UNITED STATES PATENT AND TRADEMARK OFFICE



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Business methods overview & highlights from the 2019 revised patent subject matter eligibility guidance



Business methods overview

Business methods webpage

- Designed to provide best practices and current information to our stakeholders
- Find out about upcoming events, statistics, guidance and training materials, and outreach opportunities



www.uspto.gov/businessmethods

Business methods webpage statistics

Consistent, good traffic on the webpage

- 15,144 total pageviews since launch
- 11,397 unique pageviews since launch
- 841 average pageviews per month
- 633 unique pageviews per month
- 3 minutes spent on average visiting the web page, which is significant
- 920 visitors accessed the Guidance and training materials section for subject matter eligibility information, indicating usefulness
- 7,709 visitors were referred to the webpage by Google
- There was heightened webpage access in March 2018 to download materials for the Customer Partnership Meeting held that month



Business methods allowance rate

Allowance rate

- Trending upward
- Surpassing allowance rate pre-Bilski
- Trending towards pre-Alice allowance rates
- Calculated as number of notices of allowances divided by number of disposals including (RCEs)

32.4% June 19, 2014 January 7, 2019 Alice Decision ^percent Allowed of Disposals Revised 27.7% 27.4% PEG Publishe 23.2% 23.0% 22.2% 18.1% 14.4% 14.6% 12.7% 10.4% 6.2% FY2008 FY2009 FY2010 FY2011 FY2012 FY2013 FY2014 FY2015 FY2016 FY2017 FY2018 FY2019 (thru March 16, 2019) **Fiscal Year**

Business Methods Allowance Rate

Examiner decision making process

DECISION POINTS

DECIDING OFFICIAL



During first examination:

- An examiner with signatory authority decides to reject or allow claims.
- An examiner without signatory authority prepares an Office action in which claims are rejected or allowed, and a Supervisory Patent Examiner (SPE), Primary, or other authorized examiner reviews, approves, and signs the Office action.



If a compliant response is filed, then:

- An examiner with signatory authority decides to reject or allow claims.
- An examiner without signatory authority prepares an Office action in which claims are rejected or allowed, and a Supervisory Patent Examiner (SPE), Primary, or other authorized examiner reviews, approves, and signs the Office action.



If claims have been twice rejected, Applicant may appeal the decision to the PTAB by filing a notice of appeal and an appeal brief.

An appeal conference is held with the examiner, SPE, and an additional conferee having sufficient experience to be of assistance in the consideration of the merits of the issues on appeal.

The Office makes a decision to re-open prosecution, allow claims, or proceed with the appeal. If a decision is made to proceed with the appeal, the examiner prepares an examiner's answer.

2019 Revised Patent Subject Matter Eligibility Guidance highlights

Section 101 Initiative: Revised Guidance

- The 2019 Revised Patent Subject Matter Eligibility Guidance (hereinafter "2019 PEG") published in January 2019.
- The guidance was revised for several reasons:
 - Increase clarity, predictability, and consistency in how Section 101 is applied during examination
 - Enable examiners to more readily determine if a claim does (or does not) recite an abstract idea

Overview of 2019 PEG

- Makes two changes in Step 2A:
 - Sets forth new procedure for Step 2A (called "revised Step 2A") under which a claim is not "directed to" a judicial exception unless the claim satisfies a two-prong inquiry; and
 - For abstract ideas, replaces the "Eligibility Quick Reference Sheet Identifying Abstract Ideas" with an identification of particular groupings of abstract ideas

What remains the same

- No changes to:
 - Step 1 (statutory categories)
 - Streamlined analysis
 - Step 2B



What has changed: Revised Step 2A



2019 PEG revises Step 2A:

- Creates new two-prong inquiry for determining whether a claim is "directed to" an exception
- Groups abstract ideas

MPEP flowchart including revised Step 2A



2019 PEG - Advanced Module

What has changed: Revised Step 2A

- This flowchart depicts revised Step 2A.
- Under this new two-prong inquiry, a claim is now eligible at revised Step 2A unless it:
 - Recites a judicial exception, and
 - The exception is not integrated into a practical application of the exception.



