

Presentation Summary: The Patentability of Software in the U.S. and Europe, by John Moetteli, for the Institut für Europäisches und Internationales Wirtschaftsrecht EUR-HSG

THE PATENTABILITY OF SOFTWARE IN THE U.S. AND EUROPE

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I. Abstract of the Presentation

The patentability of all flavors of software, even business methods, is a well-established fact in the U.S.. Due to political pressures, it is not clear whether certain flavors of software are patentable in Europe. Consequently, there are practical implications for our clients: where permitted under national law, and where the U.S. market is a significant part of the world market, local counsel should advise their clients to consider filing software patent applications in the U.S. first. This is the best value for the client who wishes to incrementally invest in his intellectual property, assess its value from time to time and adjust his patent filing strategy accordingly, in order to minimize required investment per patent, and maximize potential returns.

II. Background

A. The Economics:

Economics are what drive the filing of patent applications. Software patents are used by firms to gain a competitive advantage vis-à-vis competitors in that they represent a government sanctioned monopoly permitting the patent holder to exclude a competitor from a lucrative market. The holders of these patents may be entitled to injunctions, which can stop competition in their tracks, as well as court awarded damages. To a certain extent, software patents level the playing field. This is evidenced by the victory of Eolas (a one man company) against the software giant Microsoft.¹

¹ *Eolas Techs., Inc. v. Microsoft Corp.*, 274 F. Supp. 2d. 972, 974 (ND Ill. 2003). The Eolas invention involved a method for running interactive programs (e.g., “Plug-ins”, “applets”, “Active X controls”). A 500 Million judgment sustained and appealed by Microsoft. Microsoft lost the appeal on liability. Microsoft is currently appealing again on the amount of damages, on a very weak point, specifically, whether the word “component” in a statute, could include software components. Microsoft will likely lose again.

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IBM obtains 1800 patents and \$1 Billion each year in royalty income (averaging \$555k per year, per patent). Success stories help spur the growth in software patenting. Today, in the U.S. alone, there are 20,000 software patents filed each year for a total of more than 200,000, and, although only 15% of all patents, software inventions represent 25% of the growth in total patent applications filed. Ten years ago, only a few thousand software applications were filed each year.

B. Legal—International: GATT/TRIPS

In 1995, the World Trade Organization passed the Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS) to reconcile the world's patent laws by imposing uniform minimal standards modeled after the laws of industrialized nations. TRIPS is part of the General Agreement on Tariffs and Trade (GATT), the purpose of which was to eliminate trade barriers.² Under TRIPS, signatory countries are required to make patents available for “any inventions in all fields of technology” (Article 27(1)). Further, they can't discriminate against technologies (except, in some respects, in the field of biotech). This would seem to require the patentability of software, even business methods, under international law. However, TRIPS is subject to interpretation.

C. Legal--United States

1. Procurement in the U.S.: The issue of the patentability of software and business methods has been resolved for years

² The WTO was established in 1995 as a result of the Uruguay Round negotiations (1986-1994). Its headquarters is in Geneva, Switzerland and currently includes over 140 member states.

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In the United States, the statutory scope of patent protection is defined in the U.S. Constitution and the Patent Statutes.³ As far as software protection in the U.S. is concerned, case law plays a significant role. In 1981, the first major case dealing with the patentability of software was decided. In *Diamond v. Diehr*, a mathematical algorithm of a well-known formula was held patentable when applied in a novel and inventive way, to cure rubber in a mold. The court in this case emphasized that one must “look to the invention as a whole” in determining whether an invention is statutory.⁴

Given its long established practice of granting software patents, the U.S. has developed a body of jurisprudence that makes software patenting more predictable. For example, as in *Diamond v. Diehr*, traditional inventions enabled by software are patentable. Pure software operating on an ordinary computer is patentable. See *Beauregard, Intra*. Later cases, such as *In re Lowry*, defined the scope of protection for data structures. Even pure business methods are patentable.⁵ *State Street Bank & Trust v. Signature Financial Group, Inc* held that there is no “business methods” exception, “instead such claims should be treated like any other process claim, and that mathematical algorithms are patentable if applied to a practical application yielding a “useful, concrete and *tangible* result”.⁶

2. Enforcement in the U.S.:

In the United States, there is one harmonized body of jurisprudence for patent enforcement: the case law of the *Federal Circuit Court of Appeals*. The Federal Circuit was formed in 1982 to bring a greater degree of predictability to the resolution of patent appeals. This effort appears to have been successful. The number of cases upholding

³ Art I, §8, cl. 8, and Title 35 United States Code—Patent Act of 1952 (for new, useful... (1) processes, (2) machines, (3) manufactures or (4) compositions of matter).

⁴ *Diamond v. Diehr*, 450 U.S. 175 (1981).

⁵ *In re Lowry*, 32 F.3d 1579 (Fed. Cir. 1994)(data structures are specific electrical or magnetic structural elements in memory...that provide increased efficiency in computer operation).

⁶ *State Street Bank & Trust v. Signature Financial Group, Inc.*, 149 F. 3d 1389 (Fed. Cir. 1998)(affirming the patentability of business methods and mathematical algorithms).

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patent validity has increased, with the result being an increase in the number of patent cases brought and an increase in reliance upon patent protection by technology based companies.⁷

D. Legal-Europe

1. Procurement in Europe:

The European Patent Convention (the “EPC”)⁸ and the rules of practice of the European Patent Office (the “EPO”) govern European patent practice, including *Jurisprudence* as to statutory subject matter.

