (i.e., if it relies on known features or functionality of the underlying machine to implement the method). In this case, the software component would not be an “essential element” and would be ignored by the Examiner in the patentability analysis.

In a recent Federal Court decision, the Court criticized the “technological solution to a technological problem” requirement and “form and substance” approach imposed by the CIPO.¹⁹ According to the Federal Court, the “technological” requirement does not have any basis in Canadian patent law and the “form and substance” approach was rejected several years ago in favour of “purposive construction.” To determine patentability, the claim must be read in light of the invention as a whole and not simply separated into its novel and non-novel (or obvious and non-obvious) components. Furthermore, an “essential element” is an element necessary to implement the claimed invention. It is not necessary for this element to be novel and non-obvious. Therefore, if the software component is necessary to implement a method that is otherwise novel and non-obvious, then the method is patentable, regardless of whether the software itself is novel or non-obvious. However, the Commissioner of Patents has filed an appeal of this decision and the revised guidelines continue to be enforced. In the meantime, it may be advisable that applications for software-implemented inventions be drafted to follow the examples laid out in Chapter 16 of the MOPOP (“Computer-Implemented Inventions”).

1(c) Business Methods

According to the same Federal Court decision, there is no statutory “business methods” exclusion under Canadian patent law. Business methods are to be assessed in the same manner as other claimed inventions.²⁰

This is in contrast to actual practice of the CIPO. Schemes, plans or rules for performing an operation, achieving a result, and controlling a method are considered by the CIPO to be abstract ideas and therefore not patentable.²¹ The CIPO considers a business methods to be “scheme[s] or plan[s] for conducting commercial transactions” and non-technological, rendering them unpatentable.²² However, there has been some inconsistency in the CIPO’s application of these guidelines as at least one patent that could be characterized as a business method was issued after the CIPO revised its guidelines.²³

Despite the inconsistency between the CIPO’s practices and Canadian patent law, as well as the Commissioner of Patents’ appeal of the Federal Court decision, it may be worthwhile to file a Canadian patent application for a business method. The Federal Court of Appeal’s final decision, if it allows the Commissioner’s appeal, may take several years. In the absence of a ruling from a higher court overturning the Federal Court’s decision, this decision may provide a good basis for arguing a business method is patentable under Canadian law.

¹⁸ Canadian Intellectual Property Office, *Manual of Patent Office Practice: Chapter 16 Computer-Implemented Inventions*, (Ottawa: Canadian Patent Office, Revised October 2010).

¹⁹ *Amazon.Com, Inc. v. Commissioner of Patents*, 2010 FC 1011.

²⁰ *Ibid.* at para. 68.

²¹ *Supra* note 3 at 12.06.02.

²² *Ibid.*

²³ See “Method and Apparatus for Generating Billing Data in a Telecommunication System,” Can. Patent No. 2,220,378, (6 November 1997).

2. Comparison and Contrast with U.S. Law

Both Canadian and U.S. patent laws are based on similar principles. Patentable inventions under U.S. law are “any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof,” subject to any of the conditions laid out in the remaining governing legislation.²⁴ As in Canada, a claimed invention must fall into one of the recognized subject-matter categories (process, machine, manufacture or composition of matter), and also be novel, inventive (non-obvious) and produce the result promised (useful) to obtain a U.S. patent. Also, as in Canada, business methods may qualify as patentable subject-matter under U.S. patent law.²⁵

The approach taken by both jurisdictions to evaluate the patentability of methods (or processes) is particularly relevant to business methods and software-implemented inventions, since they are typically claimed as methods. Although courts in both jurisdictions have advised which tests are applicable in the evaluation of patentable methods, the CIPO and the United States Patent and Trademark Office (USPTO) continue to rely on other tests that may make it more difficult to patent these inventions.

To assess the patentability of a method, the CIPO applies the “change of character or condition” test in which a method is defined as “an act or series of acts performed by a physical agent on a physical object and producing in that object some change of either character or condition.”²⁶ As noted, and criticized, by the Federal Court in the decision described above, this test focuses on the physical nature of a claimed invention and appears to require either a physical object (ie. machine) or a change of character or condition in a physical object.²⁷ Therefore, unless tied to a machine or device, or resulting in a change in a physical object, a software-implemented method is unlikely to be considered patentable by the CIPO. Since business methods are considered non-technological *per se* by the CIPO, unless re-drafted as a patentable method (ie. patentable software or computer-implemented method), they will be automatically rejected by the CIPO. This is in contrast with the Federal Court’s more expansive definition of a patentable method, which focuses on the practical application and commercially useful result achieved by the method, allowing for the patentability of business methods.²⁸

The USPTO applies a similar test to evaluate the patentability of a process: the “machine-or-transformation test.” Although the U.S. Supreme Court stated that this test was not the sole test, but just a useful and important clue to determine whether a claimed process was patentable, the USPTO continues to rely heavily on this test in its examinations.²⁹ This test requires the process to be tied to a particular machine or apparatus, or particularly transform a particular article to a different state or thing.