Groupings of abstract ideas

Mathematical concepts

- Mathematical relationships
- Mathematical formulas or equations
- Mathematical calculations

Mental processes

 Concepts performed in the human mind (including an observation, evaluation, judgment, opinion)

NOTE: The recitation of generic computer components in a claim does not necessarily preclude that claim from reciting an abstract idea.

Certain methods of organizing human activity

- Fundamental economic principles or practices (including hedging, insurance, mitigating risk)
- Commercial or legal interactions (including agreements in the form of contracts; legal obligations; advertising, marketing or sales activities or behaviors; business relations)
- Managing personal behavior or relationships or interactions between people (including social activities, teaching, and following rules or instructions)

Prong Two considerations: Details

Limitations that are indicative of integration into a practical application:

- Improvements to the functioning of a computer, or to any other technology or technical field see MPEP 2106.05(a)
- Applying or using a judicial exception to effect a particular treatment or prophylaxis for a disease or medical condition see *Vanda* Memo
- Applying the judicial exception with, or by use of, a particular machine see MPEP 2106.05(b)
- Effecting a transformation or reduction of a particular article to a different state or thing see MPEP 2106.05(c)
- Applying or using the judicial exception in some other meaningful way beyond generally linking the use of the judicial exception to a particular technological environment, such that the claim as a whole is more than a drafting effort designed to monopolize the exception see MPEP 2106.05(e) and *Vanda* Memo

Limitations that are **not** indicative of integration into a practical application:

- Adding the words "apply it" (or an equivalent) with the judicial exception, or mere instructions to implement an abstract idea on a computer, or merely uses a computer as a tool to perform an abstract idea - see MPEP 2106.05(f)
- Adding insignificant extra-solution activity to the judicial exception see MPEP 2106.05(g)
- Generally linking the use of the judicial exception to a particular technological environment or field of use – see MPEP 2106.05(h)

Whether claim elements represent only wellunderstood, routine, conventional activity is considered at Step 2B and is not a consideration at Step 2A.

Prong Two excludes the "WURC" consideration

- As noted on the preceding slide, there is no evaluation of well-understood, routine, conventional ("WURC") activity in Prong Two.
- Examiners should give weight to all of the claimed additional elements in Prong Two, even if those elements represent well-understood, routine, conventional (WURC) activity.
 - Because Step 2A **excludes** consideration of WURC, a claim that includes WURC elements may still integrate an exception into a practical application.
 - Do not evaluate WURC unless the analysis proceeds to Step 2B.

What remains the same: Step 2B



Step 2B considerations overlap with Step 2A

Limitations that are indicative of an inventive concept (aka "significantly more"):

- Improvements to the functioning of a computer, or to any other technology or technical field
 see MPEP 2106.05(a)
- Applying the judicial exception with, or by use of, a particular machine see MPEP 2106.05(b)
- Effecting a transformation or reduction of a particular article to a different state or thing

 see MPEP 2106.05(c)
- Applying or using the judicial exception in some other meaningful way beyond generally linking the use of the judicial exception to a particular technological environment, such that the claim as a whole is more than a drafting effort designed to monopolize the exception see MPEP 2106.05(e) and *Vanda* Memo
- Adding a specific limitation other than what is wellunderstood, routine, conventional activity in the field
 see MPEP 2106.05(d)

Limitations that are **not** indicative of an inventive concept (aka "significantly more"):

- Adding the words "apply it" (or an equivalent) with the judicial exception, or mere instructions to implement an abstract idea on a computer, or merely uses a computer as a tool to perform an abstract idea

 see MPEP 2106.05(f)
- Adding insignificant extra-solution activity to the judicial exception see MPEP 2106.05(g)
- Generally linking the use of the judicial exception to a particular technological environment or field of use – see MPEP 2106.05(h)
- Simply appending well-understood, routine, conventional activities previously known to the industry, specified at a high level of generality, to the judicial exception - see MPEP 2106.05(d) and *Berkheimer* Memo

Procedure for tentative abstract ideas

- There may be rare circumstances in which an examiner believes a claim limitation should be treated as an abstract idea ("tentative abstract idea") even though it does not fall within the enumerated groupings of abstract ideas.
- In such circumstances, the examiner should evaluate the claim under the 2019 PEG:
 - If the claim as a whole integrates the tentative abstract idea into a practical application, the claim is **eligible**. This concludes the eligibility analysis. Otherwise, proceed to Step 2B.
 - In Step 2B, if the claim as a whole provides an inventive concept, the claim is eligible. This concludes the eligibility analysis. Otherwise, the examiner should bring the application to the attention of the Technology Center Director.
 - A rejection of a claim reciting a tentative abstract idea must be approved by the Technology Center Director (which approval will be indicated in the file record of the application), and must provide a justification for why such claim limitation is being treated as reciting an abstract idea.

