



The Future of Business Methods and Computer Software after *In re Bilski*

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I. Brief History of Business Methods

- **Business methods were not recognized as patentable "processes" under 35 USC §101 until the Federal Circuit's *en banc* decision in *State Street Bank & Trust Co. v. Signature Financial Group*, 149 F.3d 1368 (Fed. Cir. 1998). However, in *State Street*, the Federal Circuit simply noted that**
 - Business method should be treated as any other "process" claim,
 - No guideline as to how such a business method should be treated for purposes of §101.
- **In response to *State Street*, USPTO created a new classification to handle such applications, i.e., Class 705 Data Processing: Financial, Business Practice, Management or Cost/Price Determination -- a generic class for machines and methods for performing data processing or calculation operations in the:**
 - 1) practice, administration or management of an enterprise;
 - 2) processing of financial data; or
 - 3) determination of the charge for goods or services.



I. Brief History of Business Methods

Class 705 Application Filing and Patents Issued Data

Fiscal Year	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Filings	974	1425	3020	8058	9278	7400	7750	8442	8915	10108	11378
Issues	120	306	493	845	427	493	486	289	711	1191	1330
Issue Rate(%)	12%	21%	16%	10%	5%	7%	6%	3%	8%	12%	12%

http://www.uspto.gov/web/menu/pbmethod/application_filing.htm

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I. Brief History of Business Methods

- **Problems:**
 - Large backlog of software/business method patents
 - Bad press resulting from dubious business method patents
 - ◆ eBay
 - ◆ Amazon "one-click" patent
 - Vocal criticisms regarding the validity of these business method patents
- **USPTO began to narrow eligible subject matter under 35 USC §101**
 - Issued new Guidelines for Examining Computer-Related Inventions on November 22, 2005
 - ◆ Practical application by **physical transformation**
 - ◆ Practical application that produces a **"useful, concrete, and tangible result"**
 - Instructed Technology Centers to reject claims under 35 USC §101 if relate to:
 - ◆ Business methods – *In re Comiskey*, 499 F.3d 1365 (Fed. Cir. 2007)
 - ◆ Data signals - *In re Nuijten*, 500 F.3d 1346 (Fed. Cir. 2007)
 - ◆ Software (even Beauregard claims)

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II. The Facts of *In re Bilski*

- Bilski 08/833,892 patent application, filed on April 10, 1997 entitled “Energy Risk Management Method” is generally directed to a method of trading weather risk for energy hedging purposes.
- Specifically, Bilski’s patent application relates to “a method of managing the consumption risk costs associated with a commodity (i.e., coal) sold at a fixed price for a given period.”
- Such a method was invented by two former energy company executives who were founders of WeatherWise USA, Inc., to offer its customers fixed-bill energy pricing.

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II. The Facts of *In re Bilski*

Claim 1 states:

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

- (a) initiating a series of transactions between said commodity provider and consumers of a commodity, wherein said consumers purchase said commodity at a fixed rate based upon historical averages, said fixed rate corresponding to a risk portion of said consumer;
- (b) identifying market participants for said commodity having a counter-risk position to said consumers; and
- (c) initiating a series of transactions between said commodity provider and said market participants at a second fixed rate such that said series of market participant transactions balances the risk position of said series of consumer transactions.

This method is a “non-machine-implemented” method that does **not** recite how the steps are implemented and is broad enough to read on performing abstract concepts of hedging **without the use of a machine.**

The method does **not** need machines (computers). In fact, computers are not even described in the patent application.

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III. The Question posed by *In re Bilski*

Question: Whether a business method claim divorced from a machine, such as *In re Bilski*, is eligible for patent protection under 35 USC §101?

Answer: No clear guidelines from the Supreme Court or the Federal Circuit and its predecessor, CPAA.

