

PATENTS FOR COMPUTER- IMPLEMENTED INVENTIONS AND BUSINESS METHODS

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1. Patent Law Primer

(a) Introduction

Patents protect inventions, that is, the functionality of a machine, a composition of matter, or a process. In Canada, patent law is governed by the *Patent Act*.¹

The federal government grants patents to inventors or assignees of inventors. Every patent grants to the patentee for the term of the patent,² beginning at the grant of the patent, the exclusive right, privilege, and liberty of making, constructing, and using the invention and selling it to others to be used.³

A patent is sometimes described as a contract between the inventor and the government. In consideration for the inventor disclosing the invention in the patent and making it available to the public for use after the expiration of the patent, the government grants to the inventor the right to exclude others from making, using, or selling the invention during the term of the patent.

(b) The Patent Specification

Every patent has a similar structure. The two main parts of the patent are the "description" (sometimes called the "disclosure") and the "claims", and together they are called the "specification".

The description and the claims serve two very different purposes:

- (a) the description tells the public how to make or use the invention when the patent expires; and
- (b) the claims describe what it is that is not to be made or used during the term of the patent.

1. *The Claims*

The claims define the monopoly in words. A patent may have many claims, each defining the invention in different words and in broad or narrow functional language.

In Canada an invention may be defined by a process claim, or as an apparatus which carries out the process, or both.

¹ R.S.C. 1985, c. P-4, as amended.

² 20 years for patents filed after October 1, 1989 per s. 44 of the *Patent Act*.

³ *Patent Act*, s. 42.

2. *The Description (or Disclosure)*

The nature of the invention, together with how to carry out the invention, must be defined in the description. It must be clear, accurate, simple and easy to understand by the person or persons to whom the patent is directed, namely the skilled workers in the relevant field (see "Claim Construction," below).

In the case of a machine (for example, a computer), the best mode of operation must be described. In the case of a process (for example, the implementation of an algorithm by a computer), the necessary sequence of steps must be explained to distinguish the invention from prior publications, including patents (the "prior art").⁴

(c) **Statutory Subject Matter**

The *Patent Act* provides that patent protection may be acquired for any "invention" defined under section 2 as follows:

"invention" means any new and useful art, process, machine, manufacture or composition of matter, or any new and useful improvement in any art, process, machine, manufacture or composition of matter;

subject to the prohibition of subsection 27(8) that:

No patent shall be granted for any mere scientific principle or abstract theorem.

In the United States, 35 U.S.C § 101 defines patentable subject matter in similar terms:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Similarly, in the United States, certain things are excluded from patentability:

... laws of nature, physical phenomena and abstract ideas. An idea of itself is not patentable. A principle, in the abstract, is a fundamental truth; an original cause; a motive; these cannot be patented, as no one can claim in either of them an exclusive right.⁵

The U.S. Supreme Court in *Chakrabarty* considered that the choice of the term "any" to define patentable subject matter meant that Congress intended that patent laws

⁴ *Patent Act*, subs. 27(3).

⁵ *Diamond v. Diehr* 450 U.S. 175, 209 USPQ 1 (1981).

would receive wide scope and that patentable subject matter should include "anything under the sun that is made by man".⁶

(d) **Other Pre-requisites to Patentability**

Besides statutory subject matter, there are three other pre-requisites to patentability:

- (a) novelty;
- (b) utility; and
- (c) non-obviousness.⁷

In order for there to be an invention, there must be both a concept and an implementation (a way of putting the concept into practical form).⁸ The inventor must have at least reduced his or her idea to a definite and practical shape before it can be said that an invention has been made.⁹ The date an invention is made is established by showing that the invention was either described in enabling writing (or drawing) or built. While the machine does not have to be built, it is one way of establishing a date of invention.¹⁰

1. *Novelty (New)*

For an invention to be patentable, it must be "new"¹¹ and must not have been previously made available to the public.¹² In other words, the invention must not have been built before or described in a single document which contained sufficient information to allow someone to make the invention.¹³

The invention may comprise a novel combination of old things,¹⁴ so long as it is not merely the 'side-by-side' placement of old devices.¹⁵

⁶ *Diamond v. Chakrabarty* 447 U.S. 303 at 309, 206 USPQ 193 (1980) at 197.

⁷ *Patent Act*, s. 2 definition of "invention" and s. 28.3

⁸ *Reynolds v. Herbert Smith & Co.* (1903); 20 R.P.C. 123 (per Buckley J.) at 127; *Diversified Products Corp. v. Tye-Sil Corp.* (1991), 35 C.P.R. (3d) 350 (Fed C.A.) per Décarry J. at 364-5.

⁹ *Penmutit Co. v. Borrowman*, [1926] 4 D.L.R. 285, 43 R.P.C. 356 (P.C.).

¹⁰ *Owens-Illinois Inc. v. Koehring Waterous Ltd* (1980), 52 C.P.R. (2d) 1 (F.C.A.) at 2.

¹¹ *Patent Act*, s. 2.

¹² *Patent Act*, s. 28.2.

¹³ Sometimes called an enabling disclosure.

¹⁴ *Philco Products Ltd v. Thermionics Ltd.*, [1943] 1 S.C.R. 396 (per Taschereau, J.) at 412-413; *Canadian General Electric Co. v. Fada Radio Ltd.* (1930), 47 R.P.C. 69 (P.C.) at 90.

¹⁵ *British Celanese v. Courtaulds* (1935) 2 R.P.C. 171 at 193 (H.L.). See also *Lester v. Canada (Commissioner of Patents)* (1946), 6 C.P.R. 2 (Ex. Ct.) and *Domtar Ltd v. MacMillan Bloedel Packaging Ltd*, (1977) 33 C.P.R. (2d) 182 (Fed. T.D.) at 189-90.

2. *Utility (Useful)*

In order to be protectable by a patent, an invention must be also be "useful"¹⁶ for the purpose for which it was designed.¹⁷ An invention has utility if:

- (a) it gives a benefit to the public;
- (b) it is useful in achieving a particular purpose;
- (c) it makes a process better or cheaper;
- (d) it is advantageous under certain circumstances; and
- (c) it works.

Older case law held that an invention had to result in a "vendible product" in order for it to be patentable. The trend in other jurisdictions, and in Canada, requires that the invention produce a "technical result" or "practical application". It appears that commercial utility in Canada is also established by a method of earning licensing fees.¹⁸

3. *Non-Obviousness (Inventive)*

Through the case law, and now by statute,¹⁹ the Courts added the requirement of non-obviousness or inventive ingenuity. This arose out of a desire by the Courts not to allow a patent to cover any routine improvement. The test for inventiveness in Canada asks whether the invention would have been obvious to a hypothetical individual, possessed of the relevant prior art but lacking any inventive abilities.²⁰

(e) **The Application Process**

A patent application, in the form of the draft patent, is filed with the appropriate governmental department.

In order to obtain a patent, three things are required:

- (a) an inventor;
- (b) an invention described in an application; and
- (c) money.

¹⁶ *Patent Act*, s. 2.

¹⁷ *Mullard Radio Valve Co. v. Philco Radio & Television Corp. of Great Britain Ltd.* (1935), 52 R.P.C. 261 (per Maugham O.J.) at 287.

¹⁸ *Progressive Games Inc. v. Canada (Commissioner of Patents)* (1999), 3 C.P.R. (4th) 517 (Fed. T.D.) per Denault, J., affirmed (2000), 9 C.P.R. (4th) 479 (Fed. CA.): the method was a commercially useful improvement to playing poker.

¹⁹ *Patent Act*, s. 28.3.

²⁰ *Free World Trust v. Électro Santé Inc.*, [2000] 2 S.C.R. 1024, 194 D.L.R. (4th) 232, 263 N.R. 150, 9 C.P.R. (4th) 168 at para. 44.

1. *An Inventor*

In Canada, the inventor or his or her "legal representative" can apply for a patent.²¹ A "legal representative" is anyone who has assumed ownership of the patent by operation or law or by assignment.²² In the United States, by contrast, only the inventor can apply for a patent.