Reminders and takeaways

- Treat the claim as a whole consider all of the recited limitations when determining eligibility
- **No longer use** the "Eligibility Quick Reference Sheet Identifying Abstract Ideas" when determining whether a claim recites an abstract idea
- Whether claim elements represent only well-understood, routine, conventional activity is considered at Step 2B and is not a consideration at Step 2A

- The key inquiry in revised Step 2A is whether a claim that recites a judicial exception is directed to the judicial exception itself, or is instead directed to a practical application of the judicial exception
- Practice compact prosecution this includes addressing all statutory requirements (not just eligibility), and pointing applicants to eligible subject matter in the specification when possible

Resources

- Office guidance on subject matter eligibility
 - MPEP 2106 et seq. [except MPEP 2106.04(II), which has been superseded]
 - Berkheimer Memo issued on April 20, 2018
 - 2019 PEG

• Other materials

- New Form Paragraphs
- Chart of affected MPEP sections
- Sample rejection under the 2019 PEG
- Examples 37-42 demonstrating how to apply the 2019 PEG
- Frequently-Asked-Questions (FAQ) document

Example 41: Cryptographic Communications

Cryptography: Background

- Security of information is important in computer technology.
 - Critical that data being sent from a sender to a recipient is unable to be intercepted and understood by intermediate eavesdroppers
 - Authentication of the source of the message must be ensured along with the verification and security of the message content

- Prior art cryptographic encoding and decoding methods require expensive encoding and decoding hardware and a secure way of sharing the private key used to encrypt and decrypt the message.
- There is a need in the art to perform security and authentication functions efficiently over a public key system.
 - Allow information to be easily shared between users who do not know each other and have not shared the key used to encrypt and decrypt the information

Cryptography: What did applicant invent?

- The invention establishes cryptographic communications using an algorithm to encrypt a plaintext into a ciphertext.
- The invention includes:
 - an encoding device, which is a computer terminal;
 - a decoding device, which is a computer terminal; and
 - a communication channel, where the encoding and decoding devices are coupled to the communication channel.



Cryptography: What did applicant invent? (cont'd)

• The algorithm is as follows:

- The message-to-be-transmitted is precoded by converting it to a numerical representation which is broken into one or more blocks M_A of equal length. This precoding may be done by any conventional means.
- The resulting message M_A is a number representative of a message-to-be-transmitted, where $0 \le M_A \le n-1$, where n is a composite number of the form $n=p^*q$, where p and q are prime numbers.
- The encoding key E is a pair of positive integers e and n, which are related to the particular decoding device.
- The encoding device distinctly encodes each of the n possible messages.
- The transformation provided by the encoding device is described by the relation $C_A = M_A^e$ (mod n) where e is a number relatively prime to $(p-1)^*(q-1)$.
- The encoding device transmits the ciphertext word signal C_A to the decoding device over the communications channel.

Cryptography: What did applicant invent? (cont'd)

- The invention improves upon the prior art because by using only the variables n and e (which are publicly known), a plaintext can be encrypted by anyone.
 - The variables p and q are only known by the owner of the decryption key d and are used to generate a decryption key.
 - The security of the cipher relies on the difficulty of factoring large integers by computers.
 - Therefore, there is no known efficient algorithm to recover the plaintext given the ciphertext and the public information (n, e) (assuming that p and q are sufficiently large).

Cryptography: What did applicant claim?

