

Computer-Implemented Invention Patents: Federal Circuit Guidance, USPTO Guidance on Sections 101 and 112, EPO Guidance

THURSDAY, JANUARY 27, 2022

1pm Eastern | 12pm Central | 11am Mountain | 10am Pacific

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Computer Implemented Invention Patents

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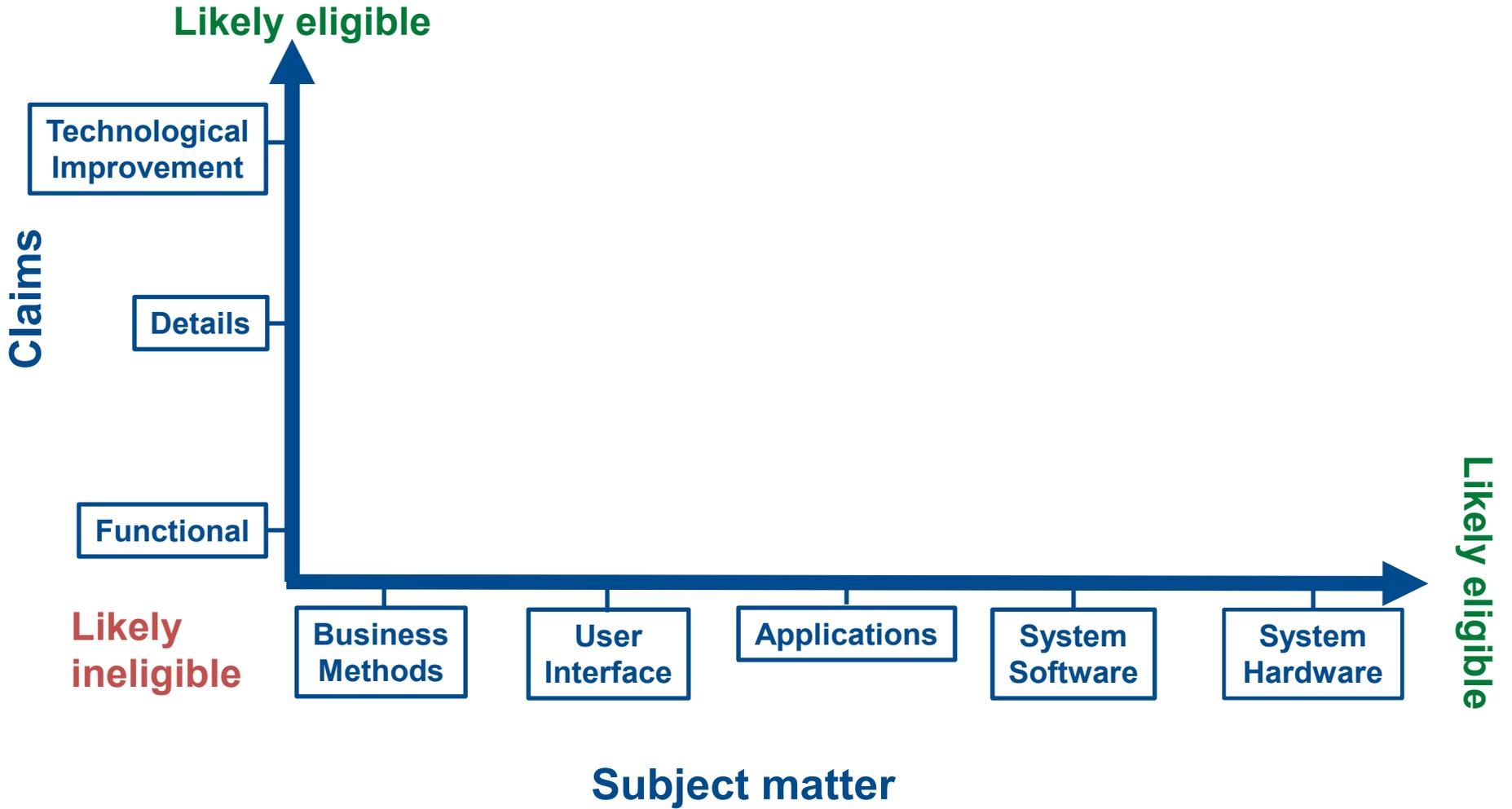
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AGENDA

- 1. Brief overview of § 101**
 - A. Supreme Court**
 - B. Fed. Cir. Cases Finding Eligible Inventions**
 - C. *Elec. Pwr. Group* Line of Cases**
- 2. Recent Fed. Cir. § 101 Software/Computer Cases**
- 3. USPTO 2019 § 101 Guidelines**
- 4. 35 U.S.C. § 101 PTAB Decisions**
- 5. 35 U.S.C. § 112(f) USPTO Guidelines**
- 6. EPO Guidelines**

Overview

EMPIRICAL § 101 SUMMARY



How did we get here?

1972-1981	<i>Benson, Flook, and Diehr</i> (S.Ct.)
1995	USPTO Computer implemented guidelines
1998	<i>State Street Bank</i> (Fed. Cir.)
2010	<i>Bilski</i> (S.Ct.)
2011	<i>Cybersource</i> (Fed. Cir.)
2012	<i>Mayo</i> (S.Ct.)
2014	<i>Alice</i> (S.Ct.)
2021	<i>Yu and USR</i> (Fed. Cir.)

PATENTABLE SUBJECT MATTER

- **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. § 101.**
- **The term “process” means process, art or method, and includes a new use of a known process, machine, manufacture, composition of matter, or material. 35 U.S.C. § 100(b).**
- **“Excluded from such patent protection are laws of nature, natural phenomena, and abstract ideas.” *Diehr* (S. Ct. 1981).**

JUDICIALLY CREATED EXCEPTIONS

- Does the claimed invention fit in one of the four statutory categories of § 101?
- If so, is the claim directed to an abstract idea?
- If so, does it recite patent-eligible subject matter?
 - The mental-steps doctrine (*Gottschalk v. Benson*)
 - The point-of-novelty test (*Parker v. Flook, Diehr, Mayo*)
 - The machine-or-transformation test (*Bilski v. Kappos*)
 - The abstract idea test (*Bilski v. Kappos*)
 - The generic computer test (*Alice v. CLS*)
 - Safe Harbors - Technological improvement
 - (1) “improve the functioning of the computer itself” or
 - (2) “effect an improvement in any other technology or technical field.”

ELIGIBILITY HIGHLIGHTS POST *ALICE*

- **STEP 1: Does the claim improve functioning of the computer itself?** (*Enfish, Finjan*)
- **STEP 2: Are conventional elements arranged in a nonconventional way?** (*BASCOM*)
- **Does the claim recite technical solution to technical problem?** (*DDR*)
- **Specific implementation for specific solution?** (*Vanda Pharms, Data Engine*, but see *BSG Tech*)
- **Use of prior art – relevant or not?** (*Diehr, Mayo*)
 - If relevant, does the claim recite a technical improvement over the prior art? (*MCRO, Finjan*, but *IV v. Symantec*)
 - Step one – (1) analysis of advancement over prior art and (2) prior art is used to show fundamental economic process or mathematical concept.
 - Step two – well understood, routine, and conventional is fact question affecting pre-trial motions. (*Berkheimer*)
 - Key sources – specification, prosecution history, admissions, *extrinsic prior art?*
 - Do *Yu* and *Universal Secure Registry* signal a new direction?

ELIGIBILITY HIGHLIGHTS (cont'd)

- Is claim functional? (*Elec. Power, Two-way Media*)
- Is the claim merely data gathering, analysis and display? (*Elec. Pwr. Group, TDE Petroleum, Clarilogic, Univ. of Fla.*)
- Is the claim preemptive? (*Ariosa, Return mail, but see MCRO*)
- Business method patents do not fare well at the Fed. Cir.
- Step one: Lack of technical details in specification, and broad, functional, pre-emptive claim limitations shows claim “directed to” an abstract idea. *Chargepoint v. Semaconnect*.
- Patents have a presumption of validity in § 101 challenges (*Cellspin*)

TIPS

Key arguments:

1. The invention improves the functioning of the computer itself;
2. The invention affects an improvement in another technology or technical field;
3. The invention improves over the prior art; and
4. The invention addresses a technical solution to a technical problem.

Specification suggestions:

- Draft the specification with sufficient technical details, not just functionally. See e.g., *ChargePoint*. Include system diagram, flowcharts, and important interfaces/data structures.
- Support key arguments

TIPS (Cont'd)

Claim suggestions:

- **Avoid functional claiming and add specifics**
- **Recite the technical improvements, etc., described in specification (See *e.g.*, *Amdocs*)**
- **Be particularly careful when the invention involves data gathering, analysis, and display**

Other:

- **The PTO guidelines are not binding on the Federal Circuit**
- **Know where the guidelines and Fed. Cir. case law are not co-extensive**
- **Make arguments for both the PTO as well as the Fed. Cir.**
- **Preserve the arguments you want to make to the Fed. Cir. by making them to the PTAB**

Supreme Court Cases

GOTTSCHALK V. BENSON (S. CT. 1972)

- The patent claimed “converting binary-coded decimal (BCD) numerals to pure binary numerals.”
 - “Here the ‘process’ claim is so abstract and sweeping as to cover both known and unknown uses of the BCD to pure binary conversion.”
- The practical effect of patenting the formula ... would be to patent an idea and “would wholly pre-empt the mathematical formula.”
- “Phenomena of nature, though just discovered, mental processes, and abstract intellectual concepts are not patentable, as they are the basic tools of scientific and technological work.”

GOTTSCHALK V. BENSON (S. CT. 1972)(cont'd)

- ‘(w)hile a scientific truth, or the mathematical expression of it, is not patentable invention, a novel and useful structure created with the aid of knowledge of scientific truth may be.’ That statement followed the longstanding rule that ‘(a)n idea of itself is not patentable.’
- “If these programs are to be patentable...action by the Congress is needed.”

PARKER V. FLOOK (S. CT. 1978)

- “[The application] describes a method of updating alarm limits.”
- “[T]he method consists of three steps: an initial step which merely measures the present value of the process variable (e.g., the temperature); an intermediate step which uses an algorithm to calculate an updated alarm-limit value; and a final step in which the actual alarm limit is adjusted to the updated value. The only difference between the conventional methods of changing alarm limits and that described in respondent’s application rests in the second step—the mathematical algorithm or formula.”

PARKER V. FLOOK (S. CT. 1978)(cont'd)

- **Point-of-novelty test:**
 - “Respondent’s process is unpatentable under § 101, not because it contains a mathematical algorithm as one component, but because once that algorithm is assumed to be within the prior art, the application, considered as a whole, contains no patentable invention.”

DIAMOND V. DIEHR (S. CT. 1981)

- **“Process for molding raw, uncured synthetic rubber into cured precision products.”**
 - **“We view respondents’ claims as nothing more than a process for molding rubber products and not as an attempt to patent a mathematical formula. We recognize, of course, that when a claim recites a mathematical formula (or scientific principle or phenomenon of nature), an inquiry must be made into whether the claim is seeking patent protection for that formula in the abstract.”**
- **Consider claim as a whole, inappropriate to dissect:**
 - **“[W]hen a claim containing a mathematical formula implements or applies that formula in a structure or process which, when considered as a whole, is performing a function which the patent laws were designed to protect (e.g., transforming or reducing an article to a different state or thing), then the claim satisfies the requirements of § 101.”**
- **Reject point-of-novelty test:**
 - **“The ‘novelty’ of any element or steps in a process, or even of the process itself, is of no relevance in determining whether the subject matter of a claim falls within the § 101 categories of possibly patentable subject matter.”**

BILSKI V. KAPPOS (S. CT. 2010)

- **The Machine-or-Transformation Test:**
 - “a claimed process is patent eligible if: (1) it is tied to a particular machine or apparatus, or (2) it transforms a particular article into a different state or thing.”
 - Not the sole test for determining “a patent eligible ‘process,’” but is “a useful and important clue, an investigative tool.”
- **Abstract Idea Analysis:**
 - “The concept of hedging . . . is an unpatentable abstract idea Allowing [Bilski] to patent risk hedging would pre-empt use of this approach in all fields, and would effectively grant a monopoly over an abstract idea.”
 - “[L]imiting an abstract idea to one field of use or adding token post-solution components” does not make claims eligible.
- **“And nothing in today’s opinion should be read as endorsing interpretations of §101 that the [Fed. Cir.] has used in the past.”**

MAYO COLLABORATIVE SERVICES V. PROMETHEUS LABS, INC. (S. CT. 2012)

- Claims to calibrating drug dosage
- “[T]o transform an unpatentable law of nature into a patent-eligible application of such law, one must do more than simply state the law of nature while adding the words ‘apply it.’”
- Patents should not be upheld “that claim processes that too broadly preempt the use of the natural law”
- Dissecting the claim elements, the Court said:
 - “To put the matter more succinctly, the claims inform a relevant audience about certain laws of nature; any additional steps consist of well-understood, routine, conventional activity already engaged in by the scientific community”

MAYO COLLABORATIVE SERVICES V. PROMETHEUS LABS, INC. (cont'd)

- “Other cases offer further support for the view that simply appending conventional steps, specified at a high level of generality, to laws of nature, natural phenomena, and abstract ideas cannot make those laws, phenomena, and ideas patentable.”
- **Point-of-novelty test?**
 - “We recognize that, in evaluating the significance of additional steps, the § 101 patent-eligibility inquiry and, say, the §102 novelty inquiry might sometimes overlap. But that need not always be so.”
- **The M-O-T test does not supersede judicial exception for natural laws**
- **Section 101’s role:**
 - Court rejected Government’s argument that §§102, 103, and 112 can perform this “screening function” and “virtually any step beyond a ... law of nature itself should ... satisfy § 101”

ALICE V. CLS (S. CT. 2014)

- **Claims to computer-implemented process for mitigating settlement risk**
- **Preemption concern “undergirds our § 101 jurisprudence.”**
- **Courts “must distinguish between patents that claim the building blocks of human ingenuity and those that integrate the building blocks into something more.”**

ALICE V. CLS (cont'd)

■ Under the *Mayo* test:

- Step one: Court determined the claims were drawn to the “abstract idea” that is a “fundamental economic practice”
- Considered *Bilski*:
 - “Like the risk hedging in *Bilski*... intermediated settlement is a fundamental economic practice” and is “an abstract idea.”
 - “In any event, we need not labor to delimit the precise contours of the ‘abstract ideas’ category in this case. It is enough to recognize that there is no meaningful distinction between the concept of risk hedging in *Bilski* and the concept of intermediated settlement at issue here.”

ALICE V. CLS

(cont'd)

- **Under the *Mayo* test (Cont'd):**
 - **Step two:**
 - Courts to “consider the elements of each claim both individually and as an ordered combination to determine whether the additional elements “transform the . . . claim into a patent-eligible application”,
 - This is a “search for an inventive concept”, *i.e.*, the combined elements amount to “significantly more than a patent upon the ineligible concept itself” and were not “purely conventional.”
 - “[T]he relevant question is whether the claims here do more than simply instruct the practitioner to implement the abstract idea of intermediated settlement on a generic computer. They do not.”
 - “These cases demonstrate that the mere recitation of a generic computer cannot transform a patent-ineligible abstract idea into a patent-eligible invention.”