Patents can be assigned, in whole or in part, by a written document.²³ The co-owner of a patent cannot subdivide his part ownership into two or more parts without the concurrence of all the owners of the patent.²⁴ It is important to register any assignment with the Patent Office as the first assignment filed governs.²⁵

(i) First-to-file versus First-to-invent

Since 1989, Canada has had a "first-to-file" system, which awards the patent to the first inventor to file a patent application for the invention.²⁶

Previously, Canada followed the model of awarding patents to the first person or persons to have invented the invention. This policy can result in disputes arising within the Patent Office between inventors, requiring them to prove who invented what first (called "conflicts" in Canada and "interferences" in the United States).

2. *The Application*

The invention is described and claimed in a patent application. The patent application is accompanied by the documentation requesting the grant of a patent (called the "petition") and material evidencing the authority of the person applying for the patent. Patents are usually prosecuted by patent agents on behalf of the applicant.

(i) Prosecution

Once a patent application is filed, the applicant has five years to request that the patent application be examined.²⁷

The examiner then reviews other patent applications or patents on file in the Canadian Patent Office in the same or related areas. Any other literature publicly available is also available to the examiner. There is no obligation to disclose prior art to the Canadian

²¹ *Patent Act*, s. 27.

²² *Patent Act*, s. 2.

²³ *Patent Act*, subs. 50(1).

²⁴ *Forget v. Specialty Tools of Canada Inc.* (1993), 48 C.P.R. (3d.) 323 (B.C.S.C.) per Rowan J., aff'd (1995), 62 C.P.R. (3d) 517 (B.C.C.A.).

²⁵ *Patent Act*, subs. 50(2).

²⁶ *Patent Act*, s. 27.

²⁷ *Patent Rules*, SOR/96-423 as am., subs. 96(1).

Patent Office, absent a request from the office to do so. In the United States, however, there is a positive obligation to present relevant art to the U.S. Patent Office. Failure to do so may result in the issuance of an invalid patent.

(ii) The "Office Action"

After reviewing an application, the examiner may conclude that the applicant needs to amend the application and will issue a letter to the applicant setting out the objections. The letter is referred to as an "office action".²⁸ Time limits are imposed within which a response must be filed to the office action.

(iii) Laying Open of the Application

Under first-to-file systems, patent applications are laid open for public inspection or published no later than 18 months from the filing of the first patent application for the invention. The applicant can request earlier publication if desired.²⁹ The publication of a patent application, in effect, warns the public that a patent may issue for the technology. If a patent subsequently issues, the patent owner is entitled thereafter to "reasonable compensation" for any "infringements" done between the date of the publication of the patent application and the issue date of the patent and to profits or damages and an injunction.³⁰

3. *Money*

In addition to filing fees, periodic fees must be paid in order to maintain a patent or patent application.³¹ Small entities may pay reduced filing fees and maintenance fees.

(f) **Claim Construction**

It was said more than 60 years ago that multi-million dollar lawsuits can be won or lost depending on the meaning of a word or two in a patent claim.³² The process of giving meaning to the various terms in the claims of a patent is called "claim construction." It is a function performed by the court, reading the claim in an informed and purposive way through the eyes of a person skilled in the art to which the patent pertains, as of the

²⁸ *Patent Rules*, s. 30.

²⁹ *Patent Act*, subs. 10(2).

³⁰ *Patent Act*, subs. 55(2).

³¹ *Patent Act*, subs. 27.1(1).

³² *Electrical & Musical Industries, Ltd v. Lissen, Ltd.* (1939) 6 R.P.C. 23 (per Lord Russell of Killowen) at 39.

date of its publication.³³ Construction will "show that some elements of the claimed invention are essential, while others are non-essential."³⁴

The construction of a patent is a legal exercise.³⁵ Likewise, in the United States, the construction of the claims is the job of a judge, and not the jury. The job of the court is to interpret the claims. It cannot redraft them.³⁶

1. *The Addressee*

The court is to construe a patent as would a person skilled in the art to which the patent is directed because the claims are addressed to the skilled worker, not to the lay person or persons.³⁷

2. *File Wrapper Estoppel*

The "file wrapper" is the name given to the file in the Patent Office containing the correspondence between the inventor's patent agent and the Patent Office examiner during the prosecution of the patent. It sometimes contains statements made on behalf of the inventor as to what the inventor considers the invention to be and how it differs from the prior art.

In Canada, extrinsic evidence in the form of the file wrapper is not admissible for construing a patent. Even comments made on behalf of the inventor during the prosecution of the patent cannot be used in Canadian courts to interpret the words in the claim.³⁸

In the United States, however, the file wrapper can be used, and patent owners can be estopped from asserting facts as different than as represented during the prosecution process. Moreover, any narrowing amendment made to the claims during prosecution creates a risk of limiting the construction of the amended element to its literal meaning - that is one cannot look to substitute the amended claim element under what is known under U.S. law as the "doctrine of equivalents".³⁹

³³ *Whirlpool Corp. v. Camco Inc.*, [2000] 2 S.C.R. 1067, 9 C.P.R. (4th) 129, 194 D.L.R. (4th) 193, 263 N.R. 88, 186 F.T.R. 268.

³⁴ *Ibid* at para. 51.

³⁵ *Whirlpool*, *supra* note 34, at para. 61.

³⁶ *Free World* *supra* note 21, at para. 59, referring to *O'Hara Manufacturing Ltd. v. Eli Lilly & Co.* (sub. Nom. *Eli Lilly & Co. v. O'Hara Manufacturing Ltd*) (1989), 26 C.P.R. (3d) 1 (F.C.A.) per Pratte J.A., at 7.

³⁷ *Free World*, *supra* note 21, at para. 44. See also *Burton Parsons Chemicals Inc. v. Hewlett Packard (Canada) Ltd.* (1974), 17 C.P.R. (2d) 97 (S.C.C.) per Pigeon J. at 104; and *American Cyanamid Co. v. Ethicon Limited*, [1979] R.P.C. 215 (per Graham J.) at 245-246.

³⁸ *Ibid* at pages. 64-66, referring to *Lovell Manufacturing Co. v. Beatty Bros. Ltd.* (1962), 41 C.P.R. 18 (Ex. CL) per Thorson P.

³⁹ *Festo Corp. v. Shoketsu Kinzoku Kogyo Kabushiki Co.*, 535 U.S. 722 (2002).

(g) **Infringement**

Infringement is any act that interferes with the full enjoyment of the monopoly granted.⁴⁰ Infringement of a patent occurs when a defendant's product or process is aptly described by the words of a claim, as construed by the Court.

1. *Intent to Infringe*

In Canada, it does not matter whether a defendant intended to infringe the patent; the defendant will still be liable for damages or profits.⁴¹

In the United States, however, a defendant will be penalized for willfully infringing a patent or carrying on with reckless disregard to infringement, and treble damages may be awarded.⁴²

2. *Approach to Infringement*

In 2000, the Supreme Court of Canada approved an approach to infringement which tests whether all the essential elements set out in a patent claim are present in the defendant's device or process; there is no infringement if an essential element is different or omitted.⁴³ This inquiry relies on a construction of the claims interpreted in an informed and purposive way.

(h) **Remedies**

The *Patent Act* provides that an infringer will be liable for damages and profits⁴⁴ and can be ordered to no longer make, use, or sell the infringing device or process.⁴⁵

(i) **International Agreements Affecting Patents**

Canada is a signatory to several international Agreements or Conventions.

1. *The Paris Convention -1883*

In 1883, under the Paris Convention, several countries agreed to provide treatment under their intellectual property statutes equally to nationals of other countries. The Paris Convention also provided for what is known as "convention priority"; filing a patent application in one country affords a certain period of time (one year for patent applications) within which to file an application in other member countries. The

⁴⁰ *Skelding v. Daly* (1941), 2 Fox P.C. 61 (B.C.C.A.) per O'Halloran J.A. at 68.