“The EPO is bound by European patent law as laid down in the European Patent Convention, which has been adopted by the 30 Member States of the European Patent Organisation, and as interpreted by the independent EPO Boards of Appeal, the judiciary of the Organisation.”⁹

Inventions require industrial applicability, novelty, an inventive step, and a “technical character”¹⁰ There are, however, specific exceptions to patentability that relate to

⁷ See PATSTATS.ORG: U.S. PATENT LITIGATION STATISTICS, Editors: Jeffrey Johnson, Esq., *Editor in Chief*; Lee Stepina, *Washington Editor*; Prof. Paul M. Janicke, *Faculty Coordinator* . URL: www.patstats.org

⁸ Mission Statement of EPO- the patent granting authority for Europe - is to support innovation, competitiveness and economic growth for the benefit of the citizens of Europe.

⁹ From Computer-implemented inventions and Patents-Law and Practice at the European Patent Office, published August 11, 2005.

¹⁰ Title 35 USC §101 approximates Art 52 of the EPC; §102 approximates Art54 of the EPC; §103 approximates Art 56; and §112 approximates Art 84 of the EPC.

Article 52 Patentable inventions: (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](#):(a) discoveries, scientific theories and mathematical methods; (b) aesthetic creations; (c) schemes, rules and methods for performing mental acts, playing games or doing business, and programs for computers; (d) *presentations of information*. *Article 56 Inventive step:* an invention shall be considered as involving an inventive step if, having regard to the state of the art, it is not obvious to a person skilled in the art. If the state of the art also

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computer programs and business methods, “as such” (See Art 52(2) EPC). Nevertheless, the European Patent Office has determined that certain computer-implemented inventions are patentable but has stopped short on pure business methods.

As for TRIPS, the EPO is not a party to TRIPS and is therefore not bound by TRIPS.¹¹ Changes to the European Patent Convention must be made by vote of the 31 member states of the EPC. Note that the European Union is not a signatory to the EPC, and thus, in and of itself, cannot dictate what is and is not patentable.¹²

For many in the open source or free software community, the EPO’s decisions supporting the patentability of software are controversial. Given the ambiguity in the law, the European Commission proposed a Directive intended to clarify and codify patent law generally in accordance with EPO practice. The reaction of these groups to the Proposed Directive was negative and their opposition organized, and very effective. Under this political pressure, and for reasons of their own, the European Parliament recently voted down a directive on the patentability of computer-implemented inventions, crafted by the European Commission.¹³ Despite this defeat, EPO practice has developed to permit the patenting of software technologies, through a narrow interpretation of the Article 52(2)’s “as such” exclusion.

includes documents within the meaning of [Article 54, paragraph 3](#), these documents are not to be considered in deciding whether there has been an inventive step.

¹¹ . G 2/02, EBA (Enlarged Board of Appeals), AstraZenica India case.

¹² Nevertheless, a move by the European Commission to introduce software patents has been aborted, discussed *infra*.

¹³ As already mentioned, the European Commission Directive failed. Here is a timeline of the events that led up to the directive’s failure:

- 2002:** Commission proposed directive on the patentability of computer-implemented inventions
- 2003:** First reading of the EP, *adopted* with several modifications.
- 2004:** Council reaches a political agreement disregarding the EP’s amendments and essentially adopting Commission proposal
- 2004:** After Poland withdraws support from the directive, EP requests restarting, with fresh reading but is stiff-armed
- 2005:** After Council resistance, the European Parliament forces a vote and votes directive down.
- 2005:** EPO publishes its "business as usual" statement.

2. Enforcement in Europe:

The enforcement of IP rights is up to individual member states of the EPC. This means that there are some 31 different legal jurisdictions (25 of which are EU nations). The Courts of Member States enforce the patents but have interpreted the patent laws differently. The result is a risky and complex legal environment with many cross-border forum shopping and delay tactics.¹⁴

III. Computer-implemented inventions-what flavors are patentable?

A. The Common Principles

All major industrialized nations agree that the laws of nature, natural phenomena, and abstract ideas cannot and should not be patented. *Applied* science can be patented. Patentability is significantly more in doubt the closer one gets to the abstract. On the extreme end, scientific discoveries are not patentable, unless in the form of DNA sequences or asexually reproduced plants. The more one moves in the direction of concrete technology, the greater the likelihood of patentability. Computer hardware is clearly patentable. Software and computer-implemented inventions lie somewhere in-between the two extremes.

B. Computer systems

Computer systems are compositions of hardware components which interact to perform a particular operation. An example of a system patent claim follows:

A system for identifying matches between real property buyers and sellers, comprising:

¹⁴ For example, the “Italian torpedo” tactic to delay the disposition of an infringement case.

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- a database component ...
- a scanning component for periodically scanning data in the database
- a printing component for printing a report.

Perhaps because a “computer system” is an assemblage of hardware components, being made up of clearly patentable individual elements, it should logically also be patentable. Consequently, there is no dispute as to the patentability of computer systems.

C. Computer Program Products

Patents for computer program products: here is where many say we get to patenting pure software: patents granted for encoded computer-readable medium, or *Beauregard*-type patent claims.¹⁵ An example claim follows:

A computer-readable medium having computer-executable instructions for performing a method comprising:

- maintaining a DB identifying real property buyers and the corresponding real property interests;
- scanning ... an electronic listing service...