Despite its similarity to the “change of character or condition” test, the USPTO appears to require a lower level of participation from the machine or computer-related component than the CIPO. For example, “a method of evaluating search results” that includes

²⁴ *Patent Laws*, 35 U.S.C. §101.

²⁵ *Bilski v. Kappos*, 130 S. Ct. 3218 at 3229 (U.S. 2010).

²⁶ *Supra* note 3 at 12.03.02; *Lawson v. Commissioner of Patents* (1970), 62 C.P.R. (Can. Ex. C.R.) at 111.

²⁷ *Supra* note 7 at para. 16.

²⁸ *Ibid.* at para. 52.

²⁹ See *Ex Parte Kelkar et. al.*, Appeal No. 2009004635 (Re Application No. 10/629,448), (Board of Patent Appeals and Interferences) (24 September 2010). See also *Ex Parte Volcani et. al.*, Appeal No. 2009004790 (Re Application No. 10/376,680), (Board of Patent Appeals and Interferences) (October 18, 2010).

the step, “comparing, *using a microprocessor*, the ranked results to a predetermined list of desired results to evaluate the success of the search” would satisfy the “machine-or-transformation” test.³⁰ In this example, the microprocessor is considered particularly programmed to carry out this step. According to the USPTO, the phrase “using a microprocessor” in a key step of the method represents the use of a “particularly programmed processor” that imposes a meaningful limit to the method. Although the nature of the step is the performance of essentially a mathematical activity, the implied use of software to enable the computer component to carry out the method step is a sufficient tie to the computer to make the method, as a whole, patentable. In contrast, this would unlikely be a sufficient tie to a machine component for a software-implemented or business method for the CIPO.

3. Advice for Conforming U.S. Applications

Although the examination practices of Canada and the U.S. are quite similar, there are some important differences that applicants planning on filing a Canadian application for a corresponding U.S. application should be aware of.

Some of these differences may require significant amendments or changes in approach for an applicant. For example, since the test for a patentable method used by the CIPO focuses on the acts of a “physical agent,” the amount of human interaction allowed in a method claim in Canada is much more limited than in the U.S. As a result, any step that is performed by a “user” would not likely pass the scrutiny of the CIPO. In this case, an applicant may want to amend the claims to more closely tie the acts of the software or computer hardware to the performance of this step. Furthermore, methods of medical treatment are not patentable in Canada.³¹ Therefore any reference to medical treatment in a claim, whether software or computer-implemented or otherwise, may undermine the patentability of the claim. In this case, applicants should amend the claim to remove any such reference. Chapter 16 of the MOPOP (“Computer Implemented Inventions”) provides many examples of patentable software or computer-implemented methods that may help an applicant that has chosen to amend claims from a corresponding U.S. application for the Canadian filing.

However, some of these differences may actually benefit an applicant choosing to file a corresponding Canadian application. For example, unlike in the U.S., there is no “excess claim fee” for Canadian applications.³² This means, technically, Canadian applications can include an unlimited number of claims without incurring a fee penalty. Therefore, if an applicant has had to reduce claims in order to comply with U.S. requirements, they may be able to include these additional claims in the corresponding Canadian application. Furthermore, multiple dependencies are allowed in Canada without incurring additional fees. This provides the applicant with greater flexibility when filing claims in Canada.

Furthermore, there are benefits to filing a Canadian application that corresponds to a U.S. application. For example, although unofficial and completely at the discretion of each Examiner, Canadian Examiners may consider an application more favorably if the same (or substantially similar) claims have been allowed in a U.S. application. In such a case, relatively few claim amendments may be necessary to obtain allowance of the corresponding Canadian application. Also, if the application qualifies under the Patent Prosecution Highway (PPH),

³⁰ United States Patent and Trademark Office, *New Interim Patent Subject Matter Eligibility Examination Instructions*, (Released August 24, 2009), online: http://www.uspto.gov/patents/law/comments/2009-08-25_interim_101_instructions.pdf

³¹ *Supra* note 3 at 12.05.02.

³² United States Patent and Trademark Office, *Manual of Patent Examining Procedure: Chapter 6*, (Alexandria: United States Patent Office, Revised 7, July 2008) at 607.III.

examination of the corresponding Canadian application may be accelerated.³³ In this case, the CIPO will give weight during examination to the fact that sufficiently similar claims have been allowed in the U.S. application.

³³ See *Requirements and Procedures to File a Request to CIPO for the Patent Prosecution Highway Pilot Program Between CIPO and the USPTO*, (online: Canadian Intellectual Property Office <http://www.ic.gc.ca/eic/site/cipointernet-internetopic.nsf/eng/wr02034.html>).