⁴¹ *Ibid.*

⁴² *Corning Glass v. Sumitomo Electric*, 5 U.S.P.Q. 2d. 1545 at 1570-71.

⁴³ *Free World*, *supra* note 21.

⁴⁴ *Patent Act*, s. 55.

⁴⁵ *Patent Act*, s. 57.

subsequently filed applications are treated as if they were filed on the same day as the first-filed application. In effect, the subsequent applications are back-dated to the priority filing date.

The ability to file only one application and to subsequently file further applications based upon it is of critical importance to planning a patent filing strategy for obtaining patent protection around the world.

There are over 120 countries that have ratified the Paris Convention. The Paris Convention is administered by the World Intellectual Property Organization (WIPO), based in Geneva, Switzerland.

2. *World Trade Organization*

The World Trade Organization was created during the Uruguay Round of the General Agreement on Tariffs and Trade (GATT). The GATT was intended to decrease trade barriers between countries.

Under the North American Free Trade Agreement (NAFTA) and the GATT, Canada imposed upon itself (as did other signatory countries) an obligation to make patents available for "any inventions... in all fields of technology".⁴⁶ There is to be no discrimination as to the field of technology, unless it is a sort of technology that fits under a specific exclusion. Computer-related inventions are not excluded.

3. *Patent Co-operation Treaty*

The Patent Co-operation Treaty (PCT) is a multilateral treaty that came into force in 1978. It facilitates filing patent applications in the PCT-contracting states, includes most developed and many developing countries.

The PCT allows for the filing of one patent application (an international application) in which the applicant expresses the intention to have national or regional patent applications filed in the indicated states or regions. The cost of translations and national filing fees is postponed until 20 or 30 months after the priority date. Examination of the application is available at the request of the applicant.

2. **Computer-implemented Inventions**

(a) **Statutory Subject Matter**

As mentioned above, patents are granted only for inventions that claim subject matter defined in the *Patent Act*, namely, an 'art', 'process', 'machine' or 'composition of matter'.

⁴⁶ Title 17 excluded certain biotechnology, but did not affect computer-related inventions.

This is subject to the prohibition of subsection 27(8) which states that, "...[n]o patent shall issue for... any mere scientific principle, or abstract theorem".

What then is "a mere scientific principle" or "abstract theorem"?

(b) The Basic "Principles"

Although computer programs, in one sense, are a series of steps or instructions in a method, twenty years ago, Patent Offices around the world were uniformly reluctant to include software-related inventions as statutory subject matter. That reluctance has mostly vanished in the United States, Japan, and Korea, and is lessening in other countries.

The treatment of computer programs in different countries differs on the applicability of certain principles sometimes used to analyze the patentability of a computer software-related invention. Those principles are:

- (1) You can't patent math or science. Therefore, is the invention math, science, or applied math or applied science?
- (2) Computer programs "as such" are specifically prohibited as statutory subject matter in some jurisdictions (e.g., European Patent Convention) but if the program achieves a further technical effect, then it is patentable.
- (3) If the invention is more than just math or science, is the invention "as a whole" patentable? If it's a process, is there a "technical result"?

Examples of cases evidencing these principles in each of the United States, Canada, and the European Patent Convention are dealt with separately in greater detail below.

(c) United States

Software-related inventions are now patentable in the United States and constitute a large portion of all patent applications. Many of the firms being awarded the most patents by the USPTO are the information technology firms – e.g. IBM, Microsoft.⁴⁷ One of the most prominent patent infringement suits in the last few years involved software patents.⁴⁸ The USPTO is even reaching out to the open source community to ensure patent examiners have access to all available prior art relating to software code during the patent

⁴⁷ "IBM leads 2005 U.S. patent ranking", IDG News Service, http://www.infoworld.com/article/06/01/13/73895_HNpatentranking_1.html

⁴⁸ For a chronology of events concerning the *NTP v. Research in Motion* dispute over wireless email technology, see http://news.com.com/BlackBerry+saved/2100-1047_3-6045880.html. The dispute ended in a highly-publicized \$600M settlement.

examination process.⁴⁹ By all accounts, the debate is settled in the United States in favour of granting software patents.

1. *USPTO Guidelines*

In 1996, the United States Patent and Trademark Office (USPTO) issued Examination Guidelines for Computer-Related Inventions that applied the case law to give greater guidance to examiners and applicants as to what would be permitted in terms of software inventions.

In October 2005, the USPTO adopted a new set of Interim Guidelines.⁵⁰ The present guidelines provide a new approach for examiners to evaluate subject matter eligibility (regardless of whether the invention is computer related). The new approach is considerably simpler than the prior approach exemplified in the 1996 guidelines. The catalyst for these changes was a number of decisions before the Court of Appeals for the Federal Circuit and the Board of Patent Appeals, described below.

No final deadline for submission of comments regarding patentable subject matter has been established because it appears the USPTO wishes to wait until the Supreme Court renders its opinion in an important business methods case (discussed below). However, a tentative deadline is June 30, 2006.⁵¹

(i) Present Approach

The new approach to subject matter can be summarized as follows (and appears as a Flowchart in Appendix "A"):

- (1) § 101 Matter. Once the application is read to understand the invention and its practical utility, a search of the prior art is done to determine if the invention falls within one of the four statutory categories (not an absolute bar if it does not):
 - (a) Process
 - (b) Machine
 - (c) Manufacture
 - (d) Composition of Matter.

⁴⁹ "USPTO Partners with Open Source Community to Expand Patent Examiner Access to Software Code", January 10, 2006, USPTO Press Release, <http://www.uspto.gov/web/offices/com/speeches/06-02.htm>.

⁵⁰ Interim Guidelines for Examination of Patent Applications for Patent Subject Matter Eligibility, http://www.uspto.gov/web/offices/pac/dapp/opla/preognotice/guidelines101_20051026.pdf

⁵¹ USPTO Federal Register, Vol. 70, No. 243, December 20, 2005, <http://www.uspto.gov/web/offices/com/sol/notices/70fr75451.pdf>

- (2) Judicial Exception. Next, determine if the invention falls under one of the three judicial exceptions (unpatentable):
 - (a) Abstract Idea
 - (b) Law of nature
 - (c) Natural phenomena.
- (3) Practical Application. But, a *practical application* of one of the three exceptions is patentable (e.g., a practical application of an abstract idea is patentable). Here, determine if the invention is:
 - (a) A practical application of a physical transformation; or
 - (b) A practical application that produces a useful, tangible and concrete result.
- (4) Preemption. A practical application is not patentable if it effectively claims the idea, law of nature or natural phenomena (i.e., if it pre-empts the exception).
- (5) The Rest. Evaluate the application for the other criteria (sufficiently described, novel, non-obvious).

The third step of the present approach reflects the innovations of the Court of Appeal for the Federal Circuit in *State Street*, discussed in greater detail below. This case permits software and business method patents so long as the invention involves some practical application and produces “a useful, concrete and tangible result”. The present guidelines echo this language and provide additional commentary on the meaning of a “useful, tangible and concrete result”:

- (1) “Useful Result” – the utility of an invention has to be (i) specific, (ii) substantial and (iii) credible.
- (2) “Tangible Result” – this does not require a claim to be tied to a particular machine or apparatus or must operate to change articles or materials to a different state or thing. Any process claim must, however, produce a “real-world result”. The opposite meaning of “tangible” is abstract.
- (2) “Concrete Result” – the process must have a result that can be substantially repeatable or the process must substantially produce the same result again. The opposite of “concrete” is unrepeatable or unpredictable.

The guidelines state that it is up to the examiner to make a *prima facie* case that the invention does not contain proper subject matter, after consideration of the patent as a whole and in light of the approach suggested above.

The present guidelines, though subject to change in light of the Supreme Court's anticipated activity in the field of business methods, indicate that the USPTO is reducing many of the subject matter obstacles in the way of software patents. As a result of the guidelines, building on the caselaw, the inquiry focuses on the practical application of an abstract idea, a concept which is the epitome of software.