¹⁵ *In re Beauregard*, Appeal No. 95-1054 (Fed. Cir., filed November 15, 1994). *Beauregard* was an appeal by IBM of a decision of the Board of Patent Appeals that a floppy disk or other computer storage medium containing a novel and nonobvious computer program (see U.S. Patent No. 4,962,468) is not proper subject matter for a patent. (Because the Patent Office agreed to *Beauregard*'s arguments, there is no decision by the Federal Circuit, simply an order vacating the case and remanding it to the Patent Office.) *Beauregard* and his co-inventors, were employees of IBM. IBM wanted to have a case of direct infringement against a competitor, not a case of contributory infringement, based on direct infringement by a customer. In a continuing application, it claimed the invention as what it called a “computer program product” – a computer-readable medium having a program implementing the technique of the invention. In proceedings in the Patent Office, IBM argued that a computer program product was an article of manufacture or a component of a machine, both patentable subject matter. The patent examiner and the Board of Patent Appeals rejected the claims as not being proper subject matter for a patent. IBM appealed the Patent Office's decision to the Federal Circuit. After seeing that there was virtually no popular support for its position, the Patent Office reversed its stand and declared that a computer program product was proper subject matter for a patent, that the printed matter doctrine did not apply to computer-readable programs, and that it was preparing appropriate guidelines on software patents for its examiners.

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- controlling a printer to print a report.

In such a claim, certain pure software is protectable, provided it is encoded on a computer-readable medium. For the first time, we've overstepped the requirement of hardware, to protecting *the software itself*, operating on the hardware, even if the hardware component is simply the CD on which it is encoded.

Beaugard claims are permitted in the US, as an inventive program on a disk. Since April 1, '97, such claims have been permitted in Japan. As for Europe, the 1999 IBM decisions also permit such claim constructions provided that the encoded software has a "technical effect."¹⁶

D. Data Structures, GUIs

Data structures¹⁷ represent a physical implementation of a data model for organizing and representing information which is used by a computer program. Below is an example data structure claim:

A computer-readable medium having stored thereon a data structure comprising:

- a first field containing data representing a desired real property characteristic of interest to a buyer;
- a second field containing data representing a second real property characteristic; and

¹⁶ 1999 Board of Appeals "IBM" decisions regarding *Beaugard*, supported patentability, but software had to have a technical effect. See T 1173/97, Computer program product/IBM (OJ 1999, 609) and T 935/97, Computer program product II/IBM (not published), the board here coined the phrase "technical considerations."

¹⁷ : The definition of "data structure" is "a physical or logical relationship among data elements, designed to support specific data manipulation functions." The New IEEE Standard Dictionary of Electrical and Electronics Terms 308 (5th ed. 1993). The physical organization is responsive to the attributes of the data rather than specific content E.g. MP3, customer database, or DVD data structure: organized and linked compressed video data portions having an indexing system or interface such as chapters, pointers, etc. to access particular portions of the video.

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- a third field containing data representing an interest correlation derived from the first field and the second field.

As already mentioned, data structures have been statutory subject matter in the U.S. since *In re Lowry*.¹⁸ In this case, the Federal Circuit held that Lowry's data structure, described in Figure 4 of his application (reproduced for reference on the following page) was patentable because it dictated how application programs *managed information*, thus allowing the computer to operate more efficiently.¹⁹

¹⁸ *In re Lowry*, 32 U.S.P.Q.2d 1031 (Fed. Cir. 1994). Lowry's Patent, entitled: DATA PROCESSING SYSTEM HAVING A DATA STRUCTURE WITH A SINGLE, SIMPLE PRIMITIVE; includes the following basic claim: A memory for storing data for access by an application program being executed on a data processing system, comprising: a data structure stored in said memory...including a plurality of attribute data objects.... This claim was rejected by the Board of Patent Appeals, citing *In re Gulack*, as non-functional printed matter.. Federal Circuit reversed, stating that "the printed matter cases have no factual relevance where the invention as defined by the claims requires that the information be processed not by the mind but by a machine, the computer". Lowry's claims define functional characteristics of memory—require specific electronic structural elements that impart a physical organization on the information stored in memory—his invention manages information, his data structures impose a physical organization on the data. It is "physically different" as a machine programmed in a certain new and unobvious way is physically different from a machine without that program". Data structures are specific electrical or magnetic structural elements in memory that provide increased efficiency in computer operation.

¹⁹ This language is very similar to that of the EPO's *Sohei* decision.

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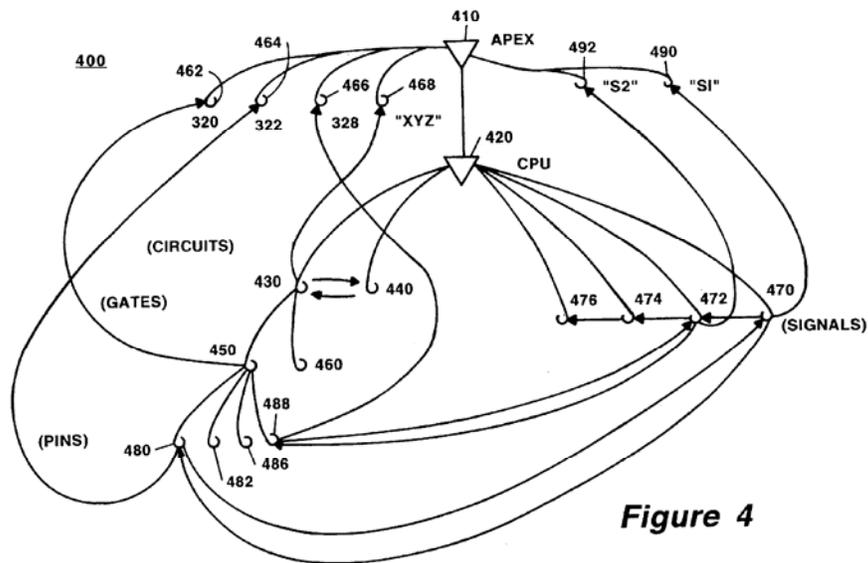