ALICE V. CLS

(cont'd)

- **Under the *Mayo* test (Cont'd):**
 - **Step two (cont'd):**
 - **Safe Harbors!** The claims did not
 - (1) **“improve the functioning of the computer itself”** or
 - (2) **“effect an improvement in any other technology or technical field.”**
 - **System and media claims**
 - **“Because petitioner’s system and media claims add nothing of substance to the underlying abstract idea, we hold that they too are patent ineligible under § 101.”**
 - **The method claims recite the abstract idea implemented on a generic computer; the system claims recite a handful of generic computer components configured to implement the same idea.**

Federal Circuit Cases Finding Patents Eligible

DDR HOLDINGS, LLC V. HOTELS.COM, L.P. (FED. CIR. 2014)

- **Outcome:** claims valid under *Alice* step two.
- **Procedure:** district court denied motion for JMOL of invalidity under § 101
- **Step one:**
 - “[I]dentifying the precise nature of the abstract idea is not as straightforward as in *Alice* or some of our other recent abstract idea cases.”
 - Assumed claims recited an abstract idea
- **Step two:**
 - “[T]hese claims stand apart because they do not merely recite the performance of some business practice known from the pre-Internet world along with the requirement to perform it on the Internet. Instead, the claimed solution is necessarily rooted in computer technology in order to overcome a problem specifically arising in the realm of computer networks.”

ENFISH, LLC V. MICROSOFT CORP. (FED. CIR. 2016)

- **Outcome:** claims found eligible under *Alice* step one.
- **Procedure:** district court granted summary judgment, finding the claims patent eligible
- **Step one:**
 - “The district court concluded that the claims were directed to the abstract idea of ‘storing, organizing, and retrieving memory in a logical table’ or, more simply, ‘the concept of organizing information using tabular formats.’”
 - “[W]e find that the claims at issue in this appeal are not directed to an abstract idea within the meaning of *Alice*. Rather, they are directed to a specific improvement to the way computers operate, embodied in the self-referential table.”
 - “Here, the claims are not simply directed to any form of storing tabular data, but instead are specifically directed to a self-referential table for a computer database.”
 - “[T]he claims are directed to a specific implementation of a solution to a problem in the software arts.”

ENFISH, LLC V. MICROSOFT CORP.

(cont'd)

■ Step one of the *Alice* test:

- “We do not read *Alice* to broadly hold that all improvements in computer-related technology are inherently abstract and, therefore, must be considered at step two. Indeed, some improvements in computer-related technology when appropriately claimed are undoubtedly not abstract, such as a chip architecture, an LED display, and the like. Nor do we think that claims directed to software, as opposed to hardware, are inherently abstract and therefore only properly analyzed at the second step of the Alice analysis. Software can make non-abstract improvements to computer technology just as hardware improvements can, and sometimes the improvements can be accomplished through either route.”
- “[W]e find it relevant to ask whether the claims are directed to an improvement to computer functionality versus being directed to an abstract idea, even at the first step of the Alice analysis.”
- “[T]he first step in the Alice inquiry in this case asks whether the focus of the claims is on the specific asserted improvement in computer capabilities (i.e., the self-referential table for a computer database) or, instead, on a process that qualifies as an ‘abstract idea’ for which computers are invoked merely as a tool.”

BASCOM GLOBAL INTERNET SERVS. V. AT&T MOBILITY LLC (FED. CIR. 2016)

- **Outcome:** claims eligible under *Alice* step two
- **Procedure:** district court dismissed under 12(b)(6)
- **Step one:**
 - “[T]he claims of the ’606 patent are directed to the abstract idea of filtering content. . . .”
- **Step two:**
 - “We agree with the district court that the limitations of the claims, taken individually, recite generic computer, network and Internet components, none of which is inventive by itself.”
 - “BASCOM has alleged that an inventive concept can be found in the ordered combination of claim limitations that transform the abstract idea of filtering content into a particular, practical application of that abstract idea. We find nothing on this record that refutes those allegations as a matter of law or justifies dismissal under Rule 12(b)(6).”

MCRO, INC. V. BANDAI NAMCO GAMES AMERICA (FED. CIR. 2016)

- **Outcome:** claims valid under *Alice* step one
- **Procedure:** district court granted judgment on the pleadings, finding the claims ineligible under § 101.
- **Step one:**
 - “The claimed rules [speech to lip synchronization/facial expressions] here, however, are limited to rules with certain common characteristics, i.e., a genus. ... We therefore look to whether the claims in these patents focus on a specific means or method that improves the relevant technology or are instead directed to a result or effect that itself is the abstract idea and merely invoke generic processes and machinery.”

MCRO, INC. V. BANDAI NAMCO GAMES AMERICA (cont'd)

■ Step one, cont'd:

- “By incorporating the specific features of the rules as claim limitations, claim 1 is limited to a specific process for automatically animating characters using particular information and techniques and does not preempt approaches that use rules of a different structure or different techniques. When looked at as a whole, claim 1 is directed to a patentable, technological improvement over the existing, manual 3-D animation techniques. The claim uses the limited rules in a process specifically designed to achieve an improved technological result in conventional industry practice. Claim 1 . . . is not directed to an abstract idea.”

AMDOCS V. OPENET TELECOM (FED. CIR. 2016)

- **Outcome:** four patents eligible under *Alice* step two.
- **Procedure:** district court granted summary judgment that the claims were invalid under § 101.
- **Step one:**
 - “For argument’s sake we accept the district court’s view of the disqualifying abstract ideas”
- **Step two:**
 - “The dissent concedes that the written description discloses a network monitoring system ‘eligible for patenting....’ We agree. Unlike the dissent, however, we find the claims at issue, understood in light of that written description, to be eligible for patenting.”
 - “[W]e construed ‘enhance’ as being dependent upon the invention’s distributed architecture.”
 - “As explained in the patent, the distributed enhancement was a critical advancement over the prior art.”

THALES VISIONIX V. UNITED STATES (FED. CIR. 2017)

- **Outcome:** claims satisfied *Alice* step one.
- **Procedure:** CFC granted judgment on the pleadings, finding claims ineligible under § 101.
- **Step one:**
 - “[T]he '159 patent claims are nearly indistinguishable from those of *Diehr*.”
 - “[T]he claims are directed to systems and methods that use inertial sensors in a non-conventional manner to reduce errors in measuring the relative position and orientation of a moving object on a moving reference frame.”
 - “That a mathematical equation is required...does not doom the claims to abstraction.”

VISUAL MEMORY LLC V. NVIDIA CORP. (FED. CIR. 2017)

- **Outcome:** claims eligible under *Alice* step one.
- **Procedure:** district court dismissed under 12(b)(6)
- **Step one:**
 - “[T]he key question is whether the focus of the claims is on the specific asserted improvement in computer capabilities...or, instead, on a process that qualifies as an ‘abstract idea’ for which computers are invoked merely as a tool.”
 - The claims “are directed to a technological improvement: an enhanced computer memory system” for “[c]onfiguring the memory system based on the type of processor connected to the memory system.”
 - “The claims...do not simply require a ‘programmable operational characteristic’” but require “a memory system with a main memory and a cache memory, where the memory system is configured by a computer to store a type of data in the cache memory based on the type of processor connected to the memory system.”

FINJAN, INC. V. BLUE COAT SYS. INC. (FED. CIR. 2018)

- **Outcome:** claims passed *Alice* step one.
- **Procedure:** district court granted JMOL
- **Step one:**
 - “In cases involving software innovations, this inquiry often turns on whether the claims focus on ‘the specific asserted improvement in computer capabilities ... or, instead, on a process that qualifies as an ‘abstract idea’ for which computers are invoked merely as a tool.’”
 - “The question, then, is whether this behavior-based virus scan ... constitutes an improvement to computer functionality. We think it does.”
 - The Fed Cir stated that behavior-based virus scanning was an improvement over prior art code-based approaches and enabled “a computer security system to do things it could not do before.”

CORE WIRELESS LICENSING V. LG ELECTRONICS (FED. CIR. 2018)

- **Outcome:** claims passed step one of the *Alice* test
- **Procedure:** district court denied summary judgment
- **Step one:**
 - “[T]hese claims recite a specific improvement over prior systems, resulting in an improved user interface for electronic devices.”
 - “The specification confirms that these claims disclose an improved user interface for electronic devices, particularly those with small screen.”
 - Specific claimed improvements to functionality of computer: “an application summary that can be reached directly from the menu,” “the application summary window list a limited set of data, ‘each of the data ... selectable to launch the respective application...,’” and “the summary window ‘ is displayed while the one or more applications are in an unlaunched state.’”

DATA ENGINE TECH. LLC v. GOOGLE (FED. CIR. 2018)

- **Outcome:** certain claims passed *Alice* test.
- **Procedure:** district court granted judgment on the pleadings.
- **Step one ('259 patent and '551 patent):**
 - The '259 patent's claim 12 method of navigating through three-dimensional electronic spreadsheets provided a “specific solution to then-existing technological problems in computers and prior art electronic spreadsheets” by providing a “highly intuitive, user-friendly interface with familiar notebook tabs for navigating” the spreadsheet environment.
 - Therefore, “the claim recites a specific structure (i.e., notebook tabs) within a particular spreadsheet display that performs a specific function (i.e., navigating within a three-dimensional spreadsheet).”
 - “[W]hen read as a whole, in light of the specification, claim 12 is directed to more than a generic or abstract idea as it claims a particular manner of navigating three-dimensional spreadsheets, implementing an improvement in electronic spreadsheet functionality.”

DATA ENGINE TECH. LLC v. GOOGLE

(cont'd)

- **Step one ('259 patent and '551 patent) (Cont'd):**
 - However, “DET concedes that, unlike claim 12 of the '259 patent, claim 1 of the '551 patent is 'directed at something a bit more general'......that “generically recites ‘associating each of the cell matrices with a user-settable page identifier’ and does not recite the specific implementation of a notebook tab interface” and “covers any means for identifying electronic spreadsheet pages.”
- **Step two ('551 patent):**
 - Claim 1 does not satisfy step two because it “merely recites partitioning cells to be presented as a spreadsheet, referencing in one cell of a page a formula referencing a second page, and saving the pages such that they appear as being stored as one file. These limitations merely recite the method of implementing the abstract idea itself....”

DATA ENGINE TECH. LLC v. GOOGLE

(cont'd)

■ Step one ('146 patent):

- “At their core, these claims recite tracking changes in a spreadsheet by: (1) creating a base version of a spreadsheet, (2) creating a new version of the spreadsheet, and (3) determining which cells of data have changed by comparing the new and base versions. The concept of manually tracking modifications across multiple sheets is an abstract idea.”
- “Regardless of the field of the technology, the claims at issue here are sufficiently similar to those in *Content Extraction* for us to conclude that the claims of the '146 patent are also abstract.”

■ Step two ('146 patent):

- The claims recite the generic steps of creating a base version of a spreadsheet, creating a new version of the spreadsheet, and determining changes made to the original version.

ANCORA TECH., INC. v. HTC AMERICA, INC. (FED. CIR. 2018)

- **Outcome:** Claims satisfy *Alice* step one.
- **Procedure:** district court granted motion to dismiss under § 101.
- **Step one:**
 - **“Improving security—here, against a computer’s unauthorized use of a program—can be a non-abstract computer-functionality improvement if done by a specific technique that departs from earlier approaches to solve a specific computer problem.”**

ANCORA TECH., INC. v. HTC AMERICA, INC. (cont'd)

■ Step one (Cont'd):

- **“The claimed method here specifically identifies how that functionality improvement is effectuated in an assertedly unexpected way: a structure containing a license record is stored in a particular, modifiable, non-volatile portion of the computer’s BIOS, and the structure in that memory location is used for verification by interacting with the distinct computer memory that contains the program to be verified. In this way, the claim addresses a technological problem with computers: vulnerability of license-authorization software to hacking”**, which it **“does so by relying on specific and unique characteristics of certain aspects of the BIOS that the patent asserts.”**

Electric Power Group Line of Cases

ELECTRIC POWER GROUP, LLC V. ALSTOM S.A. (Fed. Cir., 2016)

- **Outcome: claims invalid**
- **Procedure: district court granted summary judgment**
- **Step one:**
 - **“The focus of the asserted claims, as illustrated by claim 12 quoted above, is on collecting information, analyzing it, and displaying certain results of the collection and analysis. We need not define the outer limits of ‘abstract idea,’ or at this stage exclude the possibility that any particular inventive means are to be found somewhere in the claims, to conclude that these claims focus on an abstract idea—and hence require stage-two analysis under § 101.”**

ELECTRIC POWER GROUP, LLC V. ALSTOM S.A.

(cont'd)

■ Step one (cont'd):

- “Accordingly, we have treated collecting information, including when limited to particular content (which does not change its character as information), as within the realm of abstract ideas.”
- “In a similar vein, we have treated analyzing information by steps people go through in their minds, or by mathematical algorithms, without more, as essentially mental processes within the abstract-idea category.”
- “And we have recognized that merely presenting the results of abstract processes of collecting and analyzing information, without more (such as identifying a particular tool for presentation), is abstract as an ancillary part of such collection and analysis.”

ELECTRIC POWER GROUP, LLC V. ALSTOM S.A.

(cont'd)

■ Step one (cont'd):

- “Here, the claims are clearly focused on the combination of those abstract-idea processes. The advance they purport to make is a process of gathering and analyzing information of a specified content, then displaying the results, and not any particular assertedly inventive technology for performing those functions. They are therefore directed to an abstract idea.”

■ Step two:

- “More particularly, a large portion of the lengthy claims is devoted to enumerating types of information and information sources available within the power-grid environment. But merely selecting information, by content or source, for collection, analysis, and display does nothing significant to differentiate a process from ordinary mental processes, whose implicit exclusion from § 101 undergirds the information-based category of abstract ideas.”

ELECTRIC POWER GROUP, LLC V. ALSTOM S.A.

(cont'd)

▪ Step two (cont'd):

- “[T]he claims’ invocation of computers, networks, and displays does not transform the claimed subject matter into patent-eligible applications. The claims at issue do not require any nonconventional computer, network, or display components, or even a ‘non-conventional and non-generic arrangement of known, conventional pieces,’ but merely call for performance of the claimed information collection, analysis, and display functions ‘on a set of generic computer components’ and display devices.”

CASES FOLLOWING ELECTRIC POWER GROUP

- ***TDE Petroleum Data Solutions Inc. v. AKM Enterprise Inc.***
 - As we recently reiterated in *Electric Power Group, LLC v. Alstom S.A.*, 830 F.3d 1350, 1353 (Fed. Cir. 2016), claims generally reciting ‘collecting information, analyzing it, and displaying certain results of the collection and analysis’ are ‘a familiar class of claims ‘directed to’ a patent-ineligible concept.’ Claim 1 of the ‘812 patent recites all but the ‘displaying’ step. Therefore, it is evident from our precedent that claim 1 is the sort of data gathering and processing claim that is directed to an abstract idea under step one of the *Alice* analysis.

CASES FOLLOWING ELECTRIC POWER GROUP (cont'd)

- ***FairWarning IP, LLC v. Iatric Systems, Inc.***
 - “We have explained that the ‘realm of abstract ideas’ includes ‘collecting information, including when limited to particular content.’ *Elec. Power Grp., LLC v. Alstom S.A.*, 830 F.3d 1350, 1353 (Fed. Cir.2016) (collecting cases). We have also ‘treated analyzing information by steps people go through in their minds, or by mathematical algorithms, without more, as essentially mental processes within the abstract-idea category.’... Here, the claims are directed to a combination of these abstract-idea categories. Specifically, the claims here are directed to collecting and analyzing information to detect misuse and notifying a user when misuse is detected.”