- **Supreme Court has not addressed the question of patentability of business method-related innovations.**
- The last series of §101 cases addressed by the Supreme Court were *Diamond v. Diehr*, 450 U.S. 175 (1981), *Parker v. Flook*, 437 U.S. 584 (1978), and *Gottschalk v. Benson*, 409 U.S. 63 (1972) ==> all dealing with information technology and software-related innovations. For example:
 - ♦ In *Gottschalk v. Benson* (1972), a method for converting a signal from "binary-coded decimal (BCD)" into "binary" was held not patentable.
 - ♦ In *Parker v. Flook* (1978), a method for updating the value of at least one alarm limit on at least one process variable involved in a process comprising the catalytic chemical conversion of hydrocarbons was held not patentable.
 - ♦ In contrast, in *Diamond v. Diehr* (1982), a method of operating a rubber-molding press for curing synthetic rubber into cured precision molded products with the aid of a digital computer was held patentable.

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III. The Question posed by *In re Bilski*

Answer: No clear guidelines from the Supreme Court or the Federal Circuit and its predecessor, CPAA.

- **The CPPA *Freeman-Walter-Abele* test formulated in early 1980's in response to *Benson* to address eligibility of an "algorithm" under 35 USC §101 is not helpful.**
- **Likewise, the Federal Circuit's jurisprudence regarding 35 USC §101 over the last 25 years is not very helpful since virtually all earlier §101 cases were dealing with information technology and software-related innovations. Examples include:**
 - ♦ *Arrhythmia Research Tech., Inc. v. Corzonix Corp.*, 958 F.3d 1053 (Fed. Cir. 1992)
 - ♦ *In re Allappat*, 33 F.3d 1526 (Fed. Cir. 1994)
 - ♦ *State Street Bank & Trust Co. v. Signature Financial Group*, 149 F.3d 1368 (Fed. Cir. 1998)
 - ♦ *AT&T Corp. v. Excel Communications Inc.*, 172 F.3d 1352 (Fed. Cir. 1999).

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IV. The Law

35 U.S.C. §101:

Patentable Inventions - *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.*

35 U.S.C. §100(b) provides the definition for “process”:

The term “process” means process, art or method, and includes a new use of a known process, machine, manufacture, composition of matter, or material.

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IV. The Law

■ Traditional View during the Industrial Age in the 1970's and 1980's:

- **To be eligible under 35 USC §101, a “process” must:**
 - ◆ Be tied to a particular machine or apparatus, or
 - ◆ Operate to transform or reduce underlying subject matter (such as an article or material) to a different state or thing ==> known as the “**transformation**” test.
- This view was first advanced by USPTO in the Supreme Court case in ***Gottschalk v. Benson***, 409 U.S. 63 (1972), and subsequently endorsed by the Supreme Court 10 years later in ***Diamond v. Diehr***, 450 U.S. 175 (1981).
- The “**transformation**” test can be traced back to the 19th century Supreme Court case, ***Cochrane v. Deener***, 95 US 355 (1877). In *Cochrane*, the Supreme Court defined a “process” as “an act, or series of acts, performed upon the subject matter to be transformed and reduced to a different state or thing.”

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IV. The Law

- Supreme Court has consistently interpreted 35 USC §101 broadly with only a few exceptions so as to fulfill the constitutional and statutory goal of promoting “the Progress of Science and the useful Arts.”
- For example:
 - In *Diamond v. Chakrabarty*, 447 U.S. 303 (1980), the Supreme Court ruled that oil-eating bacteria was not a product of nature but was a product of human ingenuity, and emphasized famous quote on 35 USC §101:
 - ◆ Statutory subject matter includes “*anything under the sun that is made by man*”
 - In *Diamond v. Diehr*, 45 U.S. 175 (1981), the Supreme Court identified only three categories of exclusions:
 1. Laws of nature (e.g., law of gravity; $E = mc^2$)
 2. Natural phenomena (e.g., new mineral discovered, or new plant found), and
 3. Abstract ideas (e.g., pure math algorithms)

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IV. The Law

- In *Diamond v. Diehr*, the Supreme Court further endorsed the traditional view that a §101 process must:
 - Be tied to a particular machine or apparatus, or
 - Operate to transform or reduce underlying subject matter (such as an article or material) to a different state or thing.
- This view made sense in *Diamond v. Diehr* since claims were directed to a process for curing synthetic rubber, i.e., transforming rubber from one state into another.
- For most industrial inventions, there was always an underlying “subject matter” (i.e., physical, tangible object or material) to be transformed.