Figure 4

U.S. Patent Sep. 2, 1997 Sheet 3 of 32 5,664,177

Although Article 52(2)(d) of the EPC excludes “presentations of information,”²⁰ in *Lucent Technologies*, the Board of Appeals held that “an electronic message is not automatically excluded from patentability under this Article.”²¹ Whether it is patentable depends on “whether the message is defined by its structure and content (and not what it ‘says’).” The Board rejected the Examining division’s grounds for rejecting the application and remanded the question of whether the invention is novel and inventive back to the Examining division.

Further, according to the Guidelines for Examination in the EPO, C-IV, 2.3.7, the patentability of data structures is not excluded under all circumstances. However, in

²⁰ *Article 52: Patentable inventions* (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: (a) discoveries, scientific theories and mathematical methods; (b) aesthetic creations; (c) schemes, rules and methods for performing mental acts, playing games or doing business, and programs for computers; (d) presentations of information.

²¹ *Lucent Technologies*, T 858/02, Board of Appeals (12 August 2005).

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Comparative Visual Assessments, T 125/04, Board of Appeals (10 May 2005), the Board stated that “in general, the task of designing diagrams is non-technical.” “This is so even if the diagrams arguably convey information in a way which a viewer may intuitively regard as particularly *appealing, lucid or logical*”.

In unpublished Board of Appeals opinion, T 643/00 (16 Oct 2003), the invention concerned an apparatus for searching an image to be output. The invention was based on the idea of making the searching process easier to a user, who had conventionally to go through the images one by one on the display at a high resolution in order to select a particular image for output. This goal was achieved by arranging a plurality of images in a side-by-side manner at a low resolution and providing for hierarchical display at higher resolutions so that a comprehensive survey as well as a fast check for details was possible.²² The board decided that this arrangement of images on a screen contributed to a technical solution to the problem of searching and retrieving images efficiently. Based on the fact that the essential features of a data structure are present (namely, a presentation or organization of data to improve efficient processing), it appears that data structures may indeed be protectable in Europe. Even *Sohei* may, in a real sense, be considered a data structure case, and thus a case that supports the statutory nature of data structures.²³ In *Sohei*, the Board of Appeals stated that “a transfer slip is a ‘user interface’ requiring technical considerations of the person implementing the invention,” and held that such was patentable. Nevertheless, it seems there are no clear published data structure appeals decisions, although the Guidelines,²⁴ *Sohei* and *Lucent* mention the possibility of patenting data structures. Nevertheless, *Comparative Visual Assessments* clearly states that “the task of designing diagrams is non-technical, even if appealing, lucid or logical” and therefore not patentable.

²² citing T 244/00 of 15 Nov 2001-unpublished.

²³ *In re Sohei*, 1995 O.J.E.P.O. 525.

²⁴ Guidelines for Examination in the EPO, C-IV, 2.3.7, mentioned *supra*.

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In a conceptual sense, a Graphical User Interface (“GUI”) may be considered a sort of data structure, in that it would fall broadly within the definition already given for data structures. Here is a representative GUI claim:

In a computer system having a GUI including a display and a selection device, a method of providing and selecting from a menu on the display, the method comprising:

- retrieving a set of menu entries for the menu, each of the menu entries representing a real property characteristic:
- displaying the set of menu entries on the display;
- receiving a menu entry... and in response to the signal, performing a DB search for a match...

As for GUIs, are we on the right side of the dividing line between patentable and unpatentable “inventions”? In the U.S. and Japan, the answer is “yes, we are”—GUIs are patentable. As for Europe, many practitioners would also say “yes” as well, but the Board of Appeals does not offer a clear answer.

E. Methods of Doing Business

1. What are "Business Methods"?

According to a definition adopted by the U.S. Patent Office, Business Methods are “machines” for performing data processing or calculation operations in the practice, administration, or management of an enterprise, the processing of financial data, or the determination of the charge for goods or services.²⁵

The following is a representative U.S. business method claim:

²⁵ From U.S. Guidelines, white paper. Interesting the use of “machines” to describe what are informally referred to as “business method” inventions. Incidentally, allowance rate 45% vs 70% for all inventions.

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A computerized method for identifying matches between real property buyers and sellers, comprising:

- maintaining a DB identifying real property buyers and their corresponding interests
- scanning ...an electronic real property listing service DB to identify listed properties of interest ... and
- controlling a printer to print a report...

