Via Electronic Mail
www.regulations.gov
docket number PTO-P-2021-0032

Attention: Elizabeth Shaw, Office of Policy and International Affairs

IBM Corp. Comments for "Patent Eligibility Jurisprudence Study," 86 Fed. Reg. 36257 (July 9, 2021)

IBM thanks the United States Patent and Trademark Office ("Office" or "USPTO") for the opportunity to respond to your request for information for the 2021 "Patent Eligibility Jurisprudence Study." IBM has frequently advocated for reform of patent eligibility jurisprudence.[1] The state of patent eligibility under 35 U.S.C. § 101 and the judicially created "abstract idea" exception continue to unnecessarily generate wide uncertainty about the validity of information technology patents and to undermine the patent incentive. It is a significant concern to innovators and patentees, who rely on the patent system to protect their investment in computer-related innovations. This uncertainty reduces public confidence in issued patents, making it harder for inventors to benefit from those patents. The eligibility test in the United States is more restrictive than in other countries, and can result in denial of patent coverage for otherwise deserving inventions, which impacts investment in emerging technologies. The United States needs a more principled and certain eligibility standard.

IBM has been an innovation company for over 100 years and patents have played a significant role in our history from Herman Hollerith's 1889 patent on the "Art of Compiling Statistics" through our recent patent on "Implementing a Separation of Duties for Container Security."[2] We are committed to technology development and scientific pursuits. On eight occasions, more times than any other company or organization, IBM has been awarded the U.S. National Medal of Technology, the nation's highest award for technological innovation. Our employees have included six Nobel laureates and recipients of ten U.S. National Medals of Technology, five U.S. National Medals of Science, six Turing Awards, nineteen inductees in the National Academy of Sciences, and twenty-five inductees into the U.S. National Inventors Hall of Fame.

Our inventions have served as a catalyst for entire industries, and have shaped the information technology tools that we all know and use, such as the invention of hard disk drives, dynamic random access memory, bus control for peripheral devices, the first high level programming language, relational databases, and universal product codes.[3] IBM has a leading-edge corporate research lab with approximately 3,000 scientists and engineers working to build next-generation technologies that will underpin United States leadership in hybrid cloud, artificial intelligence, cybersecurity, and quantum computing. We are committed to pushing the boundaries of technological and scientific discovery to positively shape our world. To do this, IBM invests more than $6 billion a year in research and development.[4]

We see the patent system from all sides. IBM is a patent owner, licensor of our patents, licensee of others' patents, recipient of demand letters, and the employer of tens of thousands of inventors. Since 2010, the year the Supreme Court decided *Bilski v. Kappos*, IBM has been involved in over 100 patent infringement litigations, the vast majority of them as a defendant, and dozens of *inter partes review* proceedings as both petitioner and patent owner. For almost three decades, IBM has been among the top grantees and owners of U.S. patents, with the Office having granted IBM over 9,000 U.S. patents in 2020.[5] IBM's culture of scientific research is integral to the company's legacy of innovation that matters to our clients and to the world. To that end, in April 2020, IBM announced that it was a founding partner of the Open COVID Pledge, which grants free access to our portfolio of more than 80,000 IBM worldwide patents and applications to those developing technologies to help diagnose, prevent, contain, or treat coronaviruses.[6]

Innovation today is characterized by global collaboration, multidisciplinary discovery, interconnected technologies, and complex products incorporating multiple patented inventions. This is as true at IBM as well as at thousands of other American companies that rely on the patent system to protect their inventions. At IBM, we use our extensive patent portfolio in many ways, such as: (1) protecting the inventions of our scientists and engineers, especially in groundbreaking, emerging technologies; (2) preserving our ability to provide the innovative solutions that our clients demand; and (3) facilitating collaboration between different companies through joint development agreements and negotiated licenses to each other's patented inventions. These goals have become harder to achieve due to the state of patent eligibility in the United States today.