CASES FOLLOWING ELECTRIC POWER GROUP (cont'd)

- ***West View Research, LLC v. Audi AG (non-precedential)***
 - The Federal Circuit found a claim abstract that recited “a ‘computerized apparatus capable of interactive information exchange with a human user’ via ‘a microphone,’ ‘one or more processors,’ a ‘touch-screen input and display device,’ a ‘speech synthesis apparatus’ with ‘at least one speaker,’ an ‘input apparatus,’ and a ‘computer program’ that receives the user’s input and generates an audible or visual result” which also included a limitation “that allows the results to be wirelessly transmitted to a user’s ‘portable personal electronic device.’”
- ***Two-Way Media Ltd. v. Comcast Cable Comms, LLC***
 - The Federal Circuit found an invention abstract that streamed audio/visual data over a communications system because it was directed to “functional results” and “did not sufficiently describe how to achieve these results” by claiming “(1) sending information, (2) directing the sent information, (3) monitoring the receipt of the sent information, and (4) accumulating records about receipt of the sent information.”

VOIT TECH'S, LLC V. DEL-TON, INC., (Fed. Cir., 2019) (non-precedential)

- **Outcome: claims invalid**
- **Procedure: district court granted motion to dismiss**
- **Step one:**
 - The Asserted Claims are directed to the abstract idea of entering, transmitting, locating, compressing, storing, and displaying data (including text and image data) to facilitate the buying and selling of items. See '412 patent col. 11 ll. 5–53 (reciting, in claim 1,2 the process of, inter alia, (1) entering “text[] ... and image information” into a remote data terminal, (2) “data-compressing the image data,” (3) “receiving” the text and image data, creating multiple “unique records” before “storing,” “locating” and “transmitting” the text and image data separately, (4) “decompressing the images ... at the ... remote data terminal,” and (5) “displaying the de-compressed images along with textual information”).

VOIT TECH'S, LLC V. DEL-TON, INC., (cont'd)

■ Step one (Cont'd):

- The Court considered the claims analogous to those in *Electric Power Group v. Alstom* and *In re TLI*, because those had claims to “collect[],” “analyz[e],” and “display[]” information and to “transmit[]” digital images, respectively.
- Further, “that claims ‘purporting to improve the functioning of the computer ... might not succumb to the abstract idea exception,’ ...’Voit’s broad assertion that the Asserted Claims ‘allow[ed] more rapid transmission of higher resolution digital images’ via ‘advanced image data compression’ is unsupported.”

VOIT TECH'S, LLC V. DEL-TON, INC., (cont'd)

■ Step Two:

- “Voit has to do more than simply restate the claim limitations and assert that the claims are directed to a technological improvement without an explanation of the nature of that improvement.”
- “General statements of ‘advanced image data compression’ or faster communications will not suffice where it is unclear how the different compression format claim limitations actually achieve the alleged improvements.”

UNIV. OF FLA. RESEARCH FOUND., INC. V. GEN. ELEC. (Fed. Cir., 2019)

- **Outcome: claims invalid**
- **Procedure: district court granted motion to dismiss**
- **Step one:**
 - “At *Alice* step one, [the district court] determined the claims are directed to the abstract idea of ‘collecting, analyzing, manipulating, and displaying data.’”
 - “According to the ’251 patent, ‘[m]ost health care facilities ... acquire bedside patient information using pen and paper methodologies, such as flowsheets and patient charts... [and] [p]ortions of these flowsheets,’ it teaches, ‘can be manually entered into information systems to preserve patient information for administrative and research purposes.’”

UNIV. OF FLA. RESEARCH FOUND., INC. V. GEN. ELEC. (cont'd)

■ Step one (Cont'd):

- “Accordingly, the ’251 patent proposes replacing the ‘pen and paper methodologies’ with ‘data synthesis technology’ in the form of ‘device drivers written for the various bedside machines’ that allow the bedside device to present data from the various bedside machines ‘in a configurable fashion within a single interface.’”
- “On its face, the ’251 patent seeks to automate ‘pen and paper methodologies’ to conserve human resources and minimize errors. This is a quintessential ‘do it on a computer’ patent: it acknowledges that data from bedside machines was previously collected, analyzed, manipulated, and displayed manually, and it simply proposes doing so with a computer.”

UNIV. OF FLA. RESEARCH FOUND., INC. V. GEN. ELEC. (cont'd)

■ Step one (Cont'd):

- The claimed 'receiving physiologic treatment data from at least two bedside machines' employs 'any serial connection ... that can convey information as a serial data stream,' including the 'RS-232 connector' used in prior art bedside devices."
- "The claimed 'programmable action involving said machine-independent data' can be performed using '[a]ny kind of computer system or other apparatus,' including a 'general-purpose computer system.'"
- UFRF argued the claims improved the computer's function because the "claimed 'converting said physiologic treatment data from a machine specific format into a machine independent format within a computing device remotely located from said bedside machines' relies on 'a driver for each different bedside machine' that 'can interpret device specific protocols for data streams of the bedside machine.'"

UNIV. OF FLA. RESEARCH FOUND., INC. V. GEN. ELEC. (cont'd)

■ Step one (Cont'd):

- “Neither the '251 patent, nor its claims, explains how the drivers do the conversion that UFRF points to. That is, the drivers are described in purely functional terms”
- “The '251 patent nowhere identifies, and we cannot see in the claims, any 'specific improvement to the way computers operate.'”

■ Step two:

- “The '251 patent claims fare no better at Alice step two. UFRF argues the claims recite more than ‘well-understood, routine, conventional activit[ies]’ because the claimed ‘converting’ takes place at a location remote from the bedside machines.”
- “Here, the claims do no ‘more than simply instruct the practitioner to implement the abstract idea ... on a generic computer.’”

REESE V. SPRINT NEXTEL CORP. (Fed. Cir., 2019) (non-precedential)

- **Outcome: claims invalid**
- **Procedure: summary judgment**
- **Technology:**
 - “[The] patent relates to ... providing call waiting and caller ID service through the central office of a telephone provider.”
- **Claim construction as a prerequisite:**
 - “Although the determination of patent eligibility requires full understanding of the basic character of the claimed subject matter, claim construction is not an inviolable prerequisite....”
 - Claim construction not necessary when “there is no claim construction issue relevant to the eligibility issue” and that was the case here because “Reese [does not] argue that any limitations, either alone or in combination, in any of the parties’ constructions were anything but ‘well-understood, routine, [and] conventional....’”

REESE V. SPRINT NEXTEL CORP. (cont'd)

■ Step one:

- “The claims are directed to the abstract idea of receiving information (a calling phone number flagged as private) and sending an indication (an audible tone) to a party already engaged in a call. The claims do not recite any particular method of receiving the information and sending the indicating tone in response.”
- “The claims here are akin to concepts of receiving and displaying (indicating) information (an incoming call from a private number) that fall into a familiar class of claims directed to abstract ideas. See Elec. Power Grp., 830 F.3d at 1353.”
- “Accordingly, claims 23 and 32 are directed to a patent-ineligible abstract idea.”

REESE V. SPRINT NEXTEL CORP. (cont'd)

■ Step two:

- **“Reese does not point to any non-generic telephone network components and instead, asserts that ‘no successful combination of caller ID and call waiting yet existed’ and that his ‘combination of known switching equipment with the steps set forth’ in the claims removes them from abstractness.”**
- **“[T]he claims ... only recite steps that the ’150 patent itself describes as prior art....”**
- **“Further, the claims recite functional language lacking ‘any requirements for *how* the desired result is achieved.”**
- **“Accordingly, the claims do not contain an inventive concept.”**

BOZEMAN FINANCIAL LLC V. FEDERAL RESERVE BANK OF ATLANTA (Fed. Cir., 2020)

- **Outcome: Claims invalid**
- **Procedure: PTAB found claims ineligible in CBM Review**
- **Technology:**
 - Detecting fraud in financial transactions during payment clearing.
- **Step one:**
 - “Claim 1 of the ’840 patent claims a method of receiving data from two financial records, storing that data, comparing that data, and displaying the results. As the specification explains, ‘[t]he present invention relates to a Universal Positive Pay Database method, system, and/or computer useable medium to reduce check fraud and verify checks, other financial instruments and documents.’...Verifying financial documents to reduce transactional fraud is a fundamental business practice that, without more, is not eligible for patent protection.”

BOZEMAN FINANCIAL LLC V. FEDERAL RESERVE BANK OF ATLANTA (cont'd)

- **Step one:**
 - “[V]erifying a transaction to avoid fraud, in particular check fraud, is a long-standing commercial practice.”
 - “Moreover, the use of well-known computer components to collect, analyze, and present data, in this case to verify financial transactions, does not render these claims any less abstract. See *Elec. Power Grp.*”
- **Step two:**
 - “The '840 patent specification explains that methods for inhibiting check fraud and verifying financial transactions were well-known...The specification further demonstrates that the technological components recited in claim 1 of the '840 patent were conventional, off-the-shelf computer components.”

IN RE ROSENBERG (Fed. Cir., 2020) (non-precedential)

- **Outcome: Claims invalid**
- **Procedure: PTAB affirmed Examiner's rejection**
- **Technology:**
 - A method and system to collect performance-related data about a clinical trial, analyze that data, and report on whether any adjustments should be made to the clinical trial based on the review of the collected data.
- **Step one:**
 - “We agree with the Board that Mr. Rosenberg’s claims are directed to the basic idea of deciding whether to fine-tune a given system (here, a clinical trial) based on reviewing the system’s performance data.”
 - The claims were similar to those in *Electric Power* as performing mental steps of “assessing,” “evaluating,” “monitoring,” “determining,” and “providing.”

IN RE ROSENBERG (cont'd)

- **Step two:**
 - “Mr. Rosenberg’s arguments that novelty of the abstract idea itself ... is the transformative inventive concept are not sufficient to meet step 2. ‘[A] claim for a *new* abstract idea is still an abstract idea.’”
 - “Mr. Rosenberg argues that the claimed ‘pre-programmed computer module’ is not a generic computer component because the ‘determining’ and ‘providing instructions’ steps are ‘specific to the analysis of performance metric data.’... But Mr. Rosenberg offers no explanation, and we see none, as to why these claimed steps of his abstract process would require anything more than conventional computer functionality to perform.”

Recent Fed. Cir. § 101 Software/Computer Cases

CHARGEPOINT, INC V. SEMACONNECT, INC. (Fed. Cir., 2019)

- **Outcome: claims invalid**
- **Procedure: district court dismissed under 12(b)(6)**
- **Technology:**
 - ChargePoint alleged that its “inventions enabled individual charging stations to be networked together to allow site hosts, drivers, and utility companies to communicate in real time....”
 - “[T]he patents describe the ability to locate available charging stations remotely.”
 - “[T]he availability of electricity may be based on power grid data provided by a utility company.”
 - “[D]rivers can choose to transfer power from their vehicles to the power grid....”

CHARGEPOINT, INC V. SEMACONNECT, INC. (cont'd)

■ Step one:

- “While ‘[t]he § 101 inquiry must focus on the [claim language],’ the specification may nonetheless be useful in illuminating whether the claims are ‘directed to’ the identified abstract idea.”
- “[T]he ‘directed to’ inquiry may require claim construction, which will often involve consideration of the specification.”
- “The ‘directed to’ inquiry may also involve looking to the specification to understand ‘the problem facing the inventor’ and, ultimately, what the patent describes as the invention.”

CHARGEPOINT, INC V. SEMACONNECT, INC. (cont'd)

■ Step one (cont'd):

- “The problem identified by the patentee, as stated in the specification, was the lack of a communication network that would allow drivers, businesses, and utility companies to interact efficiently with the charging stations.”
- “The specification also makes clear—by what it states and what it does not—that the invention of the '715 patent is the idea of *network-controlled* charging stations. The summary of the invention states: ‘A system for network-controlled charging of electric vehicles and the network-controlled electrical outlets used in this system are described herein.’...The specification then goes on to describe a networked system in which, among other things, drivers can determine whether a charging station is available, drivers can pay to charge their vehicles, and utility companies can supply information to charging stations from a demand response system.”

CHARGEPOINT, INC V. SEMACONNECT, INC. (cont'd)

■ Step one (cont'd):

- “Notably, however, the specification never suggests that the charging station itself is improved from a technical perspective, or that it would operate differently than it otherwise could. Nor does the specification suggest that the invention involved overcoming some sort of technical difficulty in adding networking capability to the charging stations.”
- “In short, looking at the problem identified in the patent, as well as the way the patent describes the invention, the specification suggests that the invention of the patent is nothing more than the abstract idea of communication over a network for interacting with a device, applied to the context of electric vehicle charging stations.”
- “Although this is not necessarily dispositive of the ‘directed to’ inquiry, it strongly suggests that the abstract idea identified in claim 1 may indeed be the focus of that claim.”

CHARGEPOINT, INC V. SEMACONNECT, INC. (cont'd)

■ Step one (cont'd):

- “[C]laim 1 would preempt the use of any networked charging stations.”
- “The breadth of the claim language here illustrates why any reliance on the specification in the § 101 analysis must always yield to the claim language.”
- “As we explained in *Interval Licensing LLC v. AOL, Inc.*, in *Morse* and *Wyeth*, each inventor ‘lost a claim that encompassed all solutions for achieving a desired result’ because those claims ‘were drafted in such a result-oriented way that they amounted to encompassing the ‘principle in the abstract’ no matter how implemented.”
- In short, the inventors here had the good idea to add networking capabilities to existing charging stations to facilitate various business interactions. But that is where they stopped, and that is all they patented.”

CHARGEPOINT, INC V. SEMACONNECT, INC. (cont'd)

■ Step one (cont'd):

- “As to dependent claim 2, the additional limitation of an ‘electrical coupler to make a connection with an electric vehicle’ does not alter our step one analysis. The character of claim 2, as a whole, remains directed to the abstract idea of communication over a network to interact with a device, applied in the context of charging stations.”
- “Claim 1 of the '131 patent is almost identical to claim 1 of the '715 patent. The key differences are that the apparatus in claim 1 of the '131 patent does not make requests for charge transfer (it only receives them) and that the electricity supply is modified ‘based on the communications received as part of the demand response system.’ '131 patent claim 1. Because of the similarity to claim 1 of the '715 patent, we incorporate our analysis of that claim...”

CHARGEPOINT, INC V. SEMACONNECT, INC. (cont'd)

■ Step one (cont'd):

- The Court was not persuaded that “claims 1 and 8 of the '131 patent teach ‘a charging station with improved technical features that enable it to adjust the amount of electricity delivered to cars based on demand-response communications with utilities’” because “nothing in the specification explains from a technical perspective how that modification occurs. And the fact that the electricity flow is modified based on demand response principles does nothing to make this claim directed to something other than the abstract idea. Demand response is itself an abstract concept—a familiar business choice to alter terms of dealing to help match supply and demand.”
- The Court also held that demand response “merely refers to the content of the communications received by the charging station.”