2. Example Business Method Patents in the U.S.:

Probably the most famous example of a “business method” patent is Amazon’s one-click patent, granted as U.S. Patent Number 5,960,411. The one-click patent claims a method and system for placing a purchase order via a communications network.²⁶ In 2003, the Court of Appeals for the Federal Circuit (the “CAFC”) overturned a lower court’s injunction against Barnes & Noble, sending the case back to the lower court for trial on the issue of validity. The case eventually settled on undisclosed terms.

Another interesting business method patent is entitled “Method of fashion shopping,” and issued under U.S. Patent Number 5,930,769.²⁷ The method comprises receiving personal information from the customer; selecting a body type and fashion category based on the personal information; selecting fashions from a plurality of clothes

²⁶ In the one-click patent, a server system receives purchaser information including identification of the purchaser, payment information, and shipment information from the client system. The server system then assigns a client identifier to the client system and associates the assigned client identifier with the received purchaser information. The server system sends to the client system the assigned client identifier and an HTML document identifying the item and including an order button. The client system receives and stores the assigned client identifier and receives and displays the HTML document. In response to the selection of the order button, the client system sends to the server system a request to purchase the identified item. The server system receives the request and combines the purchaser information associated with the client identifier of the client system to generate an order to purchase the item in accordance with the billing and shipment information whereby the purchaser effects the ordering of the product by selection of the order button.

²⁷ Fashion Shopping Patent: System and method for fashion shopping.

...

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items based on the body type and fashion category; outputting a plurality of fashion data based on the selected fashions; and receiving selection information from the customer.

The method of fashion shopping sounds like traditional clothing shopping that's been automated. Are we still on the patentable side of the dividing line?

3. Legal: Business Methods – U.S.A.:

The seminal case for the patentability of business methods (and mathematical algorithms) in the U.S. is *State Street Bank*.²⁸ This case concerned U.S. Patent No. 5,193,056 to Signature Financial Group, entitled "Data Processing System for Hub and Spoke Financial Services Configuration," or, in other words, a data processing system for administering mutual funds. Here, the CAFC reminds us that the U.S. Supreme Court had previously identified three categories of subject matter that are unpatentable, namely "laws of nature, natural phenomena, and abstract ideas." These exceptions apply until "reduced to some type of practical application, i.e., 'a useful, concrete and tangible result.'" Unpatentable mathematical algorithms are identifiable by showing they are merely abstract ideas constituting "disembodied concepts or truths that are not 'useful.'" From a practical standpoint, this means that to be patentable, an algorithm must be applied in a "useful" way. As an alternative ground for invalidating the Signature Financial patent under Title 35 § 101 (the section dealing with statutory subject matter under U.S. law), the district court relied on the "business method" exception to statutory subject matter. Concerning this exception, the Federal Circuit stated that, in their opinion, this exception was "ill-conceived" and that they therefore should "lay it to rest". According to the court, this exception has merely represented the application of "some general, but no longer applicable legal principle, perhaps arising out of the 'requirement for invention'--which was eliminated by § 103." "Since the 1952 Patent Act, business

²⁸ *State Street Bank v. Signature Financial Group, Inc.* 149 F.3d 1368, 47 USPQ2d 1596 (Fed. Cir. 1998) cert denied, 119 S. Ct. 851 (1999).

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methods have been, and should have been, subject to the same legal requirements for patentability as applied to any other process or method."

In *State Street*, the Federal Circuit held that "the transformation of data, representing discrete dollar amounts, by a machine through a series of mathematical calculations into a final share price, constitutes a practical application of a mathematical algorithm, formula, or calculation, because it produces 'a useful, concrete and tangible result'--a final share price momentarily fixed for recording and reporting purposes." Still further, the court noted that the invention is a machine programmed with the hub and spoke software which admittedly produces a "useful, concrete, and tangible result." This renders "such inventions ...statutory subject matter, even if the useful result is expressed in numbers, such as price, profit, percentage, cost, or loss."

In essence then, *State Street* holds that there is no "business methods" exception to patentability--"instead such claims should be treated like any other process claim." Further, mathematical algorithms are patentable if applied to a practical application yielding a "useful, concrete and tangible result" (note that there is no language indicating a "technical" requirement here). What was considered "tangible?" The transforming of data representing dollar amounts into final share price; the printing of the result of algorithm; or the displaying of the result on a computer screen. *State Street* was later confirmed by *AT&T v. Excel Communications, Inc.* 172 F.3d 1352, 50 USPQ2d 1447 (Fed. Cir.), *cert denied* , 120 S. Ct. 368 (1999), which involved a method of processing long distance carrier data. Here, the CAFC determined that such an invention was patentable, because the "number crunching" produced a useful, concrete and tangible result.

4. Established "Case Law" in Europe:

Article 52(2)(c) EPC states that schemes, rules and methods for performing mental acts, playing games, or doing business are not to be regarded as inventions. According to

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the European Patent Convention, business methods are not patentable, without more (i.e., an inventive step in the technical solution.