V. Japan

1. Description of and Distinction Between “Software” and “Business Method” Inventions

The Japan Patent Office (JPO) usually uses the following description in the discussion of Software and Business Method patents:

A "Software invention" is: an invention which requires software to work the invention.

A "Business method invention" is: a software invention which is mainly characterized by its business aspect.

As such, business method inventions are treated as a subset of “software” inventions under Japan patent practice.

2. Overview of Present Treatment of Patent Applications for Software and Business Method Inventions

The Japan Patent Act defines a patentable “invention” as: “the highly advanced creation of technical ideas utilizing the laws of nature.”³⁴ While the Japan Patent Act does not provide further interpretation of this phrase, the JPO exam guideline provides a more detailed interpretation, listing groups that are not ‘inventions’ under Article 2(1) of the patent act for not being “creation of a technical idea utilizing the laws of nature.”³⁵ The list consists of:

- (1) The laws of nature as such;
- (2) Mere discoveries and not creations;
- (3) Those contrary to the laws of nature;
- (4) Those in which the laws of nature are not utilized;
- (5) Those not regarded as technical ideas; and
- (6) Those for which it is clearly impossible to solve the problem to be solved by any means presented in a claim.³⁶

In this list, the fourth category is most closely related to software and business method inventions. The fourth category is further clarified by the JPO:

If claimed inventions are any laws other than the laws of nature (e.g. economic laws), arbitrary arrangements (e.g. a rule for playing a game as such), mathematical methods or mental activities, or if a claimed invention utilizes only these laws (e.g. *methods for doing business as such*), these inventions are not considered to be statutory because they do not utilize the laws of nature.³⁷

Thus, this chapter clearly excludes pure business method.

³⁴ Japan Patent Act Art.2(1).

³⁵ PATENT OFFICE, EXAMINATION GUIDELINES FOR PATENT AND UTILITY MODEL IN JAPAN (2000), *available at* http://www.jpo.go.jp/tetuzuki_e/t_tokkyo_e/1312-002_e.htm.

³⁶ *Id.* at Part II, chap. 1.

³⁷ *Id.* (emphasis added).

Furthermore, JPO exam guideline includes an independent chapter (“Computer Software-Related Invention”) which describes special treatment in the examination of software and business method applications.³⁸

Highlights of special treatment in the exam guideline:

- (i) “Apparatus,” “system,” “method,” “computer-readable storage medium,” and “program” type claims are patentable while “program signal,” “data signal,” and “program product” claims are not patentable.
- (ii) To be qualified as a statutory invention, “information processing by software should be concretely realized by using hardware resources” in the claims. More concretely, information processing equipment (machine) or its operational method particularly suitable for the use purpose should be constructed by concrete means in which software and hardware resources are cooperatively working so as to include arithmetic operation or manipulation of information depending on the said use purpose.
- (iii) In examination of inventive step, a person skilled in the art of software-related inventions is considered to have knowledge both of the applied field of the invention (e.g. business knowledge) and computer technology.
- (iv) When there is no technical difficulty (technical blocking factor) for combining technologies used in different fields and applying them to another field, the inventive step is not affirmatively inferred unless there exist special circumstances (such as remarkably advantageous effects).

3. Examples of Claims which do and do not fall within Patent Eligible Subject Matters

The chapter “Computer Software-Related Invention” of the exam guideline exemplifies several claims and explains why they are or are not patent eligible. Following two examples are highlights of all examples in that chapter.

(1) Calculation method and calculation apparatus (Example 2-1: mathematical area).³⁹

Claim	Description of claim	Patent eligible or not
1	A calculation method to calculate multiplication 's' of natural numbers 'n' and 'm' (where, $1 \leq n \leq m < 256$) by the formula $s = \frac{(m + n)^2 - (m - n)^2}{4}$	<u>Not patent eligible</u> The claimed invention is a “ <u>calculation of a numerical formula itself</u> ” and corresponds does not utilize a law of nature.
2	A calculation <u>apparatus</u> to calculate multiplication 's' of natural numbers 'n' and 'm' (where, $1 \leq n \leq m < 256$) by the formula $s = \frac{(m + n)^2 - (m - n)^2}{4}$	<u>Not patent eligible</u> Since only stating that “calculation process of the multiplication formula is performed by a calculation apparatus” it <u>cannot be said that the said calculation process and hardware resources are working</u>

³⁸ *Id.* at Part VII, chapter 1.