Now that we understand what applicant invented, let's look at what applicant claimed:

A method for establishing cryptographic communications between a first computer terminal and a second computer terminal comprising:

- receiving a plaintext word signal at the first computer terminal;
- transforming the plaintext word signal to one or more message block word signals MA;
- encoding each of the message block word signals MA to produce a ciphertext word signal CA, whereby CA=MAe (mod n);
 - where CA is a number representative of an encoded form of message word MA;
 - where MA corresponds to a number representative of a message and $0 \le MA \le n-1$;
 - where n is a composite number of the form n=p*q;
 - where p and q are prime numbers;
 - where e is a number relatively prime to (p-1)*(q-1); and
- transmitting the ciphertext word signal CA to the second computer terminal over a communication channel.

Cryptography: Claim + Step 1

A method for establishing cryptographic communications between a first computer terminal and a second computer terminal comprising:

- receiving a plaintext word signal at the first computer terminal;
- transforming the plaintext word signal to one or more message block word signals MA;
- encoding each of the message block word signals MA to produce a ciphertext word signal CA, whereby CA=MAe (mod n);
 - where CA is a number representative of an encoded form of message word MA;
 - where MA corresponds to a number representative of a message and 0 \leq MA \leq n-1;
 - where n is a composite number of the form n=p*q;
 - where p and q are prime numbers;
 - where e is a number relatively prime to (p-1)*(q-1); and
- transmitting the ciphertext word signal CA to the second computer terminal over a communication channel.

Evaluate Step 1: Does this claim fall within a statutory category?



Cryptography: Step 1

A method for establishing cryptographic communications between a first computer terminal and a second computer terminal comprising:

- receiving a plaintext word signal at the first computer terminal;
- transforming the plaintext word signal to one or more message block word signals MA;
- encoding each of the message block word signals MA to produce a ciphertext word signal CA, whereby CA=MAe (mod n);
 - where CA is a number representative of an encoded form of message word MA;
 - where MA corresponds to a number representative of a message and $0 \le MA \le n-1$;
 - where n is a composite number of the form n=p*q;
 - where p and q are prime numbers;
 - where e is a number relatively prime to (p-1)*(q-1); and
- transmitting the ciphertext word signal CA to the second computer terminal over a communication channel.

Step 1 = Yes.

The claim recites a series of steps and, therefore, is a process.

Cryptography: Step 2A Prong One

A method for establishing cryptographic communications between a first computer terminal and a second computer terminal comprising:

- receiving a plaintext word signal at the first computer terminal;
- transforming the plaintext word signal to one or more message block word signals M_A;
- encoding each of the message block word signals M_A to produce a ciphertext word signal C_A , whereby $C_A = M_A^e \pmod{n}$;
 - where C_A is a number representative of an encoded form of message word M_A ;
 - − where M_A corresponds to a number representative of a message and 0 ≤ M_A ≤ n-1;
 - where n is a composite number of the form n=p*q;
 - where p and q are prime numbers;
 - where e is a number relatively prime to (p-1)*(q-1); and
- transmitting the ciphertext word signal C_A to the second computer terminal over a communication channel.

Evaluate Step 2A Prong One:

(a) identify the specific limitation(s) in the claim that you believe recites an abstract idea; and

(b) determine whether the identified limitation(s) falls within at least one of the groupings of abstract ideas enumerated in the 2019 PEG.



A method for establishing cryptographic communications between a first computer terminal and a second computer terminal comprising:

- receiving a plaintext word signal at the first computer terminal;
- transforming the plaintext word signal to one or more message block word signals M_A;
- encoding each of the message block word signals M_A to produce a ciphertext word signal C_A, whereby C_A=M_A^e (mod n);
 - where C_A is a number representative of an encoded form of message word M_A;
 - where M_A corresponds to a number representative of a message and $0 \le M_A \le n-1$;
 - where n is a composite number of the form n=p*q;
 - where p and q are prime numbers;
 - where e is a number relatively prime to (p-1)*(q-1); and
- transmitting the ciphertext word signal C_A to the second computer terminal over a communication channel.

The claim recites a step of encoding each of the message block word signals M_A to produce a ciphertext word signal C_A , whereby $C_A = M_A^e \pmod{n}$. The claim explicitly states that the step of encoding is performed using mathematical formulas and calculations.

Now look at the 2019 PEG to evaluate whether these limitations fall within at least one of the groupings of abstract ideas.