Despite Article 52(2)(c), in the recently published in *In re Vicom Sys., Inc.* case involving the patentability of a “method and apparatus for improving digital image processing,” the Board of Appeals stated that digital image processing is not an abstract process but a “real world activity,” and held that even if the idea underlying an invention may be considered to reside in a mathematical model, a claim directed to a technical process in which the method is used does not seek protection for the mathematical method as such.²⁹

In *Siemens A.G. et al. V. Koch & Sterzel GmbH & Co.*, the Board of Appeals held that it is unnecessary to weigh up the technical and non-technical features, because *if the invention uses technical means*, then the possibility to patent is not excluded as one should *look to the invention as a whole* (apparently, an unattributed quote from *Diamond v. Diehr, Supra*).³⁰ In *in re Sohei* and *In re Pension Benefit System Partnership*, the Board held that business methods as such are not patentable and that the mere addition of a technical feature to an otherwise non-technical method does not change that fact: however, a technical invention does not lose its patentable status if non-technical features are added.³¹ In *Sohei*, there as an abstraction step in which the board showed that a technical consideration could be abstracted out of the patent disclosure. However, in *Benefit System*, this was not possible—the invention represented a pure economic business method and was therefore not patentable.

In a 2003 decision of the German Federal Patents Court, the court held that “determining business data by automatic means can in itself be technical.”³² A method claim to a business process is not technical, but a device for implementing a business method might be. Consequently, how the claims are structured is important. If the

²⁹ *In re Vicom Sys., Inc.*, 1987 O.J.E.P.O. 14.

³⁰ *Siemens A.G. et al. V. Koch & Sterzel GmbH & Co.*, 1988 O.J.E.P.O. 19(compare *Diamond v. Diehr*).

³¹ *In re Sohei*, 1995 O.J.E.P.O. 525 and *In re Pension Benefit System Partnership*, 2001 O.J.E.P.O. 441.

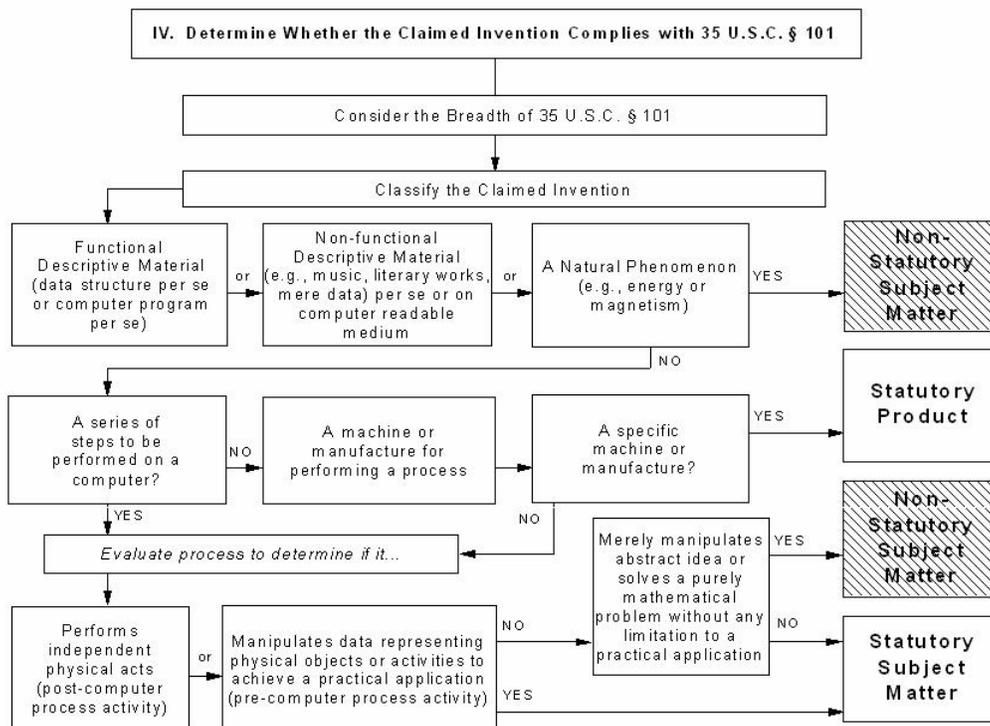
³² Decision of the German Federal Patents Court, 21 W (pat) 12/02 (May 6, 2003).

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invention is a technical device, then examiners must assess the novelty and inventive step. The German Federal Patents Court then sent the file back to the German Patent Office for an assessment of novelty and inventive step (and for further searching).

Therefore, current case law seems to show signs of an evolution toward a more liberal interpretation of an “invention”.

IV. Latest Developments in the law of Software Patenting:



1. In the U.S. and Europe:

Both the U.S. Patent Office and the EPO have published guidelines which help evaluate whether an invention is statutory. In the U.S., the guidelines have been distilled down to an easy to follow flow diagram, presented above. In Europe, the European Patent Office maintains a “microsite” of current information about the law and practice at

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the EPO as it relates to computer-implemented inventions, which is a helpful source for the latest views on software patentability in Europe.³³ This site reflects the evolving more liberal interpretation of an “invention,” as supported in the most recent Board of Appeals decisions. For example, although in *In re Hitachi*, T 258/03. (2004), the Board of Appeals of the EPO denied the patentability of an auction method carried out by means of the Internet for lack of technical contribution to the prior art, significantly, patentability was *not* denied on the grounds that it did not represent a statutory invention. Therefore, it appears that if the invention relates to a new or improved manner of conducting business only, it is *not technical*, is *not inventive* and so therefore not patentable. If the inventive solution can be characterized as having technical character and as making a technical contribution – an improved processing technique for example—then this may render the invention patentable. In any case, the invention is statutory.

In the *In re Lucent Technologies*, published August 12, 2005 (we discussed this case in relation to the EPO’s views on the patentability of data structures), the Board of Appeals held that “an electronic message is not automatically excluded from patentability under Article 52(2)(d) EPC as a presentation of information.”³⁴ Whether it is patentable depends on “whether the message is defined by its structure and content (and not what it ‘says’).” Certainly, the concept of patenting an electronic message falls on the abstract side of the continuum.