³⁹ *Id.*

		<u>cooperatively</u> , thus the information processing by software is not concretely realized by using hardware resources.
3	A calculation apparatus to calculate formula $s = \frac{(m + n)^2 - (m - n)^2}{4}$ comprising means for inputting natural numbers 'n' and 'm' (where, $1 \leq n \leq m < 256$), arithmetic means, and means for outputting the sum 's' by the said arithmetic means.	<u>Not patent eligible</u> Although the claimed invention comprises means for inputting, arithmetic means, and means for outputting, ineligible because <u>the hardware resources are not cooperatively working with software in calculating multiplication.</u>
4	A calculation apparatus to calculate formula $s = \frac{(m + n)^2 - (m - n)^2}{4}$ comprising, means for inputting natural numbers 'n' and 'm' (where, $1 \leq n \leq m < 256$), a square function table wherein 'k' square value k^2 (where, $0 \leq k < 511$) is stored, arithmetic means comprising of an adder-subtractor and bit shift arithmetic unit, and a means for outputting the sum of 's' by said arithmetic means, wherein the said arithmetic means refers to the said square function table in order to obtain square value, without using a multiplier-divider unit.	<u>Patent eligible</u> The claimed invention enables the calculation process to be performed by a calculation apparatus, which has arithmetic means comprising an adder-subtractor and bit shift arithmetic unit but does not have multiplier-divider unit, wherein the arithmetic means, after introducing the square values of $a = (m + n)^2$ and $b = (m - n)^2$ using the said square function table, performs subtraction using the adder-subtractor unit according to the following formula $s = \frac{(m + n)^2 - (m - n)^2}{4} = (a - b) \gg 2$ ($\gg 2$ = two right bit shifts) and in turn carries out right bit shift operation using the shift arithmetic unit, so that the information processing system is concretely realized wherein <u>software and hardware resources are cooperatively working.</u>

(2) Points service method (Example 2-4: business area).⁴⁰

Claim	Description of claim	Patent eligible or not
1	A service method for offering service points depending on an amount of commodity purchased in telephone shopping, comprising the steps of: notifying via telephone of an amount of service points offered and a name of a person to whom the said service points are offered; acquiring the telephone number of the said person from a customer list storage means based on the name of the said person; adding the said service points to the accumulated points of the said person stored	<u>Not patent eligible</u> The claimed invention is a method which uses means such as "a telephone" and "a customer list storage means," but considered as a whole, it is an <u>artificial arrangement per se using those means as a tool</u>, such that it does not constitute "a creation of technical ideas utilizing a law of nature."

⁴⁰ Id.

	in the said customer list storage means; and notifying to the said person that the said service points have been given via telephone using the said telephone number of the said person.	
2	A service method for offering service points depending on an amount of commodity purchased at a shop on the Internet, comprising the steps of: notifying an amount of service points offered and a name of a person to whom the said service points are offered via the Internet; acquiring the e-mail address of the said person from a customer list storage means based on the name of the said person; adding the said service points to the accumulated points of the said person stored in the said customer list storage means; and notifying to the said person that the said service points have been given via e-mail using the e-mail address of the said person.	<u>Not patent eligible</u> The claimed invention is a method which uses means such as "the Internet," "a customer list storage means" and "e-mail," however, considered as a whole, it is an <u>artificial arrangement per se using those means as a tool</u> , such that it does not constitute "a creation of technical ideas utilizing a law of nature."
3	A service method for offering service points depending on an amount of commodity purchased at a shop on the Internet, comprising the steps of: notifying a server of an amount of service points offered and a name of the person to whom the said service points are offered via the Internet; acquiring by the said server, the e-mail address of the said person from a customer list storage means based on the name of the said person; adding by the said server, the said service points to the accumulated points of the said person stored in the said customer list storage means; and notifying by the said server, to the said person that the said service points have been given, by e-mail using the said e-mail address of the said person.	<u>Patent eligible</u> Since the claimed invention is executed by a server, it can be said to execute information processing by software. Furthermore, the claimed invention is <u>an operation method of the information processing system in which information processing by software is concretely realized by using hardware resources</u> , wherein the said server acquiring the e-mail address of the person to whom service points are offered from a customer list storage means, adding the said service points to the accumulated service points of the said person stored in the said customer list storage means, and notifying the said person of the fact that the said service points have been given.

It should be noted that above examples discuss just patent eligibility requirement among all requirements to be met to obtain a patent.

4. Brief History of Present Treatment⁴¹

1975 Issuance of Exam Guideline for computer programs (Software inventions were patented only in form of "method" claims)

1982 Issuance of Exam Guideline for microcomputer-applied technology ("apparatus" claims became patentable)

⁴¹ Before 2000, Exam Guideline consisted of plural guidelines which each of them corresponding specific technical field. However, in 2000, JPO unified these guidelines.