CHARGEPOINT, INC V. SEMACONNECT, INC. (cont'd)

■ Step one (cont'd):

- With regard to method claims 1 and 2 of the '967 patent, the Court concluded these claims were “similar to those discussed above” and “the patent never discusses any technical details regarding how to modify electricity flow, and the fact that any modifications are made in response to demand response policy merely adds one abstract concept to another.”
- Regarding claims 31 and 32 of the '570 patent, “the specification does not suggest that the inventors' discovery was the particular arrangement of components claimed.”
 - Although those claims included “improvements like the ‘current measuring device’ and ‘communication device’ to connect a ‘mobile wireless communication device,’there is no indication that the invention of the '570 patent was intended to improve those particular components or that the inventors viewed the combination of those components as their invention. The only improvement alleged is use of the concept of network communication to interact with the particular devices.”

CHARGEPOINT, INC V. SEMACONNECT, INC. (cont'd)

- **Step one (cont'd):**
 - “In short, while the eight claims on appeal vary in some respects, they are all directed to the abstract idea of communicating over a network for device interaction. Communication over a network for that purpose has been and continues to be a ‘building block of the modern economy.’”

CHARGEPOINT, INC V. SEMACONNECT, INC. (cont'd)

- **Step two:**
 - **ChargePoint argued that it alleged sufficient factual allegations to preclude dismissal under 12(b)(6), and that its “patents represent an unconventional solution to technological problems in the field, and thus contain an inventive concept.”**
 - **“The problems in the art identified by ChargePoint are, generally: the sparse availability of charging stations and the need for more widespread stations; the need for a communication network that facilitates finding an available charging station, controlling the station, and paying for electricity; and the need for real time communication to effectively implement demand response and vehicle-to-grid transfer.”**
 - **“ChargePoint contends that it solved these problems in an unconventional way through: (a) the ability to turn electric supply on based on communications from a remote server; (b) a ‘network-controlled’ charging system; and (c) a charging station that receives communication from a remote server, including communications made to implement a demand response policy.”**

CHARGEPOINT, INC V. SEMACONNECT, INC. (cont'd)

■ Step two (cont'd):

- “In essence, the alleged ‘inventive concept’ that solves problems identified in the field is that the charging stations are network-controlled. But network control is the abstract idea itself, and ‘a claimed invention’s use of the ineligible concept to which it is directed cannot supply the inventive concept that renders the invention ‘significantly more’ than that ineligible concept.’”
- “In addition to the general arguments above, ChargePoint highlights certain aspects of each asserted claim. We address each argument in turn. First, with respect to claims 1 and 2 of the '715 patent, as well as claims 31 and 32 of the '570 patent, ChargePoint points to the ability to operate charging stations remotely as solving a problem in the field... This, again, merely mirrors the abstract idea itself and thus cannot supply an inventive concept.”

CHARGEPOINT, INC V. SEMACONNECT, INC. (cont'd)

■ Step two (cont'd):

- “Turning to claims 1 and 8 of the '131 patent, as well as claims 1 and 2 of the '967 patent, ChargePoint contends that these claims capture technical improvements related to demand response....ChargePoint disputes the district court's conclusion that ‘the combination of connecting generic networking equipment to a charging device to carry out a demand response plan already existed and was well-understood, routine, and conventional.’...But, as the district court pointed out, the ‘Background of the Invention’ section of the specification demonstrates that demand response has been in use in other consumer services, such as with air conditioning and lighting, which may be reduced during periods of high demand....Indeed, demand response is simply a familiar business choice of terms of dealing to help match supply and demand. This cannot supply an inventive concept in this case.”

CHARGEPOINT, INC V. SEMACONNECT, INC. (cont'd)

■ Step two (cont'd):

- “Here, the claims do nothing to improve how charging stations function....This is simply an ‘abstract-idea-based solution implemented with generic technical components.’”
- “[T]he only possible inventive concept in the eight asserted claims is the abstract idea itself.”

■ Miscellaneous:

- ChargePoint argued that the district court erred by refusing to consider ChargePoint’s submitted declarations, which it alleged “would have aided the district court in analyzing step two.” The Court saw no error because the district court is not “required to consider such materials under these circumstances.”
- ChargePoint also argued the district court erred by dismissing with prejudice, precluding it from amending its complaint. But it “never requested that its complaint be dismissed without prejudice nor did [it] seek leave from the district court to amend its complaint.”

CUSTOMEDIA TECHS., LLC V. DISH NETWORK CORP. (Fed. Cir., 2020)

- **Outcome: Claims invalid**
- **Procedure: FWD in CBM found claims ineligible**
- **Technology:**
 - A data delivery system for providing automatic delivery of specifically identified advertising data.
- **Step one:**
 - “To be a patent-eligible improvement to computer functionality, we have required the claims to be directed to an improvement in the functionality of the computer or network platform itself.”
 - “We have held that it is not enough, however, to merely improve a fundamental practice or abstract process by invoking a computer merely as a tool.”

CUSTOMEDIA TECHS., LLC V. DISH NETWORK CORP. (cont'd)

■ Step one (cont'd):

- “We have also held that improving a user’s experience while using a computer application is not, without more, sufficient to render the claims directed to an improvement in computer functionality.”
- “In sum, ‘software can make non-abstract improvements to computer technology just as hardware improvements can.’”
- “The claims ... do not enable computers to operate more quickly or efficiently, nor do they solve any technological problem. They merely recite reserving memory to ensure storage space is available for at least some advertising data. The specification is silent as to any specific structural or inventive improvements in computer functionality... The only improvements identified in the specification are generic speed and efficient improvements inherent in applying the use of a computer to any task.”

CUSTOMEDIA TECHS., LLC V. DISH NETWORK CORP. (cont'd)

- **Step two:**
 - “At step two, the Board held that the elements of the claims, considered individually and as an ordered combination, fail to recite an inventive concept. We agree. Aside from the abstract idea of delivering targeted advertising, the claims recite only generic computer components, including a programmable receiver unit, a storage device, a remote server and a processor.”
 - “Customedia argues that the claims are eligible under *Alice* step two because the use of a programmable receiver to dedicate a section of storage for storing only ‘specifically identified advertising data’ was innovative over prior art approaches. However, the invocation of ‘already-available computers that are not themselves plausibly asserted to be an advance ... amounts to a recitation of what is well-understood, routine, and conventional.’”

CUSTOMEDIA TECHS., LLC V. DISH NETWORK CORP. (cont'd)

- **Step two:**
 - “The specification acknowledges that the storage device ‘may be any storage device for audio/video information known in the art’ and the receiver unit may include ‘any digital or analog signal receiver and/or transmitter capable of accepting a signal transmitting any kind of digital or broadcast information.’ Such generic and functional hardware is insufficient to render eligible claims directed to an abstract idea.”

CUSTOMEDIA TECHS., LLC V. DISH NETWORK CORP.

(cont'd)

1. A data delivery system for providing automatic delivery of multimedia data products from one or more multimedia data product providers, the system comprising:

- a remote account transaction server for providing multimedia data products to an end user, at least one of the multimedia data products being specifically identified advertising data; and**
- a programmable local receiver unit for interfacing with the remote account transaction server to receive one or more of the multimedia data products and for processing and automatically recording the multimedia data products, said programmable local receiver unit including at least one individually controlled and reserved advertising data storage section adapted specifically for storing the specifically identified advertising data, said at least one advertising data storage section being monitored and controlled by said remote account transaction server and such that said specifically identified advertising data is delivered by said remote account transaction server and stored in said at least one individually controlled and reserved advertising data storage section.**

ERICSSON INC. V. TCL COMMS. TECH. HOLDINGS LTD. (Fed. Cir., 2020)

- **Outcome: Claims invalid**
- **Procedure: District court denied SJ that claims were ineligible**
- **Technology:**
 - A method and system for limiting and controlling access to resources in a telecommunications system.
- **Step one:**
 - “Based on the claim language, we conclude that claims 1 and 5 are directed to the abstract idea of controlling access to, or limiting permission to, resources. Although written in technical jargon, a close analysis of the claims reveals that they require nothing more than this abstract idea.”

ERICSSON INC. V. TCL COMMS. TECH. HOLDINGS LTD. (cont'd)

■ Step one (cont'd):

- “The first limitation recites ‘a platform having a software services component and an interface component,’ for the ultimate goal of ‘enabling application domain software to be installed, loaded, and run in the platform.’...This recitation of functional computer components does not specify how the claim ‘control[s] access to a platform,’ nor does it direct the claim to anything other than that abstract idea.”
- “Controlling access to resources is exactly the sort of process that ‘can be performed in the human mind, or by a human using a pen and paper.’”

ERICSSON INC. V. TCL COMMS. TECH. HOLDINGS LTD. (cont'd)

- **Step two:**
 - **“Because the architecture identified by Ericsson as inventive does not appear in claims 1 or 5 of the ’510 patent, we conclude at step two that claims 1 and 5 do not provide a sufficient inventive concept to render them patent eligible. The most specific elements actually recited in the claim are ‘an access controller for controlling access,’ ‘an interception module for receiving a request,’ and ‘a decision entity for determining if the request should be granted.’...None of these elements are sufficient to turn the claim into anything more than a generic computer for performing the abstract idea of controlling access to resources.”**

ERICSSON INC. V. TCL COMMS. TECH. HOLDINGS LTD. (cont'd)

- 1. A system for controlling access to a platform, the system comprising:
 - a platform having a software services component and an interface component, the interface component having at least one interface for providing access to the software services component for enabling application domain software to be installed, loaded, and run in the platform;**
 - an access controller for controlling access to the software services component by a requesting application domain software via the at least one interface, the access controller comprising:
 - an interception module for receiving a request from the requesting application domain software to access the software services component;**
 - and a decision entity for determining if the request should be granted wherein the decision entity is a security access manager, the security access manager holding access and permission policies; and****
 - wherein the requesting application domain software is granted access to the software services component via the at least one interface if the request is granted.****

BRITISH TELECOMS. PLC V. IAC/INTERACTIVE CORP. (Fed. Cir., 2020) (non-precedential)

- **Outcome: Claims invalid**
- **Procedure: District Court MTD**
- **Technology:**
 - Method of tracking a user's location, generating a "shortlist" of information sources relevant to the user's location, and transmitting that shortlist to the user's terminal
- **Step one:**
 - The claims are directed to the abstract idea of "providing lists of location-specific information sources to users based on their location. We have previously held that tailoring ... information to a user's characteristics, such as location, is an abstract idea."
- **Step two:**
 - The claims included only generic computer hardware.

BRITISH TELECOMS. PLC V. IAC/INTERACTIVE CORP. (cont'd)

- 1. A method of selecting information sources from which information is provided to users via a telecommunications system, said method comprising:
 - tracking the location of a user in the system by receipt of tracking information for said user;**
 - accessing location data indicating localities in which information from the respective sources is deemed to be relevant;**
 - generating a shortlist of information sources for said user on the basis of said tracking information and said location data; and**
 - transmitting said shortlist to a terminal associated with said user so as to allow said user to select an information source of interest and thereby to access information from said source.****

ADAPTIVE STREAMING INC. V. NETFLIX, INC. (Fed. Cir., 2020) (non-precedential)

- **Outcome: claims invalid**
- **Procedure: district court granted motion to dismiss**
- **Technology:**
 - Digital video processing techniques.
- **Step one:**
 - **“[T]he district court concluded that the claims of the ’305 patent are directed to the abstract idea of ‘collecting information and transcoding it into multiple formats.’...That conclusion assumes for purposes of eligibility analysis that, despite the ‘at least one client device’ language, which might suggest coverage of a system limited to sending to a single device, the claims require, as suggested by at least the term ‘broadcast,’ the ability to send to multiple devices. We agree with the district court's characterization of what the claims are directed to.”**

ADAPTIVE STREAMING INC. V. NETFLIX, INC. (Cont'd)

■ Step one (cont'd):

- “In this case, the claims and written description make clear that the focus of the claimed advance is the abstract idea of format conversion, from an incoming signal's format to a variety of formats suited to different destination devices. The focus is not any specific advance in coding or other techniques for implementing that idea; no such specific technique is required.”

ADAPTIVE STREAMING INC. V. NETFLIX, INC. (Cont'd)

■ Step one (cont'd):

- The patent's specification "explains the familiarity of translation of content—from a format (including a language) of a sender to one suited to a recipient—as a fundamental communication practice in both the electronic and pre-electronic worlds. ...We have held that the ideas of encoding and decoding image data and of converting formats, including when data is received from one medium and sent along through another, are by themselves abstract ideas, and accordingly concluded that claims focused on those general ideas governing basic communication practices, not on any more specific purported advance in implementation, were directed to abstract ideas.

ADAPTIVE STREAMING INC. V. NETFLIX, INC. (Cont'd)

- **Step two:**
 - “The claims also flunk the second step of the *Alice* inquiry: They do not incorporate anything more that would suffice to transform their subject matter into an eligible application of the abstract idea. Claims 39, 40, and 42 recite only generic computer hardware....”
 - “Adaptive suggests that the Patent and Trademark Office’s novelty and non-obviousness determinations, rendered in issuing the patent, undermine our conclusion. They do not. We have explained that satisfying the requirements of novelty and non-obviousness does not imply eligibility under § 101, including under the second step of the *Alice* inquiry, because what may be novel and non-obvious may still be abstract.”

ADAPTIVE STREAMING INC. V. NETFLIX, INC. (Cont'd)

- 39. A system to broadcast to at least one client device, the system comprising:**
- a processor; and**
 - a broadcasting server coupled to the processor, the broadcasting server including:**
 - an image retrieval portion to retrieve at least one incoming video signal having a first format;**
 - a data structure usable to determine parameters for second compression formats for the at least one incoming video signal; and**
 - at least one transcoding module coupled to the image retrieval portion and which has access to the data structure, the transcoding module being capable to transcode the at least one incoming video signal from the first format into multiple compressed output video signals having respective second compression formats based at least in part on the parameters;**
 - wherein at least one of the second compression formats is more suitable for the at least one client device than the first format; and**
 - wherein the multiple compressed output video signals having the at least one second compression format more suitable for the at least one client device can be provided by the broadcasting server, wherein any one of the multiple compressed output video signals can be selected to be presented at the at least one client device.**

SIMIO, LLC V. FLEXSIM SOFTWARE PRODUCTS, INC. (Fed. Cir., 2020)

- **Outcome: claims invalid**
- **Procedure: district court granted motion to dismiss**
- **Technology:**
 - A system for creating intelligent simulation objects using graphical process descriptions.
- **Step one:**
 - “Under step one’s directed-to inquiry, we ask ‘what the patent asserts to be the focus of the claimed advance over the prior art....’”
 - “As the ’468 patent acknowledges, using graphical processes to simplify simulation building has been done since the 1980s and 1990s. ...Simply applying the already-widespread practice of using graphics instead of programming to the environment of object-oriented simulations is no more than an abstract idea.”

SIMIO, LLC V. FLEXSIM SOFTWARE PRODUCTS, INC. (Cont'd)

■ Step one (cont'd):

- “Simio argues that the claim ‘improves on the functionality of prior simulation systems through the use of graphical or process modeling flowcharts with no programming code required.’...But this argument does not explain how the *computer’s* functionality is improved beyond the inherent improvement of the experience of a user who cannot (or maybe, would rather not) use programming. In this case, ‘improving a user’s experience while using a computer application is not, without more, sufficient to render the claims directed to an improvement in computer functionality.’”
- “In stark contrast to its heavy focus on the abstract idea of using graphics instead of programming to create object-oriented simulations, the specification dedicates relatively little attention to the functionality reflected in the executable-process limitation.”