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IV. The Law

- However, for computer-related inventions, there was no underlying subject matter to be transformed. As a result, the challenge for the Federal Circuit in early 1990's was to determine whether the underlying article or "subject matter" to be transformed includes intangible, such as electrical signals.
 - **Answer: Yes, the underlying article or "subject matter" can also include intangibles, such as electrical signals, electronically-manipulated data or electromagnetic waves. As such, physical transformation of signal or data was sufficient.**
 - For example, in *Arrhythmia Research Tech., Inc. v. Corzonix Corp.*, 958 F.3d 1053 (Fed. Cir. 1992), the Federal Circuit found claims directed to a process of analyzing electrocardiographic signals to monitor heart activity of a patient to be statutory under 35 USC §101.

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IV. The Law

- The Federal Circuit expanded upon the traditional view of an eligible "process" to include a new, separate and broader test ==> "useful, concrete, and tangible result" test.
- For example, *In re Allappat*, 33 F.3d 1526 (Fed. Cir. 1994)
 - Claims (written in means-plus-function) directed to a rasterizer for converting vector list data and smoothing a waveform display in an oscilloscope found to be statutory under 35 USC §101.
 - Federal Circuit held that such a rasterizer was a specific machine that produced a "useful, concrete, and tangible result."
- Later in *State Street Bank & Trust Co. v. Signature Financial Group*, 149 F.3d 1368 (Fed. Cir. 1998), 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 because it produces a "useful, concrete, and tangible result." Consequently, the claim was statutory subject matter, even if the useful result is expressed in numbers, such as price, profit, percentage, cost or loss.

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IV. The Law

■ *State Street Bank & Trust Co. v. Signature Financial Group*, 149 F.3d 1368 (Fed. Cir. 1998)

- Claim 1: A data processing system for managing a financial services configuration of a portfolio established as a partnership, each partner being one of a plurality of funds, comprising:
 - (a) computer processor means [a **personal computer including a CPU**] for processing data;
 - (b) storage means [a **data disk**] for storing data on a storage medium;
 - (c) first means [an **arithmetic logic circuit** configured to prepare the data disk to magnetically store selected data] for initializing the storage medium;
 - (d) second means [an **arithmetic logic circuit** configured to retrieve information from a specific file, calculate incremental increases or decreases based on specific input, allocate the results on a percentage basis, and store the output in a separate file] for processing data regarding assets in the portfolio and each of the funds from a previous day and data regarding increases or decreases in each of the funds, assets and for allocating the percentage share that each fund holds in the portfolio;

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IV. The Law

■ *State Street Bank & Trust Co. v. Signature Financial Group*, 149 F.3d 1368 (Fed. Cir. 1998)

- Claim 1: A data processing system ... comprising:
 - (e) third means [an **arithmetic logic circuit** configured to retrieve information from a specific file, calculate incremental increases and decreases based on specific input, allocate the results on a percentage basis and store the output in a separate file] for processing data regarding daily incremental income, expenses, and net realized gain or loss for the portfolio and for allocating such data among each fund;
 - (f) fourth means [an **arithmetic logic circuit** configured to retrieve information from a specific file, calculate incremental increases and decreases based on specific input, allocate the results on a percentage basis and store the output in a separate file] for processing data regarding daily net unrealized gain or loss for the portfolio and for allocating such data among each fund; and
 - (g) fifth means [an **arithmetic logic circuit** configured to retrieve information from specific files, calculate that information on an aggregate basis and store the output in a separate file] for processing data regarding aggregate year-end income, expenses, and capital gain or loss for the portfolio and each of the funds.

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IV. The Law

■ ***AT&T Corp. v. Excel Communications Inc.*, 172 F.3d 1352 (Fed. Cir. 1999), the Federal Circuit further expanded on *State Street* case, and even stated that “physical transformation” of data was not required; rather, such data transformation was merely an example of how a mathematical algorithm may bring about a useful application.**

- The method:
 - ◆ generating a message record for an interexchange call between an originating subscriber and a terminating subscriber, and
 - ◆ including, in said message record, a primary interexchange carrier (PIC) indicator having a value which is a function of whether or not the interexchange carrier associated with said terminating subscriber is a predetermined one of said interexchange carriers.