(ii) Old Approaches

The present guidelines incorporate the case law to date, but most importantly, clarify that certain historical tests are no longer applicable. Some of these historical tests were reflected in the previous 1996 guidelines:

- “Not in the technological arts” test – this potential analysis improperly focused on how the invention is implemented rather than on what is the practical application and the result that is achieved.
- *Freeman-Walter-Abele* test – named after a series of cases, this test dissected the claim by removing the non-statutory subject matter and then labelling the remaining portion as either data-gathering steps or insignificant post-solution activity. The value of this physical limitations analysis was questioned by caselaw.
- Mental step or human steps tests – these tests are irrelevant in light of caselaw which held that if a claimed process is performed by a machine, it is immaterial whether some or all the steps could be carried out by the human mind.
- Machine implemented test – simply because a process claim recites a machine implemented process is not determinative – it could be an implementation of nothing more than an abstract idea. In any case, caselaw has held that a “structural inquiry” is unnecessary.
- *Per se* data transformation test – identifying that a claim transforms data from one value for another is not sufficient (no substantial practical application).

2. *The Development of the U.S. Law*

The case law has evolved from allowing patents on software-controlled industrial processes and signal processors, to software that improved the functionality of a general purpose computer, to data formats that did likewise, to signal formats, to software stored on a diskette, and most recently to computerized (and even non-computerized) business methods (see the discussion of the *State Street* decision, below).

(d) **Canada**

In Canada, the Patent Office has looked favourably on patent applications directed toward computer hardware and cautiously on those directed to algorithms and computer

software. In recent years, the Canadian Patent Office has eased its restrictions on patenting computer-related inventions. Patents are now rather routinely granted for inventions in the computer and information processing field.

1. *Guidelines*

In February 2005, the Canadian Patent Office adopted new guidelines dealing with "Computer Implemented Inventions",⁵² a term which has been adopted for the title of this paper.⁵³ The guidelines define the boundary between patentable and unpatentable software-related subject matter.

In brief, the current guidelines state the following with respect to the requirements for patentability:

- (1) **Utility.** In order to be useful, the software must be reliably reproducible from the teachings in the description, without the need for subjective judgment or interpretation.
- (2) **Subject Matter.** The claimed subject matter must fall in one of the recognized categories of art, process, machine manufacture or composition of matter. While software in the form of data model, an abstract theorem or algorithm is automatically excluded from patentability in the same manner as a mathematical formula by virtue of subsection 27(8), software that has been integrated with statutory subject matter may be patentable. For a method to qualify as statutory subject matter, it must i) involve a physical act upon a physical object producing a physical change in character or condition, and ii) produce an essentially economic result relating to trade, industry, or commerce.
- (3) **Obviousness.** Many methods, schemes, algorithms, etc. can be easily automated or implemented without inventive ingenuity. Thus, the presence of software or a computer does not lend patentability to, or subtract patentability from, an apparatus or process.

The present guidelines appear to be similar to the previous set of guidelines issued in the fall of 1994, following recommendations from the Patent and Trademark Institute of Canada (now the Intellectual Property Institute of Canada):

- (1) Unapplied mathematical formulae are considered equivalent to "mere scientific principles or abstract theorems" which are not patentable under subsection 27(3). (now subsection 27(8)).

⁵² Manual of Patent Office Practice, c.16 revised February 18, 2005.

⁵³ The term originates from European Patent Office

- (2) The presence of a programmed general purpose computer or a program for such computer does not lend patentability to, nor subtract patentability from, an apparatus or process.
- (3) It follows from (2) that new and useful processes incorporating a computer program, and apparatus incorporating a programmed computer, are directed to patentable subject matter if the computer-related matter has been integrated with another practical system that falls within an area which is traditionally patentable. This principle is illustrative of what types of computer-related application may be patentable, and is not intended to exclude other computer-related applications from patentability.

Comparing the two sets of guidelines, it would appear that the first 1994 item has been repeated in the present guidelines. The second item has been circumscribed as an effect of the obviousness requirement. It appears that the third item has also been included in the present guidelines to the effect that “software that has been integrated with statutory subject matter may be patentable”.

2. *Comments on the 2005 Guidelines*

(i) Utility

The guidelines state that the software must be reliably reproducible from the teachings in the description, without the need for subjective judgment or interpretation. The reproducibility requirement is in tune with the “tangible” result required by the USPTO guidelines. With regard to subjective judgment, however, the USPTO guidelines removed the “mental step test” because of caselaw which held that if a claimed process is performed by a machine, it is immaterial whether some or all the steps could be carried out by the human mind.⁵⁴ The Canadian approach is, in this respect, not in line with the US approach.

(ii) Subject Matter

The present guidelines have much to say about patentable subject matter.

With regard to the statement that software in the form of an algorithm, data model or mathematical formula is unpatentable, this appears to be an attempt to restate the *Patent Act* which provides that “No patent be granted for any mere scientific principle or abstract theorem”. Arguably, mathematics is the language used to describe scientific phenomenon. It is the application of scientific principles in new and useful articles or processes that are patentable inventions. If this Guideline is merely an attempt to restate the prohibition in the *Patent Act*, then why doesn't the Patent Office merely stay with the statutory language?

⁵⁴ *Musgrave*, 431 F.2d 893, 167 USPQ at 289-90.

The guidelines also state that a computer program integrated with traditionally statutory subject matter is patentable. Processes are patentable. Processes are usually a set of instructions to achieve a desired result. Ironically, the definition of "computer program" under section 2 of the *Copyright Act*⁵⁵ sounds similar to how one would describe a "process":

a set of instructions or statements, expressed, fixed embodied or stored in any manner, that is to be used directly or indirectly in a computer in order to bring about a specific result.

The prohibition on patenting computer programs may be avoided in part by characterizing the invention as a process (or as other traditionally statutory subject matter such as an article) rather than as a computer program. As seen below however, it is likely the product of the process or instructions that will ultimately determine patentability.

Although the Patent Office has been issuing patents which arguably are processes whose ultimate product is data,⁵⁶ the issue of the patentability of data structures will likely have to be resolved by the Federal Court of Canada either in an appeal from a rejection by the Patent Office or in a determination of the validity of such a patent in litigation.

(iii) Obviousness

It appears that the present guidelines endorse the use of claims on media storing an invention. The guidelines provide that "[a] computer readable medium containing only subject matter of an abstract or intellectual character, such as music or textual information, is not an inventive combination [i.e., it is obvious]. However, a computer readable medium containing a program or data structure is an inventive combination if that medium, when used in a computer, causes that computer to fulfill a new and non-analogous use".

The present guidelines encompasses the directive from the 1994 guidelines that "a computer program neither adds to nor subtracts from patentability".

This directive merely states that the Patent Office will neither discriminate for or against an invention which includes computer-related subject matter.

By signing NAFTA and the Uruguay Round of GATT, Canada has imposed upon itself an obligation to make patents available for "any inventions... in all fields of technology".⁵⁷ There is to be no discrimination as to the field of technology unless it is a

⁵⁵ R.S.C. (1985) c. C-42, as amended.

⁵⁶ See, for example, *Application for Patent of Mobil Oil* (1988), 24 C.P.R. (3d) 571 (Pat. App. Bd. & Pat. Comm.).

⁵⁷ R.S.C. (1985) c. C-42, as amended.

field of technology that fits under a specific exclusion. Software-related inventions are not so excluded.

NAFTA and GATT may ultimately help to expand the patentability of software-related inventions in all participating nations.

(iv) Claims

A search in the Canadian Patent Office patent database for “system and method” will reveal countless software applications and patents. In fact, it is common practice to claim the same computer-implemented invention as a method (art or process), system (machine) or product (manufacture). The present guidelines affirm this practice and even provide commentary and examples about the three possible categories of claims:

- (1) Art or process (method) claim. This type of claim defines the series of operations which take place in the computer when the software is run.
- (2) Machine (apparatus and system) claim. This type of claim defines a computer which has been configured in a novel way. The functional steps in the method claim are replaced by functional components such as “means for” expressions to define the structural elements of the computer.
- (3) Manufacture (products or computer media, including signals, embodying code or data structures) claims. These types of claims define a computer readable memory storing statements and instructions for execution by a data processing system to direct the system to function in a particular way.