However, in a step back from the liberal interpretation of an “invention”, in May of 2005, in *Comparative Visual Assessments* (another case already discussed), the Board stated that “in general, the task of designing diagrams is non-technical (citing T 244/00 of 15 Nov 2001-unpublished).”³⁵ This is so even if the diagrams arguably convey information in a way which a viewer may intuitively regard as particularly “appealing,”

³³ Computer Implemented Inventions micro-site: Law and Practice at the European Patent Office: http://cii.european-patent-office.org/law_practice/index.en.php and Computer Implemented Inventions and Patents: Law and Practice at the European Patent Office, PDF brochure, published August 11, 2005.

³⁴ *In re Lucent Technologies*, T 0858/02 (August 12, 2005).

³⁵ *Comparative Visual Assessments*, T 125/04, Board of Appeals (10 May 2005), discussed further *supra*.

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lucid or logical.” the very grounds that it appears that the Board in T 643/00 (unpublished—discussed above under D, Data Structures) decided that an arrangement of images on a screen for more efficient searching and retrieving did define an invention.

Catalina Marketing, published in March 2005, concerned a method and apparatus for generating Cumulative Discount Certificates. The Board held that features relating to a non-invention within the meaning of Art 52(2) EPC (so-called "non-technical" features) cannot support the presence of inventive step.³⁶ The problem addressed by the patent in suit relates to encouraging consumers to revisit the same store, which is a matter of marketing strategy motivated by non-technical, business considerations. “Technical considerations could only be considered to arise in respect of how to provide a technical implementation of the underlying marketing strategy. The contribution of a non-technical feature to the technical character of the invention of the claimed subject matter can only arise from its implementation in a technical system.”

Thus, from *Catalina*, it appears that *pure* business methods are not patentable as being non-technical.³⁷ At least in this case, the patentability of an auction method carried out by means of the Internet was denied where there was no technical contribution to the prior art (*see also* T 258/03 “Hitachi”), as well as in the case where the technical implementation of the improved auction rules is done by conventional means of a computer and a computer network. *Comparative Visual Assessments* seems not to support the patentability of software where that software merely draws diagrams. However, *Lucent* suggests that e-messages may be patentable. This seems to indicate that despite some notable recent breakthroughs supporting the patentability of software, the case law in Europe on the issue is still unsettled.

2. Current position of the EPO:

³⁶ *Catalina Marketing International, Inc. v Infomil & Tesco Stores Ltd*, T 0531/03 (March 17, 2005).

³⁷ Article 52(2),(3) EPC and T931/95 “PBS”.

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According to the case law of the Board of Appeals of the European Patent Office, anything using technical means can be an invention.³⁸ However, the inventive step must be found in the technical solution (i.e., the “invention”), whether found in the hardware or software. Indeed, the software itself can have the necessary technical effect and thus be patentable if properly "packaged" *a la Beauregard*. A pure method of doing business, however, having no technical, but rather only an economic effect, is not of itself patentable.³⁹

V. Summing up patentability:

In the U.S., the rules of patentability of software, particularly business methods, are clear. Although under the rules of the EPC, much software is patentable in Europe, politics muddy the water. Given the fact that the EPO has considered its software prior art databases inadequate, the EPO has, at least in the recent past, simply refused to perform searches on many software applications. Because the U.S. Patent Office has more experience with software patents, and therefore a bit more confident that its prior art databases are complete, the U.S. Patent Office has, to my knowledge, never refused to perform a software search. Consequently, one may fairly assert that the chances of obtaining valid patent protection for software are better where the search and examination is performed in the U.S. Patent Office as opposed to the European Patent Office.

VI. The U.S. advantage, particular in the Software field, should not be underestimated:

With respect to patent strategy, attorneys best advise their clients by suggesting that they start their patent filing in the jurisdiction of the most commercial importance to

³⁸ T 258/03 “Hitachi”.

³⁹ See Computer-Implemented Inventions and Patents, Law and Practice, *Supra*.

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them.⁴⁰ For local companies, that may mean advising the client to file a patent application locally. For globally-minded clients, this usually means that they should be advised to file in the United States first. After all, the United States remains the dominant force in international commerce and if a client is forced (because of budget constraints for example) to choose one single *national* patent to have in their portfolio, most clients choose a U.S. patent.⁴¹ In addition, the United States has a developed patent system which reduces the risks of unknown factors coming into play. There are other reasons that clients should be advised to consider filing their patent application in the United States first. Here are some of them:

1. Because the United States represents the largest domestic market for a broad range of products and services, this sheer market size means that it is likely that, on a *per capita* basis, the United States will be the least expensive jurisdiction in which to obtain patent protection.⁴²
2. English is the language of Computer Science, Information Technology, Business and Law, and the native language of many industrialized nations around the world, such as the United Kingdom, Ireland, Australia, Canada, New Zealand, and Singapore. Further, Japan permits filing in English, provided that a translation into Japanese is filed within two months. Therefore, a patent application drafted in English first is likely to not suffer from losses in meaning due to translation in these important countries.
3. Provisional patent applications are permitted, thus permitting a claim of priority without reduction of the term of the patent (the term of the U.S. patent begins on the

⁴⁰ Where such a choice is permitted under national law, discussed *infra*.