SIMIO, LLC V. FLEXSIM SOFTWARE PRODUCTS, INC. (Cont'd)

■ Step one (cont'd):

- “This disparity—in both quality and quantity—between how the specification treats the abstract idea and how it treats the executable-process limitation suggests that the former remains the claim’s focus.”

SIMIO, LLC V. FLEXSIM SOFTWARE PRODUCTS, INC. (Cont'd)

- **Step two:**
 - “[W]hile Simio acknowledges that implementing the executable process's functionality through *programming* was conventional or known, it contends that doing so with *graphics* in a simulation provides the inventive concept necessary to confer eligibility. But what Simio relies on is just the abstract idea itself, which ‘cannot supply the inventive concept that renders the invention ‘significantly more’ than that [abstract idea]’ at step two.”
 - “And that's really what we have: a claim directed to the idea of using graphics instead of programming to create object-oriented simulations—maybe a new idea, but still an abstract one—and lacking any inventive concept, any meaningful *application* of this idea, sufficient to save the claim's eligibility.”

SIMIO, LLC V. FLEXSIM SOFTWARE PRODUCTS, INC.

(Cont'd)

1. A computer-based system for developing simulation models on a physical computing device, the system comprising:

one or more graphical processes;

one or more base objects created from the one or more graphical processes, wherein a new object is created from a base object of the one or more base objects by a user by assigning the one or more graphical processes to the base object of the one or more base objects;

wherein the new object is implemented in a 3-tier structure comprising:

an object definition, wherein the object definition includes a behavior,

one or more object instances related to the object definition, and

one or more object realizations related to the one or more object instances;

wherein the behavior of the object definition is shared by the one or more object instances and the one or more object realizations; and

an executable process to add a new behavior directly to an object instance of the one or more object instances without changing the object definition and the added new behavior is executed only for that one instance of the object.

CXLOYALTY V. MARITZ (Fed. Cir., 2021)

- **Outcome:** original and amended claims invalid
- **Procedure:** CBM appeal. PTAB found original claims patent ineligible, but the amended claims patent eligible.
- **Technology:**
 - Method for permitting a loyalty program customer to redeem loyalty points for rewards offered by vendors without the need for human intervention.
- **Step one – original claims:**
 - “Because representative claim 1 is directed to transfers of information relating to a longstanding commercial practice, the claim is directed to an abstract idea.”

CXLOYALTY V. MARITZ (Cont'd)

- **Step two - original claims:**
 - “The claims amount to nothing more than applying the above-identified abstract idea using techniques that are, whether considered individually or as an ordered combination, well-understood, routine, and conventional. The claims apply the abstract idea on a computer by replacing the human intermediary with a GUI and API....”
 - “Maritz also argues that the claims are eligible under § 101 because they recite novel and nonobvious subject matter. However, even if “[w]e may assume that the techniques claimed are “[g]roundbreaking, innovative, or even brilliant,” ... that is not enough for eligibility.”

CXLOYALTY V. MARITZ (Cont'd)

■ Amended claims:

- “Maritz argues that the added limitation constitutes a technological solution to a technological problem. However, Maritz does not contend that the claimed invention improves the use of computers as a tool by reciting a new way for computers to conduct format conversion. Nor do the claims provide any guidance as to how this purported function is achieved”
- “Maritz also argues that claim 16 is patent eligible because it recites unconventional subject matter.... But, as explained previously, our cases are clear that a patent claim is not eligible under § 101 merely because it recites novel subject matter.”

CXLOYALTY V. MARITZ (Cont'd)

16 (replaces claim 1): A computerized system for use by [[a]] participants of a program which awards points to the participants, wherein the awarded points for each participant are maintained in a point account for the respective participant, said system for permitting [[the]] each participant to transact a purchase using the respective awarded points with a vendor system which transacts purchases in currency, said system comprising a processor including instructions for defining:

- an application programming interface (API) for interfacing with the vendor system;
- a program account hidden from the participants connected to the program for use in currency transactions;
- a program database storing information about the program including a listing of the point accounts of the participants;
- a graphical user interface (GUI) for providing an interface between the participants and the API and for communicating with the program, wherein the GUI is configured so that the participants can connect to the GUI using an internet connection;
- wherein said GUI includes instructions for receiving participant-related information from [[the]] each participant via the internet connection and providing the received participant-related information to the API;
- wherein said GUI includes instructions for receiving information regarding the program account hidden from the participants and for providing the received program account information to the API;
- wherein said API is adapted to receive the participant-related information and the program account information from the GUI and adapted to provide the received participant-related information and the received program account information to the vendor system;
- wherein said API is adapted to receive vendor-related information from the vendor system in a format of the vendor system and adapted to provide the received vendor-related information to the GUI; [[and]]
- wherein said GUI includes instructions for receiving vendor-related information from the API, for converting the received vendor-related information from the format of the vendor system into a format of the GUI, and for providing the received vendor-related information to the participants in the format of the GUI via the internet connection;
- wherein the computerized system is configured to use the program account to complete purchase transactions with the vendor system based on participant-related information received from the participants via the internet connection including purchase requests based on points; and
- wherein in response to each completed purchase transaction, the computerized system is configured to store an indication of the completed purchase transaction in the program database and display an order message indicating the completion of the purchase transaction to the respective participant;
- such that from the perspective of the participants, the participants use[[s]] the GUI to conduct [[a]] the purchase transactions with the vendor system based in whole or in part on the points in [[the]] each participant's point account; and
- such that from the perspective of the vendor system, the vendor system conducts the purchase transactions with the participants as [[a]] currency transactions based on the program's program account hidden from the participants whereby the participants [[is]] are not aware that the purchase transactions with the vendor system [[is]] are being transacted using the program account.

IN RE: BOARD OF TRUSTEES OF LELAND STANFORD JUNIOR UNIVERSITY (Fed. Cir., March 25, 2021)

- **Outcome: Claims invalid**
- **Procedure: Appeal from PTAB affirming examiner's rejection.**
- **Technology:**
 - **The application is directed to computerized statistical methods for determining haplotype phase. A haplotype phase acts as an indication of the parent from whom a gene has been inherited.**
- **Step one:**
 - **“We conclude ... that the reviewed claims of the '982 application are directed to patent ineligible abstract ideas. Specifically, the claims are directed to the use of mathematical calculations and statistical modeling. Courts have long held that mathematical algorithms for performing calculations, without more, are patent ineligible under § 101.”**

IN RE: BOARD OF TRUSTEES OF LELAND STANFORD JUNIOR UNIVERSITY (Cont'd)

■ Step one (cont'd):

- “Stanford suggests that one claimed advance is greater efficiency in computing haplotype phase. But Stanford has forfeited its argument that greater computational efficiency renders claim 1 patent eligible by failing to raise it before the Board.”
- “Stanford separately suggests that another claimed advance is that the claim steps result in more accurate haplotype predictions.... The different use of a mathematical calculation, even one that yields different or better results, does not render patent eligible subject matter.”

■ Step two:

- “Using a conventional computer to receive, extract, and store information does not transform an abstract idea into patent eligible subject matter.”

IN RE: BOARD OF TRUSTEES OF LELAND STANFORD JUNIOR UNIVERSITY (Cont'd)

1. A computerized method for inferring haplotype phase in a collection of unrelated individuals, comprising:

receiving genotype data describing human genotypes for a plurality of individuals and storing the genotype data on a memory of a computer system;

imputing an initial haplotype phase for each individual in the plurality of individuals based on a statistical model and storing the initial haplotype phase for each individual in the plurality of individuals on a computer system comprising a processor a memory [sic];

building a data structure describing a Hidden Markov Model, where the data structure contains:

a set of imputed haplotype phases comprising the imputed initial haplotype phases for each individual in the plurality of individuals;

a set of parameters comprising local recombination rates and mutation rates;

wherein any change to the set of imputed haplotype phases contained within the data structure automatically results in re-computation of the set of parameters comprising local recombination rates and mutation rates contained within the data structure;

repeatedly randomly modifying at least one of the imputed initial haplotype phases in the set of imputed haplotype phases to automatically re-compute a new set of parameters comprising local recombination rates and mutation rates that are stored within the data structure;

automatically replacing an imputed haplotype phase for an individual with a randomly modified haplotype phase within the data structure, when the new set of parameters indicate that the randomly modified haplotype phase is more likely than an existing imputed haplotype phase;

extracting at least one final predicted haplotype phase from the data structure as a phased haplotype for an individual; and

storing the at least one final predicted haplotype phase for the individual on a memory of a computer system.

FREE STREAM MEDIA V. ALPHONSO INC. (Fed. Cir., May 11, 2021)

- **Outcome: Claims invalid**
- **Procedure: Appeal from denial of motion to dismiss**
- **Technology:**
 - Providing a mobile phone user with targeted advertisements.
- **Step one:**
 - “There is nothing in claims 1 or 10 that demonstrates an improvement to computer functionality. And, even assuming, as Samba argues, that the claimed advance is in the ability to pierce the sandbox of a mobile device, Samba has not demonstrated that this is something more than a mere use of a computer as a tool....Therefore, the alleged technological improvement does nothing more than implement a computer to achieve the abstract idea of providing targeted advertising to the mobile device user.”
 - “Samba’s claims merely improve the abstract idea of targeted advertising.”

FREE STREAM MEDIA V. ALPHONSO INC. (Cont'd)

- **Step two:**
 - “We have explained that an abstract idea is not patentable if it does not provide an inventive solution to a problem in implementing the idea. The claims here simply recite that the abstract idea will be implemented using conventional components and functions generic to the technology.”
 - “[U]nlike in *BASCOM*, the claimed elements of Samba’s asserted claims comprise generic computing components...arranged in a conventional manner and thus does not transform the claim into something other than the abstract idea.

YU V. APPLE INC. (Fed. Cir., June 11, 2021)

- **Outcome: Claims invalid (2-1)**
- **Procedure: Appeal from motion to dismiss**
- **Technology:**
 - Digital camera using multiple sensors with multiple lenses.
- **Step one:**
 - “At the outset, we note that claim 1 results in ‘producing a resultant digital image from said first digital image enhanced with said second digital image.’ Yu does not dispute that, as the district court observed, the idea and practice of using multiple pictures to enhance each other has been known by photographers for over a century. Rather, Yu contends that claim 1 is directed to a patent-eligible application of this idea as opposed to just the idea itself.”

YU V. APPLE INC. (Cont'd)

■ Step one (cont'd):

- “The claim’s remaining limitations undercut Yu’s contention. Only conventional camera components are recited to effectuate the resulting “enhanced” image—two image sensors, two lenses, an analog-to-digital converting circuitry, an image memory, and a digital image processor. Indeed, it is undisputed that these components were well known and conventional. ”
- “This is consistent with the specification’s identification of the ‘great need for a *generic* solution that makes digital cameras capable of producing high resolution images without [high] cost.’ ’289 patent col. 2 ll. 3–6 (emphasis added). What is claimed is simply a generic environment in which to carry out the abstract idea.”

YU V. APPLE INC. (Cont'd)

■ Step one (cont'd):

- In response to Yu's argument that the claims reflect an improvement to camera functionality to overcome low-resolution and color problems, the Court held **"claim 1's solution to those problems is the abstract idea itself—to take one image and 'enhance' it with another."**
- In response to Yu's argument that the specification describes a particular configuration of lenses and image sensors, the Court found that the claims recite nothing more than the abstract idea. **"In these circumstances, the mismatch between the specification statements that Yu points to and the breadth of claim 1 underscores that the focus of the claimed advance is the abstract idea and not the particular configuration discussed in the specification that allegedly departs from the prior art."**
- **"[C]laim 1 ... is directed to an abstract idea."**

YU V. APPLE INC. (Cont'd)

■ Step two:

- **“[W]e conclude that claim 1 does not include an inventive concept sufficient to transform the claimed abstract idea into a patent-eligible invention. Because claim 1 is recited at a high level of generality and merely invokes well-understood, routine, conventional components to apply the abstract idea identified above....”**
- **In response to Yu’s argument that the file history shows the novelty of the claims, the Court held that “even if claim 1 recites novel subject matter, that fact is insufficient by itself to confer eligibility.”**
- **In response to Yu’s argument that the claimed hardware configuration is “vital” to perform the claimed processing, the Court held “Conventional computer equipment can be ‘vital’ to an advance that is still abstract, but not suffice to avoid ineligibility.”**
- **“In sum, we see no inventive concept in claim 1....”**

YU V. APPLE INC. (Cont'd)

■ How far we've come! (footnote 2)

- “We note that Yu’s claimed invention is couched as an improved machine (an “improved digital camera”). But whether a device is “a tangible system (in § 101 terms, a ‘machine’)” is not dispositive. See *Alice*, 573 U.S. at 224; *In re TLI Commc’ns*, 823 F.3d at 611 (“[N]ot every claim that recites concrete, tangible components escapes the reach of the abstract-idea inquiry.”). As discussed herein, the focus of claim 1 is the abstract idea.”

■ Dissent (Newman)

- “This camera is a mechanical and electronic device of defined structure and mechanism; it is not an ‘abstract idea.’ Observation of the claims makes clear that they are for a specific digital camera....”

YU V. APPLE INC. (Cont'd)

1. An improved digital camera comprising:

a first and a second image sensor closely positioned with respect to a common plane, said second image sensor sensitive to a full region of visible color spectrum;

two lenses, each being mounted in front of one of said two image sensors;

said first image sensor producing a first image and said second image sensor producing a second image;

an analog-to-digital converting circuitry coupled to said first and said second image sensor and digitizing said first and said second intensity images to produce correspondingly a first digital image and a second digital image;

an image memory, coupled to said analog-to-digital converting circuitry, for storing said first digital image and said second digital image; and

a digital image processor, coupled to said image memory and receiving said first digital image and said second digital image, producing a resultant digital image from said first digital image enhanced with said second digital image.

YU V. APPLE INC. (Cont'd)

■ Dissent (cont'd)

- “The '289 patent specification states that the digital camera described therein achieves superior image definition. A statement of purpose or advantage does not convert a device into an abstract idea. From the court's further enlargement of Section 101 to deny access to patenting, and further obfuscation of the statute, I respectfully dissent.”
- “I repeat: claim 1 is for a digital camera having a designated structure and mechanism that perform specified functions; claim 1 is not for the general idea of enhancing camera images. The camera of the '289 patent may or may not ultimately satisfy all the substantive requirements of patentability, for this is an active field of technology. However, that does not convert a mechanical/electronic device into an abstract idea.”

YU V. APPLE INC. (Cont'd)

■ Dissent (cont'd)

- Judge Newman argued that **“the majority now holds that the [claimed] camera is an abstract idea because the camera’s components were well-known and conventional and perform only their basic functions. That is not the realm of Section 101 eligibility.** The Supreme Court dispensed of this position in *Diehr*: ... ‘The question therefore of whether a particular invention is novel is “wholly apart from whether the invention falls into a category of statutory subject matter.’ (quoting *Diehr*)”

YU V. APPLE INC. (Cont'd)

■ Dissent (cont'd)

- In the current state of Section 101 jurisprudence, inconsistency and unpredictability of adjudication have destabilized technologic development in important fields of commerce..... The case before us enlarges this instability in all fields, for the court holds that the question of whether the components of a new device are well-known and conventional affects Section 101 eligibility, without reaching the patentability criteria of novelty and nonobviousness.