Topic 1. The current state of patent eligibility jurisprudence creates significant uncertainty for businesses that innovate in the field of information technology. This uncertainty delays and increases the cost of procurement and enforcement of patents, making it harder and more expensive to protect innovation investments.

Collaborative research and development in the information technology ecosystem thrives when there are clear rules of the road. Uncertainty – like we have with patent eligibility – undermines productivity. A strong and reliable patent system provides IBM with comfort when we can share innovations with research partners; if a partner seeks to commercialize those innovations, IBM will receive just compensation.

In the absence of reform, IBM and other companies may direct research into areas more clearly eligible for patent protection, especially for innovation areas where trade secret protection is not a viable option, such as where use of the innovation renders it readily ascertainable by the public.[7] And where trade secrets are a feasible means of protection, IBM may become increasingly more reliant on using trade secrets to protect our innovations. The expressive elements of IBM's software offerings are protected by copyright law, but that does not protect the functional aspects of such software, which may be appropriated by others without direct copying of the expressive elements.[8] To the extent IBM and others rely more on trade secret and copyright protection, new breakthrough ideas will be withheld from public view and other entities will be unable to learn from or improve upon them, undermining the fundamental bargain upon which the patent system is based.

A balanced patent system is an important driver of innovation in information technology. IBM supported the Leahy-Smith America Invents Act of 2011 ("AIA") and we share the concerns about vexatious patent enforcement schemes that motivated some of the changes made by the AIA. We do not want to return to the state of the patent system we had in the years before the AIA. Instead, IBM wants the United States to have a more principled and certain eligibility standard that allows innovators to obtain and benefit from patents without enabling abusive behaviors.

Topic 2. The uncertainty and inadequacy of protection that characterizes current patent eligibility jurisprudence negatively impacts many aspects of IBM's acquisition and exercise of intellectual property rights, such as patent application development, procurement, enforcement, licensing, and litigation, with the impact compounded across these multiple layers. Like most companies, IBM relies upon inventors to bring inventions forward for consideration as possible patent application filings. And while we have a patent-savvy inventor community, expecting them to understand whether their inventions are patent eligible, which is difficult even for seasoned attorneys, is too much to ask of non-attorneys who do not have time to study the constant stream of new and hard to reconcile judicial opinions.[9] Not only does the uncertainty increase IBM's cost of inventor education and invention evaluation, but inventors' incentive to disclose inventions to our attorneys is undermined when the inventors lack a basic sense that there are objective eligibility rules. The bias in patent eligibility jurisprudence against certain types of inventions

could also influence the research choices of our patent-focused inventors, who seek eminence and recognition provided through patenting.

This negative impact is also seen during patent prosecution. Prosecution of IBM's U.S. patent applications often requires an extensive dialogue with examiners about eligibility jurisprudence and how it applies to our inventions, which can resemble a philosophical debate. Even patent examiners have a difficult time applying the eligibility jurisprudence, and this can result in variability between examiners. The additional prosecution efforts needed to overcome examiner's eligibility concerns increase costs, slows our ability to obtain patents, and sometimes results in legally unwarranted changes to the definition of the invention as recited in our claims.