(v) Description

The Canadian Patent Office guidelines indicate that the description of the invention may comprise but is not restricted to a description of the hardware, the modules of a computer program, and the data structures. The questions to be asked include:

- (1) Hardware. Are the important elements of the computer system, e.g., processors, primary and secondary memories, buses, interfaces, displays, peripherals, etc. sufficiently described? Has the interrelationship between the computer elements and network been described showing the desired functionality?
- (2) Computer Program. Is the functional representation of the computer program described? What are the computer program functional modules in play, namely interfaces, the steps to be performed, the sequences, the timing, the location of the modules in the system, the processes, algorithms, internal and external logical files and the number and kind of interactive inquiries? Do segments of the program (components) function separately from the remainder of the computer program?

- (3) Data. What is the source and the form of input data or output data? What is the format of the data when stored or transmitted? What is the flow of processing? How do the software modules interact with and transform the data?
- (vi) Overall

As compared to the USPTO approach, the Canadian Patent Office guidelines are a loose collection of recommendations, examples and discussion. Perhaps due to the lack of caselaw, they provide a limited discussion, and no systematic approach to the subject matter analysis. By contrast, the USPTO guidelines are structured around the caselaw, and contain a visual flowchart to assist the understanding of the material. There is also significant discussion about the evolution of the guidelines, and a clear indication of where and why policies have changed. There is no such counterpart in the Canadian guidelines, with the Patent Office leaving it to the reader to discover the subtle policy differences with each revision.

3. Case Law

One data point plotted on a piece of graph paper creates a difficult problem in extrapolation. Similarly, Canada's one court decision explicitly addressing the patentability of software-related inventions makes patentability difficult to predict.

The subject matter of the *Schlumberger Canada Ltd. v. Canada (Commissioner of Patents)*⁵⁸ case was a system that used a computer to analyze data concerning soil characteristic measurements for oil and gas exploration, described in more detail at page 205 of the reported decision:

The appellant's application discloses a process whereby the measurements obtained in the boreholes are recorded on magnetic tapes, transmitted to a computer programmed according to the mathematical formulae set out in the specifications and converted by the computer into useful information produced in human readable form.

The Commissioner of Patents rejected the application on the ground that the applicant had claimed, in effect, a monopoly on a computer program, which was not the proper subject matter to be an "invention" under section 2 of the *Patent Act*.

The Federal Court of Appeal held that what was new in the applicant's system was the discovery of the mathematical formulae to be performed, which amounted to be a "mere scientific principle or abstract theorem" - not patentable pursuant to the equivalent of subsection 27(8) of the *Patent Act*. The Court held that the addition of a computer to a system does not change the subject matter of the discovery so as to make it patentable.

⁵⁸ (1981), 56 C.P.R. (2d) 204 (F.C.A.).

The Supreme Court of Canada refused leave to appeal the Federal Court of Appeal's decision on October 20, 1981.⁵⁹

The case established the following two-step test to determine the patentability of computer-related inventions:

- (1) According to the patent application, what has been discovered?
- (2) Is that discovery patentable regardless of whether a computer is or should be used to implement the discovery?

4. *Schlumberger, and Beyond*

Immediately following the *Schlumberger* decision, the Patent Office took a noticeably "anti-computer patent" stance. At the time, the solution was to claim sufficient pre-computer and post-computer steps to create a novel process control system.

A 1984 directive from the Commissioner of Patents effectively swung the "patentability pendulum" towards permitting software-related inventions to be patented through the late 1980s and early 1990s. More recently, the Patent Appeal Board used reasoning similar to that used in the U.S. *Alappat*⁶⁰ decision DMC. The Patent Appeal Board in *Motorola Inc. Patent Application No: 2,085,228, Re*,⁶¹ and in *Motorola Inc. Patent Application No. 2,047,731, Re*,⁶² withdrew an examiner's rejections of claims directed to a general purpose computer used to calculate the j^{th} roots and reciprocals of the j^{th} roots of a number to evaluate exponentials. The Board noted that the claims were for an apparatus and specifically referred to hardware (a ROM). It was thus "...a specific piece of computer hardware". As a result, the claim was limited "... to a specific configuration of at least one physical element..."⁶³ as well as other elements of a digital computer. The claims did not exclude the use of the algorithm itself but sought to exclude others from using the claimed device.

According to the 2005 guidelines discussed above, the Canadian Patent Office interprets the *Schlumberger* decision as stating that the claimed system was statutory subject matter, but that it was not patentable, and that it was not an invention, i.e., it was an obvious mechanical embodiment of non-statutory subject matter. This admission with regard to subject matter, together with the recognition that patents may protect the active functionality of computer programs, signals a greater alignment with the permissive practice of the U.S. Patent Office.

⁵⁹ Reported at (1982),40 N.R. 90 (S.C.C.).

⁶⁰ *Alappat, In. Re*, 23 U.S.P.Q. 20 1340 (Bd.. Pat. App. & Intf 1992)

⁶¹ (1999), 86 C.P.R. (3d) 71 (Pat. App. Bd.).

⁶² (1999), 86 C.P.R. (3d) 76 (Pat. App. Bd.).

⁶³ *Ibid.* at 82, and *supra* note 61, at 75.

(e) **European Patent Convention**

The Convention on the Grant of European Patents, commonly known as the European Patent Convention (EPC), was set up by the Council of Europe and is open to European countries both inside and outside the European Economic Community (EEC). The EPC establishes a single procedure for granting patents for subsequent registration in the national Contracting States and establishes certain standard rules governing those patents.

1. *The Governing Articles*

Article 52 of the European Patent Convention excludes from patentable subject matter computer programs "as such":

- (1) European patents shall be granted for any inventions which are susceptible of industrial application, which are new and which involve an inventive step.
- (2) The following in particular shall not be regarded as inventions within the meaning of paragraph 1:
 - (i) discoveries, scientific theories and mathematical methods;
 - (ii) aesthetic creations;
 - (iii) schemes, rules and methods for performing mental acts, playing games or doing business, and program for computers;
- (3) The provisions of paragraph 2 shall exclude patentability of the subject matter or activities referred to in that provision only to the extent to which a European patent application or European patent relates to such subject matter or activities as such.

The exclusions to patentability in Article 52 have in common that they refer to activities that do not aim at any direct technical result but are rather of an abstract and purely intellectual nature.⁶⁴ This view is reinforced by Rules 27(I)(b) and 29(I)(b), which respectively imply that an invention relates to a technical field, it is concerned with a *technical* problem which is solved with a *technical* solution and which requires the claims to state the *technical* features which the inventor desires to protect.⁶⁵

2. *Guidelines*

The EPO publishes Guidelines for Examination in the European Patent Office. The original Guidelines of the EPO took the very restrictive position that if the computer

⁶⁴ *IBM System for Abstracting Documents-Decision 22/85*. Reported OJ EPO 1-2/1990,12.

⁶⁵ EPO Guidelines for Examination, Part C, Chapter IV, paragraphs 1, 2.

program constituted the improvement to the prior art, then the claims were not allowable no matter how the invention was claimed.⁶⁶

The Guidelines were liberalized in 1985⁶⁷ to recognize that the exclusion from patentable subject matter was for computer programs as such. Examiners were instructed to examine the subject matter of the claim "as a whole" to determine patentability. It was not appropriate to judge single features of the claim as being technical or not. Thus, any claimed subject matter considered as a whole can be regarded as an invention if it provides a contribution to the prior art based on a technical problem.

The current Guidelines⁶⁸ and Board of Appeal decisions provide the basic rules for examiners to exclude the patentability of the following computer-related inventions:

- (1) a computer program claimed by itself;
- (2) a computer program stored on a disk or other carrier irrespective of content;

but that the following may be patentable:

- (1) a program-controlled machine or manufacturing and control processes;
- (2) program-controlled internal working of a known computer (operating systems).