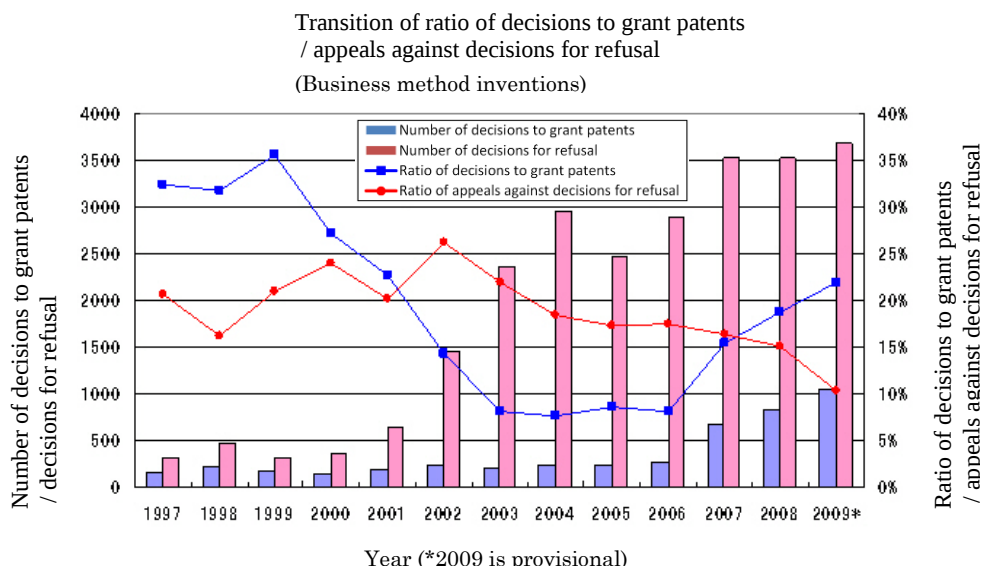
1993 Issuance of Exam Guideline (creation of chapter “software-related invention”
 - software inventions were patented still only in form of “apparatus” or “method” claims)
 1997 Revision of Exam Guideline (Computer readable medium claim became patentable)

2000 Revision of Exam Guideline (Program per se claim became patentable)

2002 Revision of Patent Law (clarified that program claim is treated as invention of product)

5. Identification of Trends in the Treatment of Patent Applications for Business Method Inventions

The chart below shows 1997-2009 statistics of the allowance and rejection rates of business method inventions.⁴² Although allowance ratios of business method applications from 2003 to 2006 were only 8%, the ratio had increased to 22% in 2009. This number, however, is still far lower than average ratio of all technical fields (including software technology field) which is approximately 50%. A possible reason of the lowness is that quality of applications was poor during so-called “Business Method Patent Boom.”



6. Anticipated Changes in Treatment of Patent Applications for Software Inventions and Business Method Inventions

Regarding software and business method inventions, a JPO report “New Intellectual Property Policy for Pro-Innovation” (published by JPO on May 30, 2008) mentioned (i) patentability of pure business method and (ii) requirement of hardware resources usage as an issue to consider with respect to revisions of the patent system and practices.⁴³

⁴²Bijinesu-kanren-hatsumei no saikin no doukou ni tsuite [The recent movement of business-related-inventions], http://www.jpo.go.jp/tetuzuki/t_tokkyo/bijinesu/biz_pat.htm.

⁴³ New Intellectual Property Policy for Pro-Innovation http://www.jpo.go.jp/torikumi_e/puresu_e/pdf/press_new_intellectual_property_policy/report_e.pdf; under current patent law and practice, pure business method cannot be patented because the invention should creation of technical ideas utilizing the laws of nature to be a statutory invention (Art. 2(i) of Japan Patent Law). To make the pure business method patentable, revision of the definition of statutory invention must be needed; Current exam guidelines require “information processing by software should be concretely realized by using hardware resources” in claims regarding software inventions. Due to this requirement, applicants of are sometimes impelled to limit claimed invention with hardware resources (e.g. CPU, memory)

The group, however,⁴⁴ recommended in its report not to revise current law with regard to the definition of invention.⁴⁵ Therefore, it is highly likely that the current definition will not change for the moment.

7. Comparison with the US Patent System

At a legal level, the criteria which governs patent eligible subject matters in Japan seems to be more predictable than US prosecution because Japan Patent Act Art.2(1) defines patentable “invention” in relatively clear terms while 35 U.S.C. §101 defines patentable subject matter more broadly.

When we compare Japanese practice with US practice at a PTO guideline or case law level, however, the two approaches are quite similar. Although the US Supreme Court stated that the machine-or-transformation test is not sole test anymore, the Supreme Court also considers this test as “a useful and important clue” to decide whether claimed inventions are patent eligible.⁴⁶ Interim guidance issued by USPTO after Bilski Supreme Court’s decision follows this stance.⁴⁷

The machine-or-translation test in US, and in particular the machine prong of the test is similar to the requirement in Japan, that is, cooperative working between software and hardware resources. In addition to that, this requirement is applied independent to claim categories. Therefore, when US applicants file applications in the JPO with a claim of priority, there seems to be little need to revise claims except for the translation into Japanese.

even if such limitation is not essential for the idea. If this suggestion is implemented, such limitation may become unnecessary.