■ The Federal Circuit:

- Rejected arguments that the process claims lacked physical limitations.
 - ◆ As claims were directed to a process, a structural inquiry was unnecessary. There was no need for process claims to contain physical limitations.
 - ◆ Key was “**useful, concrete and tangible result**”.

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IV. The Law

■ **In the context of information technology and software-related innovations, the “transformation” test (physical transformation of an underlying subject matter or data transformation as part of a machine) has been workable.**

■ **However, in the context of business methods, particularly, those business methods that can be implemented without a machine, neither physical transformation nor data transformation is required. As such, the “transformation” test is not meaningful.**

Likewise, the “useful, concrete and tangible result” test as articulated first in *In re Allappat* and then, in *State Street* and *AT&T*, is too vague to be helpful.

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V. MEMORANDUM dated on May 15, 2008 from USPTO Deputy Commissioner John J. Love RE: Clarification of “Processes” under 35 USC §101 – Back to Traditional View

- Shortly after the oral hearing presented in *In re Bilski*, USPTO issued a Memorandum on May 15, 2008, instructing all Examiners to follow its view on subject matter eligibility of process claims presented to the Federal Circuit in *In re Bilski*.
- §101 process must:
 - (1) be tied to another statutory class (such as a particular apparatus); or
 - (2) transform underlying subject matter (such as an article or material) to a different thing.
 If neither is met by the claim, the method is not a patent eligible process under §101.
- If the claimed invention is determined to be a statutory subject matter eligible process, Examiner must also determine whether the claimed invention falls within a judicial exception:
 - Laws of nature
 - Natural phenomena; or
 - Abstract ideas



VI. The Case: *In re Bilski*

In re Bilski REVISIT (2008): After a panel of Judges Bryson, Cleveger and Moore heard oral argument on Bilski’s appeal, the Federal Circuit sua sponte ordered an en banc rehearing for Bilski’s appeal on February 15, 2008, requested briefing and invited amicus briefs on the following five (5) questions:

1. Whether claim 1 of the 08/833,892 patent application claims patent-eligible subject matter under 35 USC §101?
2. What **standard** should govern in determining whether a process is patent-eligible subject matter under 35 USC §101?
3. Whether the claimed subject matter is **not** patent-eligible because it constitutes an **abstract idea** or **mental process**; when does a claim that contains both mental and physical steps create patent-eligible subject matter?
4. Whether a method or process must result in a **physical transformation** of an article or be tied to a machine to be patent-eligible subject matter under 35 USC §101?
5. Whether it is appropriate to reconsider *State Street Bank & Trust Co. v. Signature Financial Group, Inc.*, 149 F.3d 1368 (Fed. Cir. 1998), and *AT&T Corp. v. Excel Communications, Inc.*, 172 F.3d 1352 (Fed. Cir. 1999), in this case and, if so, whether those cases should be overruled in any respect?



VI. The Case: *In re Bilski*

- AIPLA and Bilski's Positions:
 - §101 should be broadly construed;
 - Physical transformation should not be required; and
 - Bilski's method is patentable subject matter because it allows "commodity suppliers and consumers to engage in commodities transactions while minimizing the risks associated with fluctuations in demand for such commodities and providing investment opportunities for market participants," which is an endeavor that is quite practical and useful.

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VI. The Case: *In re Bilski*

- USPTO Position:
 - First, the claimed method does not qualify as a statutory "process" for lack of **physical transformation** or **machine implementation** — details missing from Bilski's claims.
 - In addition, Bilski's claim is an abstract idea because it is merely a "disembodied concept" that would preempt an entire field of commodities trading.
 - Regarding ***State Street***, the USPTO would limit the requirement of a "useful, concrete, and tangible result" to computer implemented inventions that employ a mathematical algorithm.