Does the "Encoding" step fall within these groupings?

Mathematical concepts

- Mathematical relationships
- Mathematical formulas or equations
- Mathematical calculations

Mental processes

• Concepts performed in the human mind (including an observation, evaluation, judgment, opinion)

Certain methods of organizing human activity

- Fundamental economic principles or practices (including hedging, insurance, mitigating risk)
- Commercial or legal interactions (including agreements in the form of contracts; legal obligations; advertising, marketing or sales activities or behaviors; business relations)
- Managing personal behavior or relationships or interactions between people (including social activities, teaching, and following rules or instructions)

Mathematical concepts

Mathematical relationships Mathematical formulas or equations Mathematical calculations The claimed concept of encoding performed using mathematical formulas and calculations falls within the "Mathematical Concepts" grouping.

Accordingly, this claim recites an abstract idea.

Note, while the "encoding" step is determined to recite a mathematical concept in this example, this is because the claim explicitly states that the encoding is being performed using mathematical formulas and calculations.

Does the "Transforming" step fall within these groupings?

Mathematical concepts

- Mathematical relationships
- Mathematical formulas or equations
- Mathematical calculations

Mental processes

 Concepts performed in the human mind (including an observation, evaluation, judgment, opinion)

Certain methods of organizing human activity

- Fundamental economic principles or practices (including hedging, insurance, mitigating risk)
- Commercial or legal interactions (including agreements in the form of contracts; legal obligations; advertising, marketing or sales activities or behaviors; business relations)
- Managing personal behavior or relationships or interactions between people (including social activities, teaching, and following rules or instructions)

Mathematical concepts

Mathematical relationships Mathematical formulas or equations Mathematical calculations

Mental processes

Concepts performed in the human mind (including an observation, evaluation, judgment, opinion) The transforming step is not considered to fall within one of the groupings of abstract ideas.

The transformation step, as claimed, is based upon mathematical relationships, formulas, or calculations. However, unlike the encoding step, these mathematical relationships, formulas, or calculations are not explicitly recited in the transformation step.

The transformation step, as claimed, cannot practically be performed in the human mind.

Cryptography: Step 2A Prong Two

A method for establishing cryptographic communications between a first computer terminal and a second computer terminal comprising:

- receiving a plaintext word signal at the first computer terminal;
- transforming the plaintext word signal to one or more message block word signals M_A;
- encoding each of the message block word signals M_A to produce a ciphertext word signal C_A, whereby C_A=M_A^e (mod n);
 - where C_A is a number representative of an encoded form of message word M_A;
 - where M_A corresponds to a number representative of a message and $0 \le M_A \le n-1$;
 - where n is a composite number of the form n=p*q;
 - where p and q are prime numbers;
 - where e is a number relatively prime to (p-1)*(q-1); and
- transmitting the ciphertext word signal C_A to the second computer terminal over a communication channel.

Evaluate Step 2A Prong Two:

Are there additional element(s) or a combination of elements in the claim that apply, rely on, or use the judicial exception in a manner that imposes a meaningful limit on the judicial exception, such that the claim is more than a drafting effort designed to monopolize the judicial exception?



A method for establishing cryptographic communications between a first computer terminal and a second computer terminal comprising:

- receiving a plaintext word signal at the first computer terminal;
- transforming the plaintext word signal to one or more message block word signals M_A;
- encoding each of the message block word signals M_A to produce a ciphertext word signal $C_{A'}$ whereby $C_A=M_A^{e}$ (mod n);
 - where C_A is a number representative of an encoded form of message word M_A;
 - − where M_A corresponds to a number representative of a message and $0 \le M_A \le n-1$;
 - where n is a composite number of the form n=p*q;
 - where p and q are prime numbers;
 - where e is a number relatively prime to (p-1)*(q-1); and
- transmitting the ciphertext word signal C_A to the second computer terminal over a communication channel.

The claim recites the combination of additional elements of: 1) receiving a plaintext word signal at the first computer terminal; 2) transforming the plaintext word signal to one or more message block word signals M_A ; 3) transmitting the ciphertext word signal C_A to the second computer terminal over a communication channel.