PERSONALWEB V. GOOGLE (Fed. Cir., August 12, 2021)

- **Outcome: Claims invalid**
- **Procedure: Judgment on the pleadings**
- **Technology:**
 - Using content-based identifiers to control access to data items ('310 patent), to retrieve and deliver copies of data items ('280 patent), and to mark copies of data items for deletion ('662 patent).
- **Step one:**
 - “These functions are mental processes that ‘can be performed in the human mind’ or ‘using a pencil and paper.’”
 - The Court called this “a telltale sign of abstraction.”
 - The Court noted that libraries use unique, content-based identifiers to locate and retrieve books, and “[t]he claims do this in a computer environment, but that doesn’t transfigure an idea out of the realm of abstraction.”

PERSONALWEB V. GOOGLE (Cont'd)

■ Step one (cont'd):

- “[E]ach component of the claims’ three-step progression reflects a concept we have already described as abstract.”
- “First is the use of a content-based identifier. We said that was abstract in *Erie*....Generating such identifiers is no less abstract.” (citing *Elec. Power Grp.*)
- “Second is the step of comparing the content-based identifier against other values. That is also abstract.” (citing *Symantec*)
- “Third is the data-management function, which varies across the three patents....Controlling access to data items ... is abstract....” (citing *Ericsson*). “So is retrieving data items.” (citing *Erie*) “So too is marking data for deletion....” (citing *Erie*).
- “[T]he claims focus on ‘mere automation of manual processes using generic computers.’... That fails step one.”

PERSONALWEB V. GOOGLE (Cont'd)

- **Step two:**
 - “According to PersonalWeb, the claims contain an inventive concept because they ‘recite an application that makes inventive use of cryptographic hashes—a use that was neither conventional nor routine prior to the patents.’”
 - “Indeed, the purported improvements that Personal-Web sets forth just restate the abstract ideas discussed above.”
 - “PersonalWeb’s claims merely ‘automate or otherwise make more efficient traditional . . . methods.’”

UNIVERSAL SECURE REGISTRY LLC V. APPLE, et. al. (Fed. Cir., August 26, 2021)

- **Outcome: Claims invalid**
- **Procedure: Appeal from motion to dismiss**
- **Technology:**
 - Secure purchasing without revealing personal financial information to a merchant.
 - “In cases involving authentication technology, patent eligibility often turns on whether the claims provide sufficient specificity to constitute an improvement to computer functionality itself.”
- **Step one '539 patent:**
 - “[I]n *Prism*, we determined that the claims were directed to the process of ‘(1) receiving identity data from a device with a request for access to resources; (2) confirming the authenticity of the identity data associated with that device; (3) determining whether the device identified is authorized to access the resources requested; and (4) if authorized, permitting access to the requested resources.’”

USR V. APPLE (Cont'd)

- **Step one '539 patent (cont'd):**
 - “Here, the district court stated that claim 22 requires the following steps: (1) ‘receiving’ a transaction request with a timevarying multicharacter code and “an indication of” the merchant ... ; (2) mapping” the time-varying multicharacter code to ... the customer...; (3) “determining” whether the merchant’s access to the customer’ s secure data complies with any restrictions; (4) “accessing” the customer’s account information; (5) “providing” the account identifying information to a third party without providing that information to the merchant; and (6) “enabling or denying” the merchant to perform the transaction without obtaining knowledge of the customer’s identifying information.”

USR V. APPLE INC. (Cont'd)

- **Step one '539 patent (cont'd):**
 - “While we see differences between claim 22 and the claims at issue in *Prism*, ... claim 22 is directed to an abstract idea. The claims are directed to a method for enabling a transaction between a user and a merchant, where the merchant is given a time-varying code instead of the user’s secure (credit card) information.”
 - “In our view, the claims ‘simply recite conventional actions in a generic way...’ and ‘do not purport to improve any underlying technology.’”
- **Step two '539 patent (cont'd):**
 - “[T]he district court rejected USR’s argument that the claim’s recitations of (1) time-varying codes and (2) sending data to a third-party as opposed to the merchant each rise to the level of an inventive concept... We agree..”
 - The Court found time-varying codes to be conventional and the Supreme Court had decided in *Alice* that using an intermediary was abstract.

USR V. APPLE INC. (Cont'd)

■ Step one '813 patent:

- “We agree with the district court that the claims are directed to an abstract idea, not a technological solution to a technological problem, In our view, the claims are directed to an electronic ID device that includes a biometric sensor, user interface, communication interface, and processor working together to (1) authenticate the user based on two factors—biometric information and secret information known to the user—and (2) generate encrypted authentication information to send to the secure registry through a point-of-sale device. .”
- “In our view, as with the '539 patent, the claims recite “conventional actions in a generic way”—e.g., authenticating a user using conventional tools and generating and transmitting that authentication— without “improv[ing] any underlying technology.”.”

USR V. APPLE INC. (Cont'd)

■ Step two '813 patent:

- “We agree with the district court that the claims fail to recite an inventive concept.... As we explained above, the “encrypted authentication data” is merely a combination of known authentication techniques that yields only expected results.”
- “There is nothing in the specification suggesting, or any other factual basis for a plausible inference... that the claimed combination of these conventional authentication techniques achieves more than the expected sum of the security provided by each technique.”
- “In other words, the combination of these long-standing conventional methods of authentication yields expected results of an additive increase in security.”

USR V. APPLE INC. (Cont'd)

■ Step one '826 patent:

- “We agree with the district court that the claims are directed to an abstract idea. Specifically, the claims are directed to multi-factor authentication of a user’s identity using two devices to enable a transaction. Although USR contends that the claims cover an innovative technological solution to address problems specific to prior authentication systems, it does not proffer a persuasive argument in support of that conclusion because the claims do not include sufficient specificity...Rather, the claims generically provide for the collection of biometric information to generate a first authentication information, and then authenticating a user using both the biometric-information-derived first authentication and a second authentication information. The specification even discloses that this information is conventional.”

USR V. APPLE INC. (Cont'd)

■ Step two '826 patent:

- “We agree with the district court’s conclusion that the claims do not recite an inventive concept. Rather, the asserted claims recite well-known and conventional ways to perform authentication.”
- “There is nothing in the specification suggesting, or any other factual basis for a plausible inference... that the claimed combination of these conventional authentication techniques achieves more than the expected sum of the security provided by each technique.”

USR V. APPLE INC. (Cont'd)

■ Step one '137 patent:

- “Here, the claimed invention merely combines conventional authentication techniques—first authentication information, a biometric authentication indicator, and a time-varying value—to achieve an expected cumulative higher degree of authentication integrity. Without some unexpected result or improvement, the claimed idea of using three or more conventional authentication techniques to achieve a higher degree of security is abstract. Likewise, as claimed in this patent, the idea of using two devices for authentication using these multiple conventional techniques is also abstract. For all these reasons, the claims are directed to an abstract idea rather than a technological solution to a technical problem. ”

USR V. APPLE INC. (Cont'd)

■ Step two '137 patent:

- “[N]othing in the claims is directed to a new authentication technique; rather, the claims are directed to combining longstanding, known authentication techniques to yield expected additory amounts of security. There is nothing in the specification suggesting, or any other factual basis for a plausible inference (as needed to avoid dismissal), that the combination of these conventional authentication techniques results in an unexpected improvement beyond the expected sum of the security benefits of each individual authentication technique.”

COSMOKEY SOLUTIONS V. DUO SECURITY (Fed. Cir., October 4, 2021)

- **Outcome: Claims valid**
- **Procedure: Appeal from judgment on the pleadings**
- **Technology:**
 - An authentication method that is low in complexity and high in security.
 - Referring to *USR*, “we held that these claims did not recite an inventive concept because the combination of long-standing conventional methods of authentication yielded expected results of an additive increase in security, and nothing in the record suggested an additional technological improvement.”
- **Step one:**
 - Not addressed because the claims were valid at step two.

COSMOKEY SOLUTIONS V. DUO SECURITY (Cont'd)

- **Step two:**
 - **“The ’903 patent claims and specification recite a specific improvement to authentication that increases security, prevents unauthorized access by a third party, is easily implemented, and can advantageously be carried out with mobile devices of low complexity.”**
 - **“While authentication of a user’s identity using two communication channels and a mobile phone was known at the time of the invention, nothing in the specification or anywhere else in the record supports the district court’s suggestion that the last four claim steps ... are conventional.”**
 - **“Indeed, the patent specification describes how the particular arrangement of steps in claim 1 provides a technical improvement over conventional authentication methods.”**

COSMOKEY SOLUTIONS V. DUO SECURITY (Cont'd)

- **Step two (cont'd):**
 - “[T]he specification explains that compared to the prior art and conventional multifactor authentication systems, the '903 patent performs user authentication with fewer resources, less user interaction, and simpler devices.”
 - “While prior cases can be helpful in analyzing eligibility, whether particular claim limitations are abstract or, as an ordered combination, involve an inventive concept that transforms the claim into patent eligible subject matter, must be decided on a case-by-case basis in light of the particular claim limitations, patent specification, and invention at issue.”

COSMOKEY SOLUTIONS V. DUO SECURITY (Cont'd)

- **Step two (cont'd):**
 - **“Here, as the specification itself makes clear, the claims recite an inventive concept by requiring a specific set of ordered steps that go beyond the abstract idea identified by the district court and improve upon the prior art by providing a simple method that yields higher security.”**

COSMOKEY SOLUTIONS V. DUO SECURITY

(Cont'd)

1. A method of authenticating a user to a transaction at a terminal, comprising the steps of:

transmitting a user identification from the terminal to a transaction partner via a first communication channel,

providing an authentication step in which an authentication device uses a second communication channel for checking an authentication function that is implemented in a mobile device of the user,

as a criterion for deciding whether the authentication to the transaction shall be granted or denied, having the authentication device check whether a predetermined time relation exists between the transmission of the user identification and a response from the second communication channel,

ensuring that the authentication function is normally inactive and is activated by the user only preliminarily for the transaction,

ensuring that said response from the second communication channel includes information that the authentication function is active, and

thereafter ensuring that the authentication function is automatically deactivated.

MENTONE SOLUTIONS V. DIGI INTERNATIONAL (Fed. Cir., November 15, 2021)(non-precedential)

- **Outcome: Reversed - Claims valid**
- **Procedure: Appeal from motion to dismiss**
- **Technology:**
 - **Effective bandwidth utilization in packet radio systems.**
- **Step one:**
 - **“Here, claim 5 is directed to a patent-eligible improvement to computer functionality, namely permitting additional multislot configurations for certain classes of mobile stations using extended bandwidth allocation.”**
 - **“The specification shows how using the shifted USF, as in Figure 4, allows a mobile station to utilize the otherwise impermissible configuration of Figure 3 ... And this newly allowed multislot configuration provide an additional uplink slot ... The claimed invention, therefore, improves communication capabilities in certain mobile stations using extended bandwidth allocation.”**

MENTONE SOLUTIONS V. DIGI INTERNATIONAL (Cont'd)

5. A multiple access communication method in a mobile station, comprising the steps of:

receiving an assignment of at least a first PDCH (packet data channel) and a second PDCH;

monitoring an assigned PDCH to detect a USF; and

transmitting on an assigned PDCH corresponding to the USF, wherein (i) if shifted USF operation is not used then a first assigned PDCH is monitored to detect a USF corresponding to the first assigned PDCH and (ii) if the shifted USF operation is used then a second assigned PDCH is monitored to detect the USF corresponding to the first assigned PDCH and a USF corresponding to the second assigned PDCH.

2019 USPTO Guidelines on Patent Subject Matter Eligibility

Issued January 7, 2019 & Updated October 17, 2019

- Now found in the Ninth Edition, Revision 10.2019 (revised June 2020) of the [Manual of Patent Examination Procedure \(MPEP\)](#), and particularly Sections 2103 through 2106.07(c)
- [2019 PEG Examples 37 through 42](#) (issued January 7, 2019)
- [October 2019 Examples 43-46](#) (issued October 17, 2019)
- Patent examiners have been trained on the new guidelines training examples

Revised Patent Subject Matter Eligibility Guidance

- Limits abstract ideas to:
 - Mathematical concepts
 - Organizing human activity
 - Mental processes
- Claim is not directed to a judicial exception if it is integrated into a practical application at Step 2A of the Alice test.
- Claim not integrated into a practical application of the exception is evaluated in Step 2B for the presence of an inventive concept

Revised Patent Subject Matter Eligibility Guidelines

- Whether a claim recites well-understood, routine or conventional activity is conducted under Step 2B
- The revised guidance supersedes prior guidance in the MPEP and the USPTO website materials on this subject
- All USPTO personnel are expected to follow this guidance

Abstract Ideas Are Limited

- Mathematical concepts
 - Relationships
 - Formulae
 - Equations
 - Calculations
- Organizing human activity
 - Fundamental economic principles or practices
 - Hedging, insurance, mitigating risk
 - Commercial or legal interactions
 - Contracts, legal obligations, advertising, marketing, sales, behaviors, business relations

Organizing Human Activity

- Managing personal behavior or relationships
- People interactions
 - Social activities
 - Teaching
 - Following rules or instructions

Mental Processes

- Concepts performed in the human mind
 - Observation
 - Evaluation
 - Judgment
 - Opinions
 - Use of generic computer components are ignored unless the claim cannot practically be performed in the mind

Miscellaneous Abstract Ideas

- Analyzed for integration into a practical application
- Analyzed at Step 2B for the presence of an inventive concept
- Brought to TC Director for approval for rejection if claim is directed solely to miscellaneous abstract idea.