It is reiterated that if the claimed subject matter makes a technical contribution to the known art, patentability should not be denied because a computer program is involved in the implementation.

3. Case Law

The *Vicom*⁶⁹ case is the authority on the meaning of "computer program as such" and what constitutes a "mathematical method".

The patent application in the *Vicom* case⁷⁰ related to a method and apparatus for digital image processing which involved a mathematical calculation carried out on a two-dimensional array of numbers representing points of an image. Algorithms were used

⁶⁶ [1978] O.J., BPO.

⁶⁷ EPO Guidelines for Examination, Part C, Chapter IV.

⁶⁸ See The Chartered Institute of Patent Agents, CIPA *European Patents Handbook* 2nd Ed., vol. 2 (London: Sweet & Maxwell especially chapter 56; Longam; at 295, 297.

⁶⁹ EPO Decision T208/84M; OJ EPO 11/9987,14.

⁷⁰ EPO Decision T208/84; OJ EPO 1/1987,14.

for smoothing or sharpening the contrast between neighbouring data elements in the array. The initial claim format of "A method of digitally filtering data including scanning a data array with masks..." was disallowed because the physical entity represented by the data was not mentioned in the claim at all. The EPO examiner considered this left the claims with an abstract notion indistinguishable from a mathematical method. On appeal, the Technical Board of Appeal at the EPO accepted an amended claim that defined the actual technical activity performed by the digital filtering. The allowed language was "A Method of digitally processing images in, the form of a 2D array having..." The Board of Appeal felt this language defined a "real-world" application.

This is a very significant decision: although much of the patent includes a mathematical description, the EPO accepted claim language to render the claim patentable within the EPC statute. This will be compared below to the position taken by the U.K. national courts. Unfortunately, the EPO later rejected these claims for lack of novelty and inventiveness.

The Board held that what is decisive in determining patentability is determining what technical contribution the claimed invention when considered as a whole makes to the known art. It is irrelevant whether the computer program takes the form of software or firmware.⁷¹

Two more recent cases from the EPO Technical Board of Appeal shed some revealing light on how the EPO is examining software-related (and therefore e-commerce-related) inventions:

- (1) The IBM Decision T 1173/97 related to a computer program product bearing computer software method for resource recovery in a computer system.⁷²
- (2) The IBM Decision T 0935/97 related to computer readable medium storing a computer program for a system NE window obscured the data in another window: the obscured information was relocated.⁷³

Using identical logic in both cases, the EPO Technical Board of Appeal held both inventions to be patentable.

In an obvious attempt to enlarge the category of patentable subject matter, the two IBM decisions use some interesting logic to conclude that software product claims are patentable.

⁷¹ *Ibid* at 20.

⁷² *EPO Decision T1173/97*, "A Method for Resource Recovery"; O.J. EPO 1999, 589-657, July 1, 1998.

⁷³ *EPO Decision T0935/97*, "A Method for Displaying Information"; E.P.O.R. 1999, 301, February 4, 1999.

Some computer programs are not patentable: computer programs "as such," but inventions that achieve technical results are patentable. Therefore, there must be a category of computer programs that achieve a technical result (that are not computer programs "as such" and are therefore patentable).

But what is a technical result for a computer program? All computer programs actuate computers - including those that do not achieve any technical result. So the technical result achieved by a patentable computer program must be some further technical result, over and above the mere execution of the program.

If a computer program achieves a technical effect when it executes ("a direct technical effect") and is therefore patentable, then it has the "potential" for achieving that technical effect when it is stored on a recordable medium. This potential to produce a technical effect can be considered to be an "indirect technical effect". The Board saw no good reason to distinguish between a direct technical effect and an indirect technical effect regarding patentability.

The Board thus concluded:

... a computer program having the potential to cause a predetermined further technical effect is, in principle, not excluded from patentability under Article 52(2) and (3).

Thus e-commerce inventions that take the form of computer programs are patentable if they create a technical effect apart from the computer in which it operates, or creates a further technical effect in the computer, beyond merely actuating the computer.

4. *Computer-Generated Software*

A process for generating source code for computer programs from a specification was held not to be patentable subject matter; it was merely the automation of the mental acts of a computer programmer.⁷⁴

5. *Method of Doing Business*

A method of using an automated teller machine by use of a machine-readable card was held to be a method of doing business and non-patentable subject matter.⁷⁵

However, *Sohei*⁷⁶ may have extended what types of invention may be considered patentable by the EPO.

The invention related to a computer system for financial, inventory, personnel and construction management in shops and offices. Prior art systems required an operator

⁷⁴ *AT&T Decision* (unreported October 29, 1993).

⁷⁵ *IBM Card Reader Decision 7854/90* [1994]; OJ BPO 11/1993, 669.

⁷⁶ *Sohei/General Purpose Management Systems 7769/92: OJ EPO 8.1995, 525.*

to perform input processing of the same data two or more times. The invention solved this problem by presenting a transfer slip in the form of a screen menu for entering items once, and this entered information is stored in datafiles which can be updated with subsequent operator input. All the hardware was conventional. The claims were upheld on appeal because the EPO considered that the invention solved the problem technically in that it provided for the processing of data relating to different management types in a single system. They concluded that technical subject matter was present and if the claims were limited to specific types of management, the technical character is still applied to the claims. The technical effect test is deemed to be met when technical considerations are made to implement details of an invention. These technical considerations imply a technical problem to be solved and the technical features for solving the problem.

This case is encouraging, but until it is applied as a precedent, caution is advised in relying upon it. It may be seen that perhaps the EPO is adopting a position more favourable to the patentability of business-related inventions than the USPTO, as long as the invention has a "technical character". Thus, it may be possible to obtain patent protection for such types of inventions in the EPO as long as they have a "technical character".

U.K. practitioner Keith Beresford has noted inconsistencies between the U.K. Patent Office and the Examining Division of the EPO with respect to the patentability of an algorithm-related system for making predictions (computer programs, for example relating to exchange rates),⁷⁷ with the EPO being considerably more favourable to applicants than the U.K. Patent Office in allowing such claims.

3. Business Methods

(a) Introduction

Recent U.S. case law questioning whether certain types of computerized innovations in the business and financial sector can be protected by patents, and the application of that case law by the USPTO, is making those who develop software or other computerized business systems assess for the first time in some cases, or now re-assess in other cases, their current patent situation.

Patents provide an effective way of staking e-commerce claims. And the rush to the Patent Office to strike claims - what some have termed a "gold rush"⁷⁸ has and is occurring at Patent Offices everywhere.

⁷⁷ Keith Beresford, London, Patent World (April 1997) 14.

⁷⁸ In his paper "Canadian/American Intellectual Property Symposium" (presented at the Canadian Institute on November 9, 2000), Michael Stein, of Woodcock, Washburn et al, referred to- a "'gold rush' mentality among businesses racing to the Patent Office". This is an apt analogy.

To date, it seems that the majority of goldseekers are American, be it the Canadian Patent Office, or its U.S. or European counterparts, and this may be quite problematic for latecomers:

As a patent grants an economic monopoly, this trend [that American companies are obtaining a strong business method patent foothold in the marketplace] must have commercial implications when these patents proceed to grant and can be enforced. Owning these patents gives a "First Mover Monopoly".⁷⁹

The "discovery" that commenced the current "gold rush" to the Patent Office to patent online business methods was made by the U.S. Court of Appeals for the Federal Circuit in *State Street Bank & Trust Co. v. Signature Financial Group, Inc.*⁸⁰ Before the *State Street* decision, business methods, *per se*, were thought not to be patentable. The Court found, however, that a method for managing a portfolio of mutual funds was patentable, thereby opening the "gold rush" floodgates.

How has the rush manifested itself? While business method patent applications represented only a small percentage of the total patent applications filed with the U.S. Patent and Trademark Office, applications for business method and software patents increased 700 per cent in the year following the *State Street* decision, forcing the U.S. Patent and Trademark Office to overhaul its approach to examining and issuing business method patents.