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⁴⁵ Private study group organized by commissioner of JPO; patent system study group, Tokko-seido ni kansuru ronten-seiri ni tsuite [Issues with regard to patent system – Report of patent system study group], *available at*

<http://www.jpo.go.jp/shiryoutoushin/kenkyukai/pdf/tokkyoseidokenkyu/houkokusyo.pdf>.

⁴⁶ Bilski v. Kappos, 130 S. Ct. 3218, 3221 (2010).

⁴⁷ USPTO, “Interim Guidance for Determining Subject Matter Eligibility for Process Claims in View of Bilski v. Kappos,” July 27, 2010, available at <http://edocket.access.gpo.gov/2010/pdf/2010-18424.pdf>.

VI. Australia

1. Patentability of Software in Australia

The test for patentability in the context of computer software related inventions in Australia was reformulated in *CCOM v JeiJing* [(1994) 28 IPR 481]. In this case, the Full Federal Court followed the guidelines established in *NRDC (National Research Development Corp. v. Commissioner of Patents* [(1959) 102 CLR 252, (1961) RPC 134, 1A IPR 63]), referring to this case as the “watershed” case on this issue.

In formulating the test for the patentability of computer software related inventions, the Full Federal Court posed a requirement of whether there is:

“a mode or manner of achieving an end result which is an artificially created state of affairs of utility in the field of economic endeavour.”

Thus, the criteria for patentability are (a) an artificially created state of affairs, and (b) utility in the field of economic endeavour.

Consequently, it is generally regarded that the following will almost always be a “mode or manner” relating to patentable subject matter in Australia:

- source code for patentable computer software;
- executable code for patentable computer software, which is in machine readable form; and
- a computer, when programmed to achieve any result which has utility in the field of economic endeavour.

2. Patentability of Business Methods in Australia

Business method related inventions are a slightly different beast. The Patent Office Manual of Practice and Procedure states that “methods of doing business are not excluded from patentability per se but are subject to the same considerations as for other methods or processes under the principles of *NRDC*.” And up until recently, our advice to clients was that business methods were generally patentable in Australia, provided that the claims were limited to execution of the method in a computer environment.

A decision from 2006 (*Grant v Commissioner of Patents*, [2006] FCAFC 120) addressed the issue of the patentability of business, commercial and financial schemes in Australia. In this case, the Full Federal Court concluded that:

“A physical effect in the sense of a concrete effect or phenomenon or manifestation or translation is required. In NRDC, an artificial effect was physically created on the land. In Catuity and CCOM as in State Street and AT&T, there was a component that was physically affected or a change in state or information in a part of a machine.”

Thus, the Full Federal Court found that a “physical effect” is a pre-requisite for the patentability of business method related inventions. The Court expressly approved of earlier cases where business methods were implemented in a computer environment such that performance of the patented method results in a “change in state or information” in a part of the computer.

Therefore, it was apparent that business methods which were implemented in a computer or other physical environment were considered patentable, whereas methods that exist only in an abstract or intangible form are generally excluded from patentability.

However, in more recent developments, it has been viewed that a business method will not be patentable where the implementation of the method in a computer environment is incidental to the method itself. In *Invention Pathways* (Invention Pathways Pty Ltd [2010] APO 10) the Delegate considered steps such as “the inputting, storage or displaying of data” to be insignificant post-solution activity and held that the “physical effect” must be “central to the purpose or operation of the claimed process or otherwise arises ... in a substantial way.” Accordingly, it was considered that the decision was moving in line with the *Bilski* decision in the United States.

Most recently, in the decision of *Iowa Lottery* [2010] APO 25 (21 October 2010), the Deputy Commissioner of Patents held that it cannot be said that:

“the effect identified [utilisation of a computing device to result in a change in state or information in a part of a machine] is one that is substantial or central to the operation of the claimed method. ... I do not believe there is any authority in Australian law for the proposition that the mere identification of a physical effect is sufficient for patentability.”

This Patent Office decision appears to be in contrast to *Grant* where the Full Federal Court found that a “physical effect” is a hallmark of patentability. The “physical effect” requirement is further emphasised in the Patent Office Manual of Practice and Procedure where the following passage from the *Grant* decision is referenced:

“It is necessary that there be some “useful product,” some physical phenomenon or effect resulting from the working of a method for it to be properly the subject of letters patent.”

Further discussion with senior examiners at the Patent Office has unfortunately shed no light on the situation. It has been intimated that the Patent Office has adopted this position in an attempt to have the law in relation to business method related inventions clarified by the Courts.

3. Comparison of Australian Law to U.S. Law

In similar regard to the United States, business method related inventions are not categorically excluded from patentability. And overall, respective patent laws in Australia and the United States are quite similar. So much so that IP Australia and the USPTO have entered a Patent Prosecution Highway pilot program. Additionally, applicants may elect a “modified” examination process where a corresponding US patent has issued, that generally streamlines Australian prosecution.