Step 1 Analysis for Statutory Categories of Invention

- Claim must fall into a statutory category of invention to be eligible
- If the claim does not such as signal claims as in *In re Nuijten*, 500 F.3d 1346 (Fed. Cir. 2007) the claim is not subject matter eligible

Step 2A Analysis

- Evaluate whether there are additional elements in the claim beyond the judicial exception
- Evaluate whether the elements individually are in combination integrate the claim into a practical application
- Examples of practical applications
 - Enfish: Improvement in the functioning of a computer in self-referential data table
 - Diehr: Improvement in other technology or technical field (rubber curing process using numerical controller)
 - Vanda Pharma: Treatment of a disease or medical condition
 - Thales Visionox: Tied to a particular machine or manufacture using sensors to more efficiently track object on moving platform
 - Bilski: Transformation of article to different state or thing (MOT test)
 - Data Engine v. Google: Meaningful tie to a particular technology of 3d machines

Practical Applications

- Core Wireless: GUI for mobile devices that displays commonly accessed data on main menu
- DDR Holdings: matching website look and feel
- Finjan: virus scan that generates security profile identifying both hostile operations
- McRo: new rules for lip sync and facial expression animation
- Trading Tech: GUI that prevents order entry at changed price
- Visual Memory: enhanced computer memory system
- Ancora: enhanced computer security

Step 2A Analysis

- Examples of no integration into practical application
 - Apply it (use of generic computer elements)
 - Insignificant post-solution activity
 - General link to a particular technological environment or use
- Must treat claim as a whole
- New combination of old elements as in BASCOM can provide the practical application

Step 2B

- Evaluate whether the claim includes inventive concept that is significantly more than excluded subject matter
- Examples include:
 - Abele: tomographic scanning
 - Amdocs: field enhancement in distributed network
 - BASCOM: filtering Internet content
- Berkheimer analysis is now in Step 2B as to routine, well known or conventional elements

Practice Tips

- Specification should be robust explain how the claimed invention is integrated into a practical application
- Claims should include specific limitations (non generic computer elements) as to how the functions or results are accomplished
- Claims should demonstrate
 - New combination of old elements
 - New combination of elements that include new elements
 - Improving operation or performance of computer or computer elements (programable memory), or through CRM that embodies code means that when execute improves performance
 - Uses technology from one field to improve a different technology

Practice Tips

- When writing computer program product claims recite elements as computer code plus function rather than as method steps
- Provide specificity to the claims to establish patentability over prior art separate from judicial exceptions
- Avoid pure functional claiming that does not include specifics as to how results are accomplished

PTAB Precedential and Informative § 101 Decisions

PTAB Precedential/Informative Decisions (cont'd)

- *Ex parte Smith*, No. Appeal 2018-000064 (PTAB Feb. 1, 2019) (informative)
- **Case:**
 - The Examiner rejected all the claims under § 101 because the claims are directed to the abstract idea of “comparing new and stored information and using rules to identify options” and further concluded the claims are directed to “an abstract idea of trading derivatives in a hybrid exchange system which is a concept within the realm of fundamental economic practices because the concept relates to the economy and commerce, such as agreements between people in the form of contracts, legal obligations, and business relations.”
- **Outcome – Reversed (2-1):**
 - The Board agreed the claims recited the fundamental economic practice of “derivative trading because the limitations all recite the operations that would ordinarily take place in a derivatives trading environment.”
 - The Board also determined that the “computer-related limitations” were not “wholly generic in nature and are specific to electronic derivatives trading” but were described at a high level in the specification “without any meaningful detail about their structure or configuration.”

PTAB Precedential/Informative Decisions (cont'd)

- *Ex parte Smith* (cont'd)
- **Outcome (cont'd):**
 - However, the Board determined that claim 1 recited additional limitations that “focus on addressing problems arising in the context of a hybrid derivatives trading system in which trades are made both electronically and on a trading floor.”
 - Those limitations were considered to integrate the judicial exception into a practical application “by reciting a specific timing mechanism in which the execution of a matching order is delayed for a specific period of time.”
 - The “use of the claimed timing mechanisms and the associated temporary restraints on execution of trades provide a specific technological improvement over prior derivatives trading systems.”

PTAB Precedential/Informative Decisions (cont'd)

- *Ex parte Smith* (cont'd)

- **Claim 1:**

1. A method of trading derivatives in a hybrid exchange system comprising:

collecting orders, via a communication network and order routing system, for derivatives and placing them in an electronic book database;

identifying at an electronic trade engine a new quote from a first in-crowd market participant, wherein one of a bid or an offer price in the new quote matches a respective price in an order in the electronic book database from a public customer;

removing at least a portion of the order in the electronic book database, delaying automatic execution of the new quote and the order, and starting a timer;

reporting, via the communication network and an electronic reporting system, a market quote indicative of execution of the at least a portion of the order while delaying automatic execution;

receiving at the electronic trade engine a second quote from a second in-crowd market participant after receiving the new quote from the first in-crowd market participant and before an expiration of the timer, wherein the second quote matches the respective price of the public customer order in the electronic book database; and

allocating the order between the first and second in-crowd market participants at the electronic trade engine, wherein the order is not executed until expiration of the timer.

PTAB Precedential/Informative Decisions (cont'd)

- *Ex parte Olson*, No. Appeal 2017-006489 (PTAB Mar. 25, 2019) (informative)
- **Case:**
 - The Examiner rejected all the claims under § 101, arguing they were directed to an abstract idea.
 - The claims were directed to a method and system for locally deformable registration of a catheter navigation system to an external model or external image data.
 - The Examiner concluded that the “claims essentially cover[] a general algorithm to be executed on a general purpose computer that is cited with [a] generic catheter navigation system and generic catheter/tool that are well-known, conventional systems/devices in the field of medical imaging.”
- **Outcome - Reversed:**
 - The Board determined the claims contained the mathematical concept of using a mathematical formula for an error function and the “mathematical calculation using a thin plate splines algorithm to generate the mapping function by summing a fixed number of weighted basis functions.”

PTAB Precedential/Informative Decisions (cont'd)

- *Ex parte Olson* (cont'd)

- **Outcome (cont'd):**

- The Board nevertheless concluded the additional limitations practically applied the judicial exception because those limitations recited:
 - ❑ (1) placing a tool on a surface location X_i of the heart
 - ❑ (2) measuring position information for X_i relative to a coordinate frame X
 - ❑ (3) identifying a corresponding location Y_i on the three-dimensional image
 - ❑ (4) associating the position information for X_i as measured by the catheter navigation system relative to X with position information for Y_i on the three-dimensional image relative to Y as a fiducial pair (X_i, Y_i)
- “In particular, these limitations apply the recited mathematical calculations to improve registration of a catheter navigation system to a three-dimensional image of a heart by accounting for non-linearities and inhomogeneities in the catheter navigation system and reduce errors in the localization field.”
- The Board concluded the mathematical concepts were used to improve particular technology.

PTAB Precedential/Informative Decisions (cont'd)

- *Ex parte Kimizuka*, No. Appeal 2018-001081 (PTAB May 15, 2019) (informative)
- **Case:**
 - The Examiner rejected all the claims under § 101 as an abstract idea directed to golf-club fitting method, which was considered a mental process.
- **Outcome - Affirmed:**
 - The Board agreed that the method claimed mental process, i.e., “an evaluation or judgment that can practically be performed in the mind or with the assistance of pen and paper.”
 - “Claim 7 recites, in part, that the dynamic-loft determination requires ‘the measured head speed, the measured dynamic loft, and the measured blow angle, the suitable dynamic loft being defined as a dynamic loft achieving a predetermined hit ball result’ and “‘the hit ball result database is used for determining the suitable dynamic loft.’”
 - “Claim 7 recites an evaluation that, when considered in the context of the claim as a whole, can practically be performed in the mind.”

PTAB Precedential/Informative Decisions (cont'd)

- *Ex parte Kimizuka* (cont'd)

- **Outcome (cont'd):**

- **“Essentially, the disclosed invention helps the user select a club that fits the player's needs...To solve this non-technical problem, claim 7 uses the collected data to recommend a golf club that has a desirable loft angle. Claim 7 does not, for example, improve how the measurements are taken or improve how the golf club is manufactured. In this way, claim 7 is unlike the technology-based integrations” of other claims found eligible.**
- **“Considering the processor in combination with the other recited limitations, the processor is merely a token addition. To be sure, the recited processor may perform the calculations faster than a human could mentally. Yet using a computer to achieve a solution more quickly may not be sufficient to show an improvement to computer technology.”**
- **“Appellants do not identify any inventive concept in the recited combination of steps here or any specific arrangement of computing components. Indeed, the claim's focus is club fitting, not a specific configuration of the processor and database.”**

PTAB Precedential/Informative Decisions (cont'd)

- *Ex parte Savescu*, No. Appeal 2018-003174 (PTAB Apr. 1, 2019) (informative)
- **Case:**
 - The Examiner rejected the claims under § 101 as an abstract idea directed to a method of creating a life-cycle workflow for a project.
- **Outcome - Affirmed:**
 - The Board determined that the limitations encompass steps for creating a workflow that organizes how people perform project tasks and those limitations “recite steps that a person would perform when working on a project.”
 - Thus, claim 1 “recites a concept related to managing relationships or transactions between people” and is a method of organizing human activity.
 - “Considering the claim as a whole, these additional limitations merely add generic computer activity to deliver web pages and store data, which is insufficient to integrate the judicial exception into a practical application.”
 - “Referring to the computer executing the method, the Specification states that the ‘devices are well known in the art and need not be discussed at length here.”

PTAB Precedential/Informative Decisions (cont'd)

- *Ex parte Savescu* (cont'd)
- **Outcome (cont'd):**
 - “Indeed, the Specification merely states that ‘the server 108 is a computing device, such as a server computer’” that “‘can include input/output devices, a central processing unit (‘CPU’), a data storage device, and a network device.’”
 - “By identifying these paragraphs, the Examiner has adequately supported the finding that the recited server is well-understood, routine, and conventional.”

PTAB Precedential/Informative Decisions (cont'd)

- *Ex parte Fautz*, No. Appeal 2019-000106 (PTAB May 15, 2019) (informative)
- **Case:**
 - **The Examiner rejected the claims under § 101 as an abstract idea that is similar to “abstract ideas relating to mathematical formulas and ‘collecting information, analyzing it, and displaying certain results of the collection and analysis.’”**
 - **The claimed invention relates to magnetic resonance (MR) tomography. The devices use reception coils to receive signals generated while scanning a subject and optimizes the signal-to-noise ratio (SNR) from the reception coils.**
- **Outcome – Reversed:**
 - **The Board agreed that the claims recite an abstract idea: a mathematical concept because the claims recite three mathematical formulas.**
 - **The Board, however, concluded that the “MR tomography device in the claimed solution is neither a token addition nor an abstract concept” so the claims solved a technical problem and was directed to a practical application.**
 - **The claimed invention thus “uses the recited mathematical equations to improve the imaging system.”**

Ex parte Hannun (formerly Ex parte Linden), 2018-003323 (April 1, 2019)

- For example, the Specification describes that using DeepSpeech learning, i.e. a trained neural network, along with a language model “achieves higher performance than traditional methods on hard speech recognition tasks while also being much simpler.” Spec. ¶ 29. As such, based on the record before us, we are persuaded that the Examiner erred in determining that the claims are directed to an abstract idea.
- We also agree with Appellants that the Examiner fails to sufficiently support the finding that the claims do not add significantly more to the alleged judicial exception. Accordingly, we reverse the Examiner’s decision to reject claims 11–20 as directed to patent ineligible subject matter.

Other Resource Materials <https://www.uspto.gov/patent/laws-and-regulations/examination-policy/subject-matter-eligibility>

- [Chart of Subject Matter Eligibility Court Decisions](#) (updated October 17, 2019)
- [Sample Rejection](#) (posted January 8, 2019)
- [Frequently Asked Questions](#) (posted January 8, 2019)
- [Training materials](#)

Treatment of Computer Implemented Functional Claims Under 35 U.S.C. A112

Section 112 Guidelines for Functional Claiming for CI Inventions

- Invoking Section 112(f) after *Williamson v. Citrix*, 792 F.3d 1339 (Fed. Cir. 2015)(en banc)
- Use of means or non-structural generic placeholders
 - Mechanism for, module for, device for, unit for, component for, element for, member for, apparatus for, machine for, system for are nonce words
 - Invoke 112(f)
- A sufficient structural modifier will take the claim limitation outside of 112(f)

Sufficient Structural Modifier

- Look to specification for structural support
- Look to technical dictionaries for structural definition for term
- Look to the prior art for art recognized structural meaning

When 112(f) Is Invoked

- Look to corresponding structure, material or acts and their equivalents in specification to interpret claim limitations under BRI
- Look to prior art for equivalents determination

Indefiniteness

- Specification must disclose algorithm for claimed specific function of a computer implemented invention, or else the claim is indefinite
- Algorithm is finite sequence of steps for solving a logical or mathematical problem or performing a task
- Algorithm may be expressed as mathematical formula, in prose, a flow chart or other manner that provides sufficient structure
- For special purpose computer-implemented means plus function limitations, the structure disclosed in the specification has to be more than a general-purpose computer or processor
 - i.e. there must be a special purpose computer as programmed to perform the disclosed algorithm

Indefiniteness

- The algorithm must be sufficient to perform the entirety of the claimed functions
- If the means plus function limitation is not enabled or lacks written description support, the claim is indefinite
 - you cannot argue “a person of ordinary skill in the art is capable of writing software to [perform the algorithm]...” to try to convert a general-purpose computer into a special purpose computer to perform the claimed function

Description and Enablement Issues in CI Invention Claims

- Vasudevan Software, Inc. v. MicroStrategy, Inc., 782 F.3d 671 (Fed. Cir. 2015)
- Disclosure of the application must reasonably convey that the inventor had possession of the claimed invention as of the filing date
 - level of detail varies depending on the complexity and predictability of the relevant technology
 - no need to describe well known technology in detail
- Specification must describe more than a desired result
- Must look to the interrelationship of hardware and software

Written Description

- For support of claims to a genus look to whether there is representative number of species disclosed
- Look for whether the disclosure provides relevant identifying characters of the invention described in words, formulae, flow charts, drawings, program listings
 - Disclosure of an algorithm is necessary for computer-implemented functional claim limitations
- Written description is a question of fact

Enablement

- Apply the *In re Wands*, 858 F.2d 731 (Fed. Cir. 1988) factors to determine whether claims are enabled throughout their entire scope and for any specific claimed use to permit one skilled in the art to make and use the claimed invention without undue experimentation
- “... a claim is sufficiently enabled even if ‘a considerable amount of experimentation’ is necessary, so long as the experimentation ‘is merely routine, or if the specification in question provides a reasonable amount of guidance with respect to the direction in which the experimentation should proceed.’”

Enablement

- The factors are
 - Quantity of experimentation
 - Amount of direction or guidance
 - Working examples
 - Nature of invention
 - State of the prior art
 - Skill in the art
 - Predictability
 - Claim breadth

Enablement

- Specification need not disclose what is well-known in the art
- Questions of enablement may arise when the application uses block diagram disclosures without describing the contents of the blocks and how the structures are interrelated
- Enablement is a question of law

Practice Tips

- Prepare robust patent specifications that provide description of hardware and software components that provide specific support for claimed functions and results showing how the functions and results are accomplished
- Beware of use of means plus function claims including use of nonce words instead of means
- Make sure specific algorithms are described and their interrelation with hardware components

European Patent Office 2021 Revised Guidelines: Patent Subject Matter Eligibility

2021 EPO Revised Guidelines on Patent Subject Matter Eligibility

- **Excluded Subject Matter (AG, II, 3)**
 - Discoveries (3.1)
 - Scientific theories (3.2)
 - **Mathematical methods (3.3)**
 - Artificial Intelligence and Machine Learning (3.3.1)
 - Simulation design or modelling (3.3.2)
 - Aesthetic creations (3.4)
 - **Schemes, rules and methods for performing mental acts, playing games or doing business (3.5)**
 - Schemes, rules and methods for performing mental acts (3.5.1)
 - Schemes rules and methods for playing games (3.5.2)
 - Schemes rules and methods for doing business (3.5.3)
 - **Programs for computers (3.6)**
 - Further technical effects (3.6.1)
 - Information modelling, activity of programming and programming languages (3.6.2)
 - Data retrieval, formats and structures (3.6.3)
 - Database management systems and information retrieval (3.6.4)
 - **Presentations of information (3.7)**
 - User interfaces (3.7.1)

2021 EPO Guidelines

- No significant substantial changes to the law of subject matter eligibility and its application
- Provides more specific guidance on new items listed under 3.3, 3.5, 3.5 and 3.7
- Changes center on
 - Organization of subject matter categories
 - Additional examples of eligibility

Key evidence of subject matter eligibility

- Technical effect
- Technical solution to technical problem
- Technical means to accomplish technical result
- Technical character as a whole
- Specific technical purpose
- Technical contribution

MATHEMATICAL METHODS (§3.3)

- **Lessons learned:**

- New sub-sections on 1. Artificial intelligence and machine learning and 2. Simulation, design or modelling
- Inventive Step analysis remains the same
- Include the technical means and improvement in technology to show:
 - Subject matter eligibility: Avoid purely mathematical methods
 - Novelty and Inventive Step

- **Overview of Changes:**

- Purely mathematical methods are still excluded, the guidance maintains well-established two-hurdle assessment of whether the mathematical method contributes to producing a technical effect that serves a technical purpose which is applied to a field of technology or is adapted to a specific technical implementation
- **Excluded Mathematical methods:**
 - Claims on purely abstract mathematical methods are excluded (Ex. a Fast Fourier Transform on abstract data)
 - **T2035/11 and T1029/06:**
 - Merely defining the nature of the data input to a mathematical method **DOES NOT** preclude exclusion
- **Practical Applications include:** Controlling an X-ray apparatus, Steel cooling processes, Digital audio, image or video enhancement or analysis, Speech recognition, Encoding of data for reliable transmission and storage, Error correction coding of data for transmission, Encrypting or signing electronic communications, Optimization of load distribution in a computer network
 - **T1358/09:**
 - Mathematical method adapted for a technical implementation by virtue of its design motivated by technical considerations of the internal functioning of the computer may have a technical character.
 - Adaptation of a polynomial reduction algorithm to exploit word-size shifts matched to the word size of the computer hardware is likely not to be excluded as a mathematical method because it has a technical character.