⁴¹ Companies and institutions that do this include: IBM, Logitech, most large Swiss chemical and pharma companies, the University of Geneva, HUG, and the EPFL, for example.

⁴² The licensing value of a U.S. patent is therefore much greater than any other national patent.

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filing of the subsequent regular U.S. application) and the preservation of patent rights at minimal cost (the lack of formal requirements of a U.S. provisional application means that the application can be prepared for less money than a regular U.S. application—an important advantage for start-ups who are strapped for cash).

4. If necessary, a U.S. provisional patent application can be filed in any language, allowing the applicant up to a year's time to prepare a translation (a translation of the application won't be necessary until the provisional application is claimed as a priority filing in a subsequent regular U.S. patent application).
5. An early U.S. filing date means that a client's application won't be rejected by the U.S. Patent Office under §102(e) of the U.S. Patent Law, when another party's U.S. patent application has published during the prosecution of the client's application, even though their non-U.S. priority filing date is earlier than our client's U.S. filing date. Conversely, if the client's priority filing is a U.S. filing, then the publication of the client's application creates §102(e) prior art against competitors.
6. It is clear that patent protection is available for computer software in the U.S., and for business methods as well (subject to certain conditions).
7. Where the invention has already been publicly disclosed, the United States is among the very few countries in which one has a one year grace period in which to file.
8. Because the United States is a first-to-invent country, one can file a patent application which is essentially identical with an earlier application filed by a competitor, within one year of the publication of the competitor's application, and, provided that the client can prove he was the first to invent, he can recover the rights to the patent from

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the competitor (this applies to countries, such as Switzerland, Germany, and Austria that are members of the World Trade Organization).

9. Provided the client does not file any foreign applications and requests non-publication of the application at the time of filing, his U.S. application is kept secret and never published by the U.S. Patent Office, until it is granted. Therefore, the client need not relinquish trade secret protection until he is convinced that the patent protection obtained will protect him more effectively than merely keeping the technology secret.
10. Patent pending status can be maintained almost indefinitely (subject to the 20 year patent term, payment of fees and ongoing good faith prosecution of the application) and thus offer the ongoing threat of amendment to “cover” a competing device, thus providing a deterrent effect against competition, particularly where large investments in tooling would be required of competitors/potential infringers.
11. Filing requirements and requirements for a detailed disclosure are more stringent in the U.S. than in other countries. Therefore, if the client plans to file internationally, it is best to prepare the patent application to meet the disclosure requirements of the most demanding country, i.e., the U.S.⁴³ Once the client has prepared the application in U.S. form, then it is a simple matter to file in the U.S. and in most other countries.
12. Unity of invention requirements are less stringent in the U.S. than in Europe, enabling the possibility of one U.S. patent covering two or more inventions as defined under the European Standard of unity.
13. Extraterritorial Effects may be put into action: a significant advantage of filing in the U.S. first, is that, if no further filings are made, a U.S. patent can provide protection

⁴³ For this, it is advisable to use the services of a qualified U.S. patent attorney-at-law.

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for the inventor or licensee in ways which extend beyond the borders of the United States.

14. The long history of accepting software patent applications in the U.S. has made the U.S. Patent Office the office of choice for software patent examination, in part because the thoroughness of prior art searching is considered to be superior there. Therefore, filing a regular U.S. application early, and ordering accelerated examination is often the quickest way to determine whether a patent will ultimately issue on any application filed.

VII. How then do we advise our clients?

Assuming the client insists on seeking patent protection (there are other means of protection, such as copyright, trade secret, and contract law which may be adequate in certain situations), the easy answer is: if a pure business method, pure software or a data structure with questionable technical effect, and significant U.S. market, then at least file in the U.S.; if a computer-implemented invention having “technical effect,” file a euro-PCT application designating the U.S. and/or a U.S. regular application.

The disparity in patentable subject matter and political uncertainty, seem to suggest filing first in the U.S. to reduce risk, then later elsewhere as rules of the game are clarified. Despite the obvious advantages of a first U.S. filing, some countries do not permit their residents or citizens to file in foreign countries first. Indeed, the national security laws of some countries require their residents to file in their countries of residence first, in their national language. For instance, U.K. residents must file in the U.K. first (but this limitation is being lifted). French residents must file in French, in France first. Where the invention is a state secret, German residents must file in

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Germany.⁴⁴ As with most other countries, Swiss clients are free to file where they choose.

VII. Conclusions:

The patentability of software is well-settled in the U.S. Much software (more than most think) is patentable in Europe, under the European Patent Convention. In the E.U., the political dust may not yet have settled on the issue of software patents. Consequently, where permitted under national law, and where the U.S. market is a significant part of the world market, globally-minded clients should consider filing software patent applications in the U.S. first. This is the best value for the client who wishes to incrementally invest in his intellectual property, assessing its value from time to time and adjusting his patent filing strategy accordingly, in order to minimize required investment per patent, and maximize potential returns.

⁴⁴ German state secrets are defined as facts and knowledge accessible to a limited number of people whose revelation would damage the external security of the German nation“ §93 Nr. 1 Strafgesetzbuch (StGB)(Ger.), *translated in* Joseph J. Darby, *The Penal Code of the Federal Republic of Germany* 118 (1987). Therefore, this covers almost all military-related inventions the details of which are known by only a few.