However, the position adopted by the Australian Patent Office casts some uncertainty on the commonalities between the jurisdictions in relation to business method inventions. Where previously it was considered that claim sets allowed in the US in view of the *Bilski* decision (referenced in the articles above) would also be allowable in Australia, such claims may now run into significant hurdles at the Australian Patent Office.

4. Advice for Conforming U.S. Application

Until the patent office decisions are challenged and clarified by the Courts, our practical advice to applicants is to draft and claim business method inventions in the context of being a “mode or manner” of operating a computer to achieve a result and satisfy the above-described computer software requirements (as opposed to being a business method which happens to be implemented in a computer). Applicants looking to take advantage of modified examination or the Patent Prosecution Highway based on foreign granted patents – such as US patents – may need to consider the traditional route of normal examination that allows greater flexibility with amendments/changes to the granted claims.

VII. China

1. Summary of Patent Eligibility Requirements

1(a) The Legal Basis Under the Chinese Patent Law: Article 25(1.2)

According to Article 25(1.2) of Chinese Patent Law, rules and methods for mental activities shall not be granted a patent right. In determining whether or not a claimed subject matter in a patent application involving rules and methods for mental activities is a patentable subject matter, the following principles shall be followed.

- If a claim concerns only rules and methods for mental activities, it shall not be granted a patent right.

If a claim merely relates to an algorithm, or mathematical computing rules or computer programs per se, or computer programs recorded in mediums (such as tapes, discs, optical discs, magnetic optical discs, ROM, PROM, VCD, DVD or other computer-readable mediums), or rules or methods for games, etc., it falls into the scope of the rules and methods for mental activities and does not constitute the subject matter for which patent protection may be sought.

If all the contents of a claim, except its title of the subject matter, merely relate to an algorithm, or mathematical computing rules or programs per se, or rules or methods for games, etc., the claim essentially merely relates to rules and methods for mental activities, and does not constitute the subject matter of patent protection.

- If all the contents of a claim include not only rules and methods for mental activities but also technical features, the claim as a whole is not rules and methods for mental activities, and shall not be excluded from patentability under Article 25.

Today, examiners in SIPO (State Intellectual Property Office) seldom reject business methods in terms of Article 25(1.2). Instead, Article 2(2) is widely used by the examiners.

1(b) The Legal Basis Under the Chinese Patent Law: Article 2(2)

According to Article 2 (2) of Chinese Patent Law, “Invention” means any new technical solution relating to a product, a process or improvement thereof. An invention application relating to computer program is the subject matter of patent protection only if it constitutes a technical solution.

If the solution of an invention application relating to computer programs involves the execution of computer programs in order to solve technical problems, and reflects technical means in conformity with the laws of nature by computers running programs to control and process external or internal objects, and thus technical effects in conformity with the laws of nature are obtained, the solution is a technical solution as provide for in Article 2.2 and is the subject matter of patent protection.

What is technical? The term “*technical*” is not defined in the Chinese Examination Guideline but is generally understood in the sense of “*technological*.”

According to the current practice of the SIPO, where a claim contains a combination of technical and non-technical features, if the technical features do not contribute to the

solution of a technical problem, i.e. lack of technical contribution, the subject matter of such claim, from some examiners' perspectives, is still excluded from patentability. Hence, the requirement of an invention with technical character, to some extent, is relatively high in China.

2. Comparison with US Practice

2(a) The Technical Requirement

While in the US inventions are not limited to fields of technology, a requirement limiting inventions is explicitly stated under the Chinese Patent Law. Therefore, an invention relating to business methods and computer programs, in general, are only eligible for patent protection in China if it aims to solve a technical problem by using technical means and achieves a technical effect.

In claims comprising a combination of technical and non-technical features, to some examiners, only the technical features are considered which contribute to the solution of the technical problem. Further, to some of these examiners, only the technical feature(s) which is considered as new and non-obvious technical feature over the prior art, is used in assessment of technical contribution. As a consequence, in order to assess patent eligibility in China, the state of the art has to be taken into account sometimes.

2(b) The Protection Scope

While in the US “means plus function” features shall be construed as the specific embodiment(s) disclosed in the description, “means plus function” features, typically, have a broad scope of protection and are not limited to embodiments disclosed in the description under the Chinese Patent Law. Functional features have a broad scope of protection, too, but are allowed only when a certain technical feature can not be defined by a structural feature, or it is more appropriate to be defined by a feature of function or effect than by a structural feature, and the function or effect can be directly and positively verified by tests or procedures adequately specified in the description or known to the person skilled in the art and which do not require undue experimentation.

2(c) Types of Claims

In accordance with the Chinese Patent Law, computer implemented invention can be claimed as a method, apparatus or system. Computer programs and products, computer-readable medium, data carriers and signals are excluded from patentability in China.