Artificial Intelligence and Machine Learning (§3.3.1)

- **Take Note:**
 - New section included in view of the increase in the number of AI patent applications.
 - Seeks to harmonize EPO's approach for the assessment of patentability of AI and machine learning inventions
 - Defines of AI and machine learning as being **computational models and algorithms for various different purposes**
 - Default position: such general models and algorithms are of an abstract mathematical nature, even if they can be trained
- **Lessons Learned:**
 - **Likely to be excluded:**
 - T 1358/09: Classifying text documents by textual content is a linguistic purpose, not a technical purpose
 - T 1784/06: Classifying abstract data records or telecommunication network data records without any indication of a technical use being made of the resulting classification, even if the classification algorithm may be considered to have valuable mathematical properties such as robustness
 - **BUT** where a claim relates to a classification method which serves a technical purpose, the precise steps of generating the training set and training the classifier may contribute to the technical character of the invention **IF** the application explains how that technical purpose is achieved.
 - Detecting potential infringement of a granted patent is difficult in this field, especially regarding training, because it is difficult to determine how a neural network was trained
 - **Unlikely to be excluded:**
 - Use of a neural network in a heart-monitoring apparatus for the purpose of identifying irregular heartbeats
 - Classification of digital images, video, audio or speech signals based on low-level features such as edges or pixel attributes for images

Simulation, Design or Modelling (§3.3.2)

- **Take Note:**
 - New section in the Guidelines with well-established case law of what is/is not excluded
 - As in 3.3 and 3.3.1 of the Guidelines, emphasis is on **assessment of non-technical features and technical features as well as their associated technical effect**.
- **Lessons Learned:**
 - Methods of simulation, design or modelling usually **include mathematical methods or mental acts** and may be excluded from patentability.
 - **Potentially eligible:** Claims that relate to a computer-implemented simulation of the behavior of a class of technical items, or specific technical processes, **under technically relevant conditions**
 - **T 1227/05:** A claim that relates to the numerical simulation of the performance of an electronic circuit subject to certain noise may not be excluded, even if the method is performed prior to production or even if the method does not include the step of actually manufacturing a product. Further, for a claim relating to a computer-implemented method of designing an optical system, the use of a particular formula for determining technical parameters, such as refractive indices and magnification factors, for given input conditions so as to obtain optimal optical performance is likely not to be excluded as a mathematical method.
 - **T 471/05, T 625/11:** For a claim relating to a computer-aided design of a product, system or process, the determination of a technical parameter that is intrinsically linked to the functioning of the product, system or process, where the determination is based on technical considerations, is also likely not to be excluded as a mathematical method, referring to.
 - **Ineligible claims relate to:**
 - simulation of **non-technical processes** such as a marketing campaign, an administrative scheme for transportation of goods or determining a schedule for agents in a call center is likely to relate to excluded subject matter because they does not have a technical purpose.
 - a logical data model for a family of product configurations is also likely to be excluded because it **has no inherent technical character**
 - how to arrive at such a logical data model is likely to relate to excluded subject matter because it **usually does not make a technical contribution** beyond its implementation on a computer.

SCHEMES, RULES AND METHODS FOR PERFORMING MENTAL ACTS (§3.5.1)

- **Take Note:**
 - Claims that can be performed by both the mind of a user and a computer continue to be ineligible
 - Include the technical means upon which a method is performed, particularly for numerical calculation or simulation inventions.
 - Claims that can be read as merely automating a known mental act should be avoided
- **Lessons Learned:**
 - If the claim also covers non-technical ways of performing the invention, it is not enough that the an invention that could be performed using technical means.
 - Often rejected if achievable in the head of the skilled person, or at least with the aid pencil and paper.
 - Additional detail on when the mental act exclusion will apply
 - Defines mental acts: “instructions to the human mind on how to conduct cognitive, conceptual or intellectual processes, for instance how to learn a language” (echoed in caselaw including T 471/05)
 - Previously avoided specific definitions,
 - Complexity of method is irrelevant
 - High complexity cannot be used as a reason for disqualifying a claimed invention as a method for performing mental acts as such.
 - Claims **MUST** specify any technical means needed to perform the invention
 - Unlike in UK, where the courts read the necessary technical means in if it would not be practical to carry out mentally.
 - If presence of technical means of some sort is established and the method steps are technical in nature (e.g. determining optimal values for specific technical parameters) then these can be considered to contribute to the technical nature of the invention.
 - Mental steps can still contribute to the technical nature of the invention if they have a technical impact on the rest of the invention.
 - Example: selecting certain features of a product or selecting the location of a feature might contribute to a technical effect provided the decision is based on technical considerations

Playing Games (§3.5.2)

- **Take Note:**
 - New section
 - Games generally excluded based on rules for playing games
 - Commonly eligible technical innovations:
 - Sensing user input
 - Providing real-world sensory feedback
- **Lessons Learned:**
 - “Game rules define a conceptual framework of conventions and conditions that govern player conduct and how a game evolves in response to decisions and actions by the players. They comprise the setup of the game, options that arise as gameplay unfolds, as well as goals defining progress in the game. They are normally perceived (or even agreed to) by the players as rules serving the explicit purpose of playing the game.”
 - Game rules are not patentable by themselves, unless **they require technical means to implement them**
 - T 12/08-Role playing video game requiring characters to appear in the gaming world at random times
 - **Game rule:** The need for the characters to appear randomly
 - **Protectable technical implementation:** Method of calculating randomness
- **Insufficient technical implementation**
 - Results achieved by limiting the complexity of a game are likely unprotectable
 - Ex. Providing a reduction of memory, network, or computational resources
 - Technical problem is being circumvented, not solved (Hitachi case (T 258/03))

Doing Business (§3.5.3)

- **Take Note:**
 - EPO wary of granting business method patents
 - Business methods require less R&D
 - Undesirable to provide patent protection that could restrict business practices
 - Technical benefit must be achieved across the entire scope of the claim
 - Does competence for feature lay with a business person/administrator based on policy decisions OR an engineer based on technical criteria?
- **Lessons Learned:**
 - Objections for ‘administrative’ methods raised for absence of an obvious step **leading to financial gain**
 - List of excluded activities explicitly incorporated into the Guidelines
 - Accounting, Management & Logistics
 - Communicating postings to a target user community based on location information
 - Targets applications relating to social media (location information often asserted as a technical feature)
 - Provides examiners with ammunition to more easily object to this type of feature as being non-technical.
- **Notional business person:**
 - Features that lie “within the competence of a technically skilled person, such as a software engineer, as opposed to the competence of a business expert” but **does not fully adopt**...yet. May be waiting for more board decisions to adopt the practice.
 - “pet project” of one particular Board (3.5.01) to help distinguish between technical and non-technical features
- **EPO practice:**
 - Hitachi case (T258/03): improvements achieved for aspects inherent to the business method **are NOT technical effects**
 - computer workload
 - storage requirements

PROGRAMS FOR COMPUTERS (§3.6)

- **Take Note:**
 - Largely re-written
 - Three new sub-sections (one sub-section taken from Presentation of Information section (3.7))
 - Well-known established cases (T1173/97, T258/03, T424/03 and G3/08)
 - New Cases added (T1227/05, T1784/06, T1370/11 and T1358/09)
- **Lessons Learned**
 - The following new sections have been added and are discussed separately be
 - 3.6.1 Examples of further technical effects
 - 3.6.2 Information modelling, activity of programming and programming languages
 - 3.6.3 Data Retrieval, formats and structures (reworded former section 3.7.2)
 - Claims for computer program or computer implemented invention require **a further technical effect (a technical contribution)** to avoid the exclusion from patentability of a computer program as such (Article 52(2) EPC
 - control of a technical process
 - internal functioning of the computer or its interface
- **New Technical Effects Example**
 - **T1227/05:** Simulation of a circuit subject to 1/f noise was considered to be an “adequately defined technical purposes”.
- **New Non-technical Effects Examples**
 - **T1358/09:** A method for classifying text documents was similarly considered as non-technical, despite it providing a classification scheme that required a computer and that no “human would ever perform”.
 - **T1370/11:** “the improved speed of a computer program is not by itself a technical contribution to the art” as if it were then all excluded methods of doing business could be argued to be patentable, while in Classifying documents was regarded as an administrative process, and “comparing a computer program with how a human being would perform the same task” was not seen as a suitable basis for assessing if the computer program provided a technical effect
 - **T1784/06:** An algorithm for classifying data records was considered non-technical (commercial/administrative) in the absence of any disclosed technical use of the classified records. Enhanced speed of the non-technical algorithm was not enough to provide a technical contribution

Examples of Further Technical Effects (§3.6.1)

- **Take Note:**
 - New section summarizes examples where software claimed as computer implemented methods have been found to **provide a further technical effect** when run on a computer.
- **Lessons Learned:**
 - Examples of computer implemented methods that provide **possible allowable further technical effects include** (but are not limited to):
 - Methods run on a computer that:
 - control an anti-lock braking system in a car
 - determine emissions by an X-ray device
 - compress video
 - restore a distorted digital image
 - encrypt electronic communications;
 - Computer programs **designed based on specific technical considerations** of the internal functioning of the computer:
 - Adapted to the specific architecture of the computer
 - Implementing security measures for protecting boot integrity and countermeasures against power analysis;
 - Computer programs **controlling the internal functioning** or operation of a computer:
 - processor load balancing
 - memory allocation; and
 - Programs for **processing code at low level**, such as builders or compilers

Information Modelling, Activity of Programming and Programming languages (§3.6.2)

- **Take Note:**
 - New Section provides clarity for inventions that are in the field of computer programming
 - Typically excluded subject matter (abstract with no solution for specific technical problems)
 - Rejects arguments that an improved program or programming technique improves the computer on which it operates, or provides secondary technical effects such as ease of use for a programmer.
 - Technical Board of Appeal: T354/07, T1171/06 and T1539/09R
- **Lessons Learned: typically ineligible subject matter**
 - Intellectual activities that are devoid of “technical character”:
 - Information modelling
 - Conceptual models describing the process of software development
 - Activity of programming
 - Defining and providing a programming language
 - “[F]eatures pertaining to the programming language do not normally contribute to its technical character. For example, in a visual programming environment, the provision of specific graphical building blocks is part of the programming language and makes no technical contribution if the only effect is easing the intellectual effort of the programmer.”
 - Application of intellectual activities to solve a specific technical problem may make a technical contribution (see the Simulation, Design or Modelling section above).

Data Retrieval, Formats and Structures (§3.6.3)

- **Take Note:**
 - The Data Retrieval, Formats and Structures section (previously G-II, 3.7.2) has been updated slightly and reworked as new section 3.6.3 under 3.6. Programs for Computers. There are no significant changes, but some of the key concepts like the meanings of “functional data”, and “cognitive content” are presented in more detail, and illustrated by citation of two further cases T1351/04 and T858/02, in addition to discussion of the previously mentioned case T 1194/97.
 - Key for computer implemented invention that processes data is **whether the intellectual content of the data is important to the operation** of the invention.
 - Claim the data structure as a technical feature that improves the operation of the software that is executed by the programmable device
 - 1) a computer-implemented data structure or
 - 2) a data format embodied on a medium or
 - 3) as an electromagnetic carrier wave
 - Ensure that there is then functional or management data that contributes to technical character of a method performed
- **Lessons Learned:**
 - Data models and information models claimed at an abstract logical level have no technical character
 - **Intellectual content:**
 - If the intellectual content is important, the reasoning goes that the invention is not concerned with computer operation on a technical level, but is merely processing data at a higher abstract level for the benefit of a user.
 - Not a patentable technical contribution
 - Introduced in Decision T1194/97 along with “functional data” and “cognitive data” now used in the guidelines

Data Retrieval, Formats and Structures (§3.6.3) Cont..

- **Functional data**

- Control the operation of a device processing the data
- Inherently comprise, or reflect, corresponding technical features of the device
- **Contribute to producing a technical effect**
- Ex. T1351/04: “an index structure used for searching a record in a database”
 - controls the way the computer performs the search operation
- Ex. T858/02
 - Regarding the provision of instructions in the header of an electronic message
 - Determines how the content elements of the message are to be assembled and presented
- Ex. T1194/97
 - Coded picture storage using “a data structure defined in terms of lines numbers and addresses which instruct the system how to decode and access the picture from a record carrier”.

- **Cognitive data**

- Content and meaning are only relevant to human users
- **No technical effect**
- Ex. T858/02
 - Content elements of the message (what message is actually being conveyed to the user)
- Ex. T1194/97
 - Picture (cognitive content) stored using functional data coding

PRESENTATIONS OF INFORMATION (§3.7)

- **Take Note:**
 - Must credibly assist the user in performing a technical task by means of a continued and/or guided human-machine interaction process
 - GUI technical considerations:
 - what information is presented
 - how information is presented
 - Ineligible: Cognitive content and mere layout choices
- **Lessons Learned:**
 - Removed prior example acknowledging that technical effects arise if information is presented in a manner that enables a user to perform a technical task “in a more efficient or precise manner”
 - Most likely removed due to misuse by applicants, NOT to indicate a change in practice
 - 2017 removal of specific passage to curtail prevalence of arguments from applicants relating to dealing with limited available screen size in mobile phones and tablets
 - “For instance, dealing with limited available screen space is part of designing presentations of information for human viewing and therefore not an indication of technicality per se”.

Conclusions

- No significant changes in patent subject matter eligibility in the Revised Guidelines
- The EPO did not, and will never, give a precise definition of what is/is not technical
 - EPO awaiting further evolution in how technology is perceived
- New examples are provided addressing issues presented by AI and machine learning technologies