A method for establishing cryptographic communications between a first computer terminal and a second computer terminal comprising:

- receiving a plaintext word signal at the first computer terminal;
- transforming the plaintext word signal to one or more message block word signals M_A;
- encoding each of the message block word signals M_A to produce a ciphertext word signal C_A, whereby C_A=M_A^e (mod n);
 - where C_A is a number representative of an encoded form of message word M_A ;
 - where M_A corresponds to a number representative of a message and $0 \le M_A \le n-1$;
 - where n is a composite number of the form n=p*q;
 - where p and q are prime numbers;
 - where e is a number relatively prime to (p-1)*(q-1); and
- transmitting the ciphertext word signal C_A to the second computer terminal over a communication channel.

The combination of additional elements use the mathematical concepts in a meaningful way beyond generally linking the use of the mathematical concepts to a particular technological environment, such that the claim as a whole is more than a drafting effort to monopolize the exception.

In particular, the combination of additional elements use the mathematical formulas and calculations in a specific manner that sufficiently limits the use of the mathematical concepts to the practical application of transmitting the ciphertext word signal to a computer terminal over a communication channel.

A method for establishing cryptographic communications between a first computer terminal and a second computer terminal comprising:

- receiving a plaintext word signal at the first computer terminal;
- transforming the plaintext word signal to one or more message block word signals M_A;
- encoding each of the message block word signals M_A to produce a ciphertext word signal C_A, whereby C_A=M_A^e (mod n);
 - where C_A is a number representative of an encoded form of message word M_A ;
 - − where M_A corresponds to a number representative of a message and $0 \le M_A \le n-1$;
 - where n is a composite number of the form n=p*q;
 - where p and q are prime numbers;
 - where e is a number relatively prime to (p-1)*(q-1); and
- transmitting the ciphertext word signal C_A to the second computer terminal over a communication channel.

Thus, the mathematical concepts are integrated into a process that secures private network communications, so that a ciphertext word signal can be transmitted between computers of people who do not know each other or who have not shared a private key between them in advance of the message being transmitted, where the security of the cipher relies on the difficulty of factoring large integers by computers.

The claim as a whole integrates the mathematical concept into a practical application.

A method for establishing cryptographic communications between a first computer terminal and a second computer terminal comprising:

- receiving a plaintext word signal at the first computer terminal;
- transforming the plaintext word signal to one or more message block word signals M_A;
- encoding each of the message block word signals M_A to produce a ciphertext word signal C_A, whereby C_A=M_A^e (mod n);
 - where C_A is a number representative of an encoded form of message word M_A ;
 - − where M_A corresponds to a number representative of a message and $0 \le M_A \le n-1$;
 - where n is a composite number of the form n=p*q;
 - where p and q are prime numbers;
 - − where e is a number relatively prime to (p-1)*(q-1); and
- transmitting the ciphertext word signal C_A to the second computer terminal over a communication channel.

As previously discussed, Step 2A Prong Two **excludes** evaluation of the well-understood, routine, conventional (WURC) consideration. Thus, even well-understood, routine, conventional subject matter can integrate an abstract idea into a practical application.

In the context of this example, the exclusion of the WURC consideration means that even though receiving a signal at a first computer, transforming it and transmitting the transformed signal to a second computer are described in the background as being conventional, they still integrate the abstract idea in Step 2A Prong Two.

A method for establishing cryptographic communications between a first computer terminal and a second computer terminal comprising:

- receiving a plaintext word signal at the first computer terminal;
- transforming the plaintext word signal to one or more message block word signals M_A;
- encoding each of the message block word signals M_A to produce a ciphertext word signal C_A, whereby C_A=M_A^e (mod n);
 - where C_A is a number representative of an encoded form of message word $M_{A'}$
 - where M_A corresponds to a number representative of a message and 0 $\leq M_A \leq$ n-1;
 - where n is a composite number of the form n=p*q;
 - where p and q are prime numbers;
 - where e is a number relatively prime to (p-1)*(q-1); and
- transmitting the ciphertext word signal C_A to the second computer terminal over a communication channel.

Step 2A = No.

The claim is **eligible** because it is not directed to an abstract idea or any other judicial exception.