1. *What is a Business Method Patent?*

As the name rather obviously suggests, a business method patent is a patent on a method for doing business; the concept is otherwise difficult to precisely define. Business method patents are available on methods for doing business in such diverse industries as stock or bond trading, health care management, reservation systems, electronic shopping, auction systems, and cryptography. According to one U.S. Patent and Trademark Office White Paper,⁸¹ the four largest business method patent application groupings that it has encountered are those directed to the general business operations of:

- (1) determining who your customers are, and what products or services they want (*This category would include methods of conducting operations research and market analysis.*);

⁷⁹ Likhovski, M. et al, "The first Mover Monopoly," *Journal of Intellectual Property Rights*, November 2000, at 4, available at <www.oiprc.ox.ac.uk>.

⁸⁰ 149 F. 3d 1368, 47 U.S.P.Q. 2d 1596 (1998).

⁸¹ "Automated Financial or Management Data Processing Methods (Business Methods)", United States Patent and Trademark Office White Paper, available <http://www.uspto.gov/web/menu/busmethp/index.html>

- (2) informing customers that you exist, showing them your products and services, and enticing them to make a purchase (*This category would include methods for managing advertising, catalogue systems, incentive programs, and coupon redemptions.*);
- (3) exchanging money and credit before, during, and after a business transaction (*This category would include methods for processing credit and loan applications, point of sale systems, billing, funds transfer, banking, clearinghouses; tax preparation, and investment planning.*); and
- (4) tracing resources, money, and products (*This category would include methods for managing human resources, scheduling, accounting; and inventory monitoring.*).⁸²

Perhaps the most publicized example of a business method patent is Amazon.com Inc.'s patent for its "1-Click" method for purchasing goods from its Web site with a single mouse click.⁸³ Another highly publicized example is Priceline.com's "Name your price reverse auctions" patent.⁸⁴

E-commerce businesses apparently have a particularly large appetite for business method patents. Bruce Lehman, former U.S. Patent Commissioner and board member of Walker Digital, the company behind Priceline.com, said, "If we can't have a patent, we don't want it... [t]he two questions we ask of projects are: Does it have market value? And can we get a proprietary position?"⁸⁵

(b) **Statutory Subject Matter**

As discussed above, the subject matter of patents is restricted. Traditionally, patents have been associated with tangible objects or processes that manipulated, and altered tangible objects. As discussed above, the *Patent Act* specifically provides that patents are not available in Canada for any mere scientific principle or abstract theorem,⁸⁶ and the Supreme Court of Canada has found that patents are not available in respect of professional skills.⁸⁷

This prohibition on the patenting of computer software has, however, slowly been eroded: patents on computer software have since been found to be available so long as the computer software was coupled with a physical device and formed part of a system

⁸² *Ibid.*

⁸³ U.S. Patent No. 5,960,411.

⁸⁴ U.S. Patent No. 5,794,207.

⁸⁵ "The New Priceline" *Managing Intellectual Property*, October, 2000, at 10.

⁸⁶ *Patent Act*, subs. 27(8).

⁸⁷ *Shell Oil Co. v. Canada (Commissioner of Patents)*, [1982] 2 S.C.R. 536.

that was, as a whole, patentable.⁸⁸ Patents on computer software that displayed information in novel ways have also been granted.⁸⁹

The *State Street* decision, in light of the decisions on computer software patentability, has had the effect, of causing a reconsideration in Canada of whether "business methods" are patentable subject matter.

(c) **United States**

1. *Guidelines*

As discussed above, the USPTO issued new guidelines concerning patentable subject matter in October 2005. This was because the USPTO had been seeing increasing numbers of applications outside the realm of computer-related inventions raising subject matter eligibility issues.

The new approach is described in detail above and illustrated in Appendix "A". In essence, it permits claiming any new and useful process, machine, manufacture or composition of matter under the sun that is made by man as proper subject matter. If the claim involves a practical application of an abstract idea, law of nature or natural phenomenon, then it is also patentable.

2. *Class 705*

The USPTO defines business methods as belonging to Class 705: "Data Processing: Financial, Business Practice, Management or Cost/Price Determination". Class 705 was created in 1997 and by 1998 had 12 examiners.⁹⁰ By the end of 2006, the USPTO will have 150 examiners in business methods.⁹¹

Because of patent quality concerns, the USPTO implemented a "second pair of eyes" review (or a so-called "patentability conference") for all business method patent

⁸⁸ *Application Number 961,392, Re (1971)*, 5 C.P.R. (2d) 162 (Pat. App. Bd. & Pat. Comm.), and *Motorola Inc., Re (1998)*, 86 C.P.R. (3d) 71 (Pat. App. Bd.).

⁸⁹ *Application for Patent of Seiscom Delta Inc., Re (1985)*, 7 C.P.R. (3d) 506 (Pat. App. Bd. & Pat. Comm.).

⁹⁰ "Automated Financial or Management Data Processing Methods", USPTO White Paper, <http://www.uspto.gov/web/menu/busmethp/index.html>

⁹¹ "Patent Quality Enhancement in the Information-Based Economy", Statement by Jon W. Dudas, Director of the USPTO, to the Congressional Subcommittee on Courts, the Internet and Intellectual Property, April 5, 2006, <http://judiciary.house.gov/media/pdfs/dudas040506.pdf>

allowances.⁹² Perhaps as a result of this increased attention to patent quality, in 2005, the USPTO allowed just 11 percent of all business method applications in Class 705.⁹³

3. *Caselaw*

The *State Street* decision addressed a patent obtained in 1991 by Signature for software for a data processing system - a hub and spoke mutual fund system that involved a group of small funds, the spokes, the assets of which were pooled into a partnership investment portfolio, the hub, to obtain certain tax advantages and to obtain economies of scale.

The U.S. Court of Appeals for the Federal Circuit noted that the Signature process met the patentability requirements of "any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof," holding that the process avoided the "mere algorithm bar" because it produced a "useful, concrete and tangible result" - that is, a share price derived through an algorithm. As to the old "business method" bar, the U.S. Court of Appeals for the Federal Circuit found that the "ill conceived exception" should be put to rest.⁹⁴

The effect of the *State Street* decision is that in the United States, a business method is, and has been since 1952, inherently patentable subject matter, regardless of whether or not the method is incorporated into computer software or hardware.⁹⁵

(i) On the horizon

As mentioned above, the principles arising from the *State Street* decision were enshrined in the USPTO Interim Guidelines discussed above.

It appears that the USPTO wishes to wait until the Supreme Court renders its opinion in *Laboratory Corp. of America v. Metabolite Laboratories*⁹⁶ before finalizing a deadline for comments on the interim guidelines. Thus, changes to the parameters of patentable subject matter in the United States appear to be forthcoming.

In the Labcorp case, scientists from the University of Colorado and Columbia University discovered that measuring blood levels of homocysteine (an amino acid) is useful to

⁹² *Ibid.*

⁹³ *Ibid.*

⁹⁴ *Supra* note 78, at para. 11.

⁹⁵ The U.S. Court of Appeals for the Federal Circuit, affirmed in *AT&T v. Excel Communications, Inc.*, 172 F.3d 1352, that business method patent claims directed to a method (a distinction from the *State Street* decision) are properly patentable.

⁹⁶ Supreme Court of United States Docket No. 04-607, <http://www.supremecourtus.gov/docket/04-607.htm>

observe deficiencies in vitamin B-12 (or folic acid). The method claim at issue comprises two steps, assaying a body fluid and then correlating the measure with a mineral deficiency.

The Supreme Court has taken up the issue of statutory subject matter, framed in the following (some argue suggestive) manner:

Whether a method patent setting forth an indefinite, undescribed, and non-enabling step directing a party simply to “correlat[e]” test results can validly claim a monopoly over a basic scientific relationship used in medical treatment such that any doctor necessarily infringes the patent merely by thinking about the relationship after looking at a test result [emphasis added].