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VI. The Case: *In re Bilski*

- The en banc hearing on May 8, 2008
 - Chief Judge Paul Michel correctly noted that the “useful, concrete, and tangible result” test as articulated first in *In re Allappat* and then, in *State Street* and *AT&T* is too vague to determine whether a process is patent-eligible subject matter under §101.
 - The Court also heard from two amici:
 - ◆ Counsel for Financial Services Roundtable and Wall Street banking firms
 - ◆ Counsel for Regulatory Datacorp, a consortium of financial service companies that use business data processes to monitor financial crime and terrorism funding.

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VI. The Case: *In re Bilski*

Counsel for Financial Services Roundtable and Wall Street Banking Firms

- Urged the Federal Circuit to adopt a more restrictive test for business method applications for fear that the entire class of business method patents could be eliminated.
- Argued that business methods should only be patented if tied to a machine or if physical transformation the Supreme Court in *Gottschalk v. Benson*, 409 U.S. 63 (1972), and subsequently confirmed 10 years later in *Diamond v. Diehr*, 450 U.S. 175 (1981), could be demonstrated, a view that was endorsed by the USPTO and is now consistent with USPTO May 15, 2008 Memorandum.
- Advocated reversal of the *State Street* and *AT&T* decisions, a view that has not endorsed by the USPTO.

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VI. The Case: *In re Bilski*

Counsel for Regulatory Datacorp - Professor John F. Duffy of George Washington Law School

- **Bilski's claimed method recites both mental and physical steps, and the presence of mental steps along with physical steps does not negate patentability.**
- **Neither *State Street* nor *AT&T* should be overruled because they are consistent with Supreme Court precedent.**
- **Financial-service companies should be entitled to broad access to business method patents.**

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UK/European Developments

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United Kingdom: *Symbian*(2008)

- **Previously, the UK Court of Appeal had given guidance in the form of a 4-stage approach given in *Aerotel*:**
 - 1) Properly construe the claim;
 - 2) Identify the actual contribution;
 - 3) Ask whether it falls solely within the excluded subject matter; and
 - 4) Check whether the contribution is actually technical in nature.
- **There are at least 3 EPO Technical Board of Appeal decisions that disapprove of the *Aerotel* approach**
- **In *Symbian*, the court attempts to reconcile the *Aerotel* approach and the Board's technical character approach, arguing that two approaches arrive at the same result for the majority of inventions**

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European Union: Referral

- **The President of the EPO has referred the following 4 questions to the Enlarged Board of Appeal:**
 - 1) Can a computer program only be excluded as a computer program as such if it is explicitly claimed as a computer program?
 - 2) (a) Can a claim in the area of computer programs avoid exclusion under Art. 52(2)(c) and (3) merely by explicitly mentioning the use of a computer or a computer-readable data storage medium?
(b) If question 2(a) is answered in the negative, is a further technical effect necessary to avoid exclusion, said effect going beyond those effects inherent in the use of a computer or data storage medium to respectively execute or store a computer program?

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EU Referral Cont'd

- 3) (a) Must a claimed feature cause a technical effect on a physical entity in the real world in order to contribute to the technical character of the claim?
(b) If question 3(a) is answered in the positive, is it sufficient that the physical entity be an unspecified computer?
(c) If question 3(a) is answered in the negative, can features contribute to the technical character of the claim if the only effects to which they contribute are independent of any particular hardware that may be used?

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EU Referral Cont'd

- 4) (a) Does the activity of programming a computer necessarily involve technical considerations?
(b) If question 4(a) is answered in the positive, do all features resulting from programming thus contribute to the technical character of a claim?
(c) If question 4(a) is answered in the negative, can features resulting from programming contribute to the technical character of a claim only when they contribute to a further technical effect when the program is executed?

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Canada: Data Treasury

- **Jan. 2006:** DataTreasury is granted the 2,301,793 patent (the “793 patent”) for its systems to electronically clear cheques
- **Aug. 2007:** Toronto-Dominion Bank, Bank of Montreal and Royal Bank file a claim against DataTreasury to have the ‘793 patent declared invalid
- **Sept. 2007:** DataTreasury files a claim against Big 5 banks, National Bank of Canada, Symcor and Inria Items for patent infringement of the ‘793 patent
- **Currently:** In discoveries
- **Early 2010:** Likely trial date

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Thank you!

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