3. Best Practice for Claiming Computer Implemented Inventions in China

3(a) Description

As a general rule, a Chinese patent application shall disclose the invention in a manner sufficiently clear and complete for it to be carried out by a person skilled in the art (Article 26(3), the Chinese Patent Law). Furthermore, the claims, for defining the matter for which protection is sought, shall be clear and concise and be supported by the description (Article 26(4), the Chinese Patent Law).

The SIPO still rejects new or amended claims if the claim language used is not contained literally in the application as filed. Therefore, the wording of the claims should be mirrored in the description as originally filed. It is difficult to claim features that are an abstraction or generalisation of the originally disclosed feature. E.g., a generalization/sub-generalization from a particular embodiment (i.e. car and/or truck) to a generic term (e.g. vehicle, motor-vehicle) is not allowable.

Since the SIPO conducts a three-technical-factors approach (i.e. a technical problem to be solved by technical means so as to achieve a technical effect) in assessment of patentability of a claimed subject matter, it is a good practice to state the technical disadvantage(s) under which the prior art suffers in the background of the description. Thus, the technical problem can then be formulated as to overcome these disadvantages. Furthermore, a concrete technical implementation (i.e. solution) shall be disclosed in details in the description. It is helpful in the granting procedure to assess the technical character of the solution if one or more technical advantages and effects of the solution are stated already by the description.

If the solution contains both technical and non-technical features, it should be described how technical and non-technical features interact to provide the one or more technical effects in the description explicitly so that the arguments in favour of the technical contribution of the solution are much more likely to be accepted by the SIPO in the granting procedure.

The specification should use as much technical language as possible, especially the technical effect of an invention. “To improve the security of the network” is better than “To purchase a product via Internet,” for example.

3(b) Claims

The claims of an invention application relating to computer program may be drafted as process claim or product claim, i. e. the apparatus for executing the process. If it is drafted as a process claim, the various functions to be performed by the computer program and the way to perform the functions shall be described in detail according to the steps of the process. If it is drafted as an apparatus claim, the various component parts and the connections among them shall be specified, and a detailed account shall also be given on the component parts by which the various functions of the computer program are performed, and on how these functions are performed.

Apparatus claim for protection of the computer program can be drafted in two ways (i.e. “means-plus-function” format and “a mixture of software and/or hardware components” format), and there provide specific requirements for the two ways separately in China.

“means-plus-function” format

Under the Chinese Examination Guideline, computer software drafted as an apparatus claim in “means-plus-function” format can be allowable. However, if the computer software is only described in conjunction with a flowchart in the description, the apparatus claim shall be defined in a manner that not only each component in the apparatus claim should completely correspond to each step in the process claim or each step in the computer program flow, but the preamble of apparatus claim should completely correspond to the preamble of the process claim.

In addition, each component in the apparatus claim shall be regarded as function modules which are required to be built to realize each step in the computer program flow or each step in the method. The apparatus claim defined by such a group of function modules shall be regarded as the function module architecture to realize the solution mainly through the computer program described in the description rather than entity devices to realize the solution mainly through hardware.

The following is an example of such apparatus claim in “means-plus-function” format:

Method Claim	A method for accessing to a wireless communication environment, comprising: receiving...; identifying... sending....	
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Apparatus claim	A <u>processor</u> for accessing to a wireless communication environment, comprising: means for receiving...; means for identifying... means for sending....	<u>Not allowable</u> The processor recited in the preamble is a physical entity; but the means recited in the body should be interpreted as function (i.e. virtual) modules. A mixture of physical entity and virtual module is not allowed if the CII (computer implemented invention) is only disclosed as a software program in conjunction with flowchart in the description.
Apparatus claim	An apparatus for accessing to a wireless communication environment, comprising: a transceiver for receiving..., and sending...; means for identifying....	<u>Not allowable</u> If the CII is only disclosed as a software program in conjunction with flowchart in the description, the apparatus claim shall be drafted in “means-plus-function” format, and each component, which makes up of the apparatus, should correspond to each step in the method claim exactly. The claimed apparatus, including the transceiver and means for identifying, shall not be allowable in terms of lack of support in the description since there is no such apparatus described in conjunction with accompanying drawing(s) in the description.
Apparatus claim	An apparatus for accessing to a wireless communication environment, comprising: means for receiving...; means for identifying... means for sending....	Allowable

“a mixture of software and/or hardware components” format

Under the Chinese Examination Guideline, if the apparatus claim is directed to a product which may be implemented by embodied software, improved hardware or the combination of the embodied software and improved hardware, each component recited in the apparatus claim should be described in conjunction with an accompanying block diagram in the description. In the block diagram, the components in the apparatus claim should be construed as physical entities and/or function modules. Moreover, in the description together with the block diagram, using the term “receiver” instead of “a receiving module/unit,” and “identifier” or “identifying module/unit” rather than “means for identifying...” may make the arguments more acceptable that the apparatus claim, including the receiver and the identifier, is supported by the description when assessing claim-description support in the substantive examination.