The case was argued on March 21, 2006, with the key issues being enablement (whether the invention was sufficiently described) and subject matter (was the patent inappropriately claiming a basic scientific relationship). A decision by the Supreme Court is eagerly anticipated by patent practitioners, as it may alter the subject matter analyses for software or business method inventions.

(d) **Canada**

The Canadian equivalent to the *State Street* application (Canadian Patent Application Number 2,072,904) was abandoned.⁹⁷

Still, Canadian Courts have recently recognized the need for patent law to protect novel technologies. In the "Harvard Mouse" decision, the Federal Court of Appeal acknowledged, for the first time, the patentability of genetically engineered life forms. In doing so, the Court expressly agreed with the statement that "[t]he language of patent law is broad and general and is to be given wide scope because inventions are, necessarily, unanticipated and unforeseeable".⁹⁸

There has, as yet, been no decision of the Canadian Patent Office or a Canadian court that has expressly found that business methods are patentable subject matter, but there is reason to believe that the trend is towards a more liberal interpretation of what constitutes a patentable invention.

⁹⁷ I. Caulder, "Software and Business Method Patents – The Latest Developments", paper given at the IT.Can annual meeting October 23-24, 2004, available <http://www.bereskinparr.com/English/publications/pdf/Software-BMPatents.pdf>

⁹⁸ *Harvard College v. Canada* (Commissioner of Patents) (2000), 7 CPR (4th) 1 (F.C.A.) at para. 36.

In fact, a recently revised chapter of the Manual of Patent Office Practice on “Utility and Subject Matter”⁹⁹ states the following with regard to business methods:

The expression “business methods” refers to a broad category of subject matter which often relates to financial, marketing and other commercial activities. These methods are not automatically excluded from patentability, since there is no authority in the *Patent Act* or *Rules* or in the jurisprudence to sanction or preclude patentability based on their inclusion in this category. Patentability is established from criteria provided by the *Patent Act* and *Rules* and from Jurisprudence as for other inventions. Business methods are frequently implemented using computers. [emphasis added]

Some examples of subject matter that lack utility or that are not recognized as statutory subject matter include:

Mere schemes,¹⁰⁰ plans,¹⁰¹ speculations¹⁰² or ideas¹⁰³ such as a rule for doing business, a method of accounting or providing statistics, a personality or I.Q. test and the like.

Besides this somewhat conflicting commentary, there is no other authority, legislative or judicial, investigating whether business methods are appropriate subject matter. The suggestion in revised Chapter 12 of the Manual of Patent Office Practice, picking up on the expansive view in *Harvard Mouse*, suggests that business methods, in some circumstances, would be patentable in Canada.

There is another argument in favour of business method patents in Canada. The inclusion of the word “art” in the definition of invention in section 2 of the *Patent Act* provides a tack for arguing for business method patentability, and is discussed in more detail below.

⁹⁹ Manual of Patent Office Practice, c.12 revised February 18, 2005.

¹⁰⁰ Re Application to *Young Dixon* 159,204 [1978] C.D. No. 493.

¹⁰¹ *Lawson v. Commissioner of Patents* [1970] 62 C.P.R. 101 (Ex. Ct.) at 116; Commissioner’s Decision No. 878, Re Application 253,122 to *Smagala-Romanoff* [1981] C.D. No. 878; Re Application 310,519 to *Blachura* (now patent 1,163,822) [1982] C.D. No. 937.

¹⁰² *Apotex v. Wellcome Foundation Ltd.* (2002) 21 C.P.R. (4th) 499 (S.C.C.) at 501, aff’g (2000) 10 C.P.R. (4th) 65 (F.C.A.), allowing appeal in part (1998) 79 C.P.R. (3rd) 193 (F.C.T.D.).

¹⁰³ *Visx Inc. v. Nidek Co.* [1999] 3 C.P.R. (4th) 417 at para. 134, aff’d [2001] 16 C.P.R. (4th) 251.

1. *Patentable "Art"*

In *Tennessee Eastman Co. v. Canada (Commissioner of Patents)*,¹⁰⁴ the Supreme Court of Canada included as patentable "art" a process that:

- (a) is not a disembodied idea, but has a method of practical application;
- (b) is a new and innovative method of applying skill and knowledge; and
- (c) has a result or effect that is commercially useful.

In *Shell Oil Company v. Canada (Commissioner of Patents)*,¹⁰⁵ the Supreme Court of Canada again commented on patentable "art":

"... that "art" was a word of very wide connotation and was not to be confined to new processes or products or manufacturing techniques but extended as well to new and innovative methods of applying skill or knowledge provided they produced effects or results commercially useful to the public."

In a more recent Federal Court decision, *Progressive Games, Inc. v. Canada (Commissioner of Patents)*,¹⁰⁶ the Court considered the patentability of a method of playing poker. The claims considered were not limited to a computerized implementation of the method.

In determining whether the method was a patentable "art," Denault J. of the Federal Court held that the method met the first and third criteria from the *Tennessee Eastman* decision. First, it was a "practical application" because there were changes involving the physical manipulation of cards. Second, the method had a result that was commercially useful, as could be seen from the fact that Progressive Games had licensed games played in accordance with the method and earned license fees in the order of \$43,000 per month.

Mr. Justice Denault found that the method was not a method of applying skill or knowledge, as contemplated by the *Shell Oil* decision, however, because the changes in the method of playing poker were a contribution or addition to the cumulative wisdom on the subject of games. It did not substantially modify the poker game as it existed nor did it create a new game. Had the method been new and innovative - that is, if the method

¹⁰⁴ [1974] S.C.R. 111.

¹⁰⁵ [1982] 2 S.C.R. 536 at 554.

¹⁰⁶ *Progressive Games Inc. v. Canada (Commissioner of Patents)* (1999), 3 C.P.R. (4th) 517 (Fed. T.D.) per Denault, J., affirmed (2000), 9 C.P.R. (4th) 479 (Fed. CA.).

had met the statutory requirements of novelty and inventive step - then this method "art" may have been patentable.¹⁰⁷

In summary, it is expected that more Canadian applicants will advocate before the Patent Office for the approach taken in the *Progressive Games* decision - that is, that their method constitutes a patentable "useful art".

2. *Some Practical Consequences on Pursuing Business Method Patents in Canada*

The Canadian position on business method patentability appears to be approaching the U.S. position, but it is not yet as well developed. Until the Canadian position catches up with the U.S.; and a definitive decision issues from a Canadian court, a "conservative" approach to claim drafting of business methods is recommended. Specifically, the conservative approach would involve the drafting of claims, if possible, as computer software method or article claims.

Further, where it is possible to defer having a patent application examined - that is, where there is no need to make an early examination request, such as where there is no infringement, then deferral should be the course. It is possible to defer in making an examination request for five years; this may provide sufficient time for Canadian business methods jurisprudence to evolve.

Moreover, consideration should be given as to where a business method invention might be implemented. This is particularly so for e-commerce business method inventions. For example, if it might be done, in some part, over the Internet, then the claims should be drafted with a view to having the acts of infringement occur in jurisdictions in which patent protection will be sought, and where patents are enforceable - that is, the claims should be drafted so that infringement is irrespective of the server location.

4. **Conclusions**

The United States has set the trend in the last decade for opening the doors of the Patent Office to software-related patents. Other countries such as Japan and Korea are following suit, and the rest of the world is likely not far behind. With a new chapter in the Manual of Patent Office Practice dedicated to computer-implemented inventions, Canada is becoming more permissive in terms of subject matter.

The patentability of business methods, be they computerized or not, creates a whole new frontier for patent law, as the world finds intellectual property to be the "oil" of the digital economy.

¹⁰⁷ *In obiter*, the Federal Court of Appeal, after noting, like Denault J., that the changes "do not substantially modify the poker game as it is generally known" [at 479] and that the changes were only a "slight variation," [at 479] stated, however, that "...we do not want to be taken is deciding that more substantial changes in the existing game would have changed the result" [at 480.]

APPENDIX "A"

Flowchart for Subject Matter Eligibility