Even after IBM's patents issue, the vagueness at the heart of U.S. patent eligibility jurisprudence undermines the respect afforded to many of those patents. Courts have indicated they are not bound by the subject matter eligibility guidance that is followed by the Office,[10] so even though we can obtain duly issued patents, our ability to protect our innovations and to derive appropriate reward from those patents is undermined by continued uncertainty. These uncertainties are relied upon and exploited by infringers who openly capitalize on patented innovations but refuse to negotiate or even discuss any patents brought to their attention. Such behavior forces patent owners to choose between commencing costly and disruptive litigation or foregoing a key benefit that patents were intended to provide. When a matter does result in litigation, infringers routinely and repeatedly re-argue that inventions lack patent eligibility, starting with early motions to dismiss and continuing through post-trial motions and appeals. The inherent uncertainty of eligibility law each step of the way, even seven years after *Alice*, drives up the cost of litigation and reduces the incentive to efficiently resolve disputes. This lack of certainty is not good for patent owners or alleged infringers. Even with early motions to dismiss, both plaintiffs and defendants incur considerable costs, as discovery proceeds in parallel and appeals of eligibility decisions have become the norm. Rather than negotiate toward a resolution, defendants raise eligibility arguments in the hope the patent owner will grow weary or a court, believing it knows abstraction when it sees it,[11] will feel the claim is too abstract to be patented. The uncertainty creates an incentive to litigate through to petitioning the Supreme Court. Often both parties would have been better off, and achieved an earlier resolution, by focusing on more disciplined patentability requirements such as obviousness and written description. Every step of the process – from procuring the patent to final resolution of the infringement disputes – is plagued by similar delays and costs associated with the same additional need to address eligibility *de novo* at each stage.

Topic 3. The current state of patent eligibility jurisprudence in the United States negatively impacts investment and innovation in artificial intelligence, quantum computing, and other computer-related inventions. Under this jurisprudence, determining whether a computer-related invention is the type that is eligible to be patented requires contemplating whether the claim is directed to an "abstract idea" and then whether it recites "something more" than the abstract idea. This test is biased against computer-related inventions because abstraction is a foundational characteristic of computer science.

Traditional computers typically perform operations millions of times a second, with each based on levels of current flows in millions of transistors contained in a chip, executing at lighting fast speed a vast symphony of data manipulations that no human could follow, yet still reaching a predictable result. To make designing such overwhelming complexity a manageable task for developers, the abstract concept of bits is used to represent the electrical levels, the bits are abstracted into logic gates, and their operations are abstracted into instructions executed by a processor. The levels of abstraction continue from the chip level to the software layers. The operating system creates an abstract view of the memory and components in a system for the benefit of the application programmer. A compiler translates a program from a more abstract "high level" language into a less abstract machine level language. Another example of abstraction's role in computer science is the Open Systems Interconnection (OSI) model, which divides

communications processes in an information technology system into seven layers, from the physical layer through the network layer to the application layer, each providing an abstracted view of the underlying system to the layers above it.[12]

Many of the elements in a claim for an information technology invention, such as an operating system, a database, and the internet, are not concrete entities that you can see or touch. To determine if a particular development is of the type eligible for patenting, current jurisprudence asks courts to make a subjective judgment of whether developments are just *too* abstract, with the only guideposts being prior judicial decisions that themselves were fact-specific, subjective judgments. In many cases, courts find computer-related development to be too abstract if presented at a high enough layer to be familiar to the average person. The jurisprudence is biased to classify higher-level (and thus more fundamental and valuable) inventions as not patent eligible because they are viewed as a "result" and not how the computer operates, even though every operation at every layer in a computer system is both a result of the layer below it and how the integrated computer system operates from the point of view of the layer above it. The bias favors only permitting patents for discrete implementations buried deeper within the layers of the computer system, which are by nature harder to monitor for third party infringement, easier to design around, and less valuable. It also multiplies the number of patents necessary to describe a single system, increasing the likelihood of fractured patent ownership and litigation. This reduces the patent incentive for innovation, and lowers the return on investment, for computer-related inventions.

Artificial intelligence (AI) provides a good example of the impact of the "abstract ideas" test. AI is often used to refer to machines or computers that mimic the problem-solving and decision-making capabilities of the human mind. An AI invention is particularly susceptible to being considered too abstract of an idea to be eligible for a patent because the underlying subject matter – the functions of the human mind – is commonly understood as abstract. AI is often developed as a model created through an iterative training process of testing, assessing error, and re-adjusting underlying parameters to identify complex rules that map input data to output data. From a patent eligibility standpoint, there is generally no objective line between how AI models operate and the "result" AI achieves. A method of human activity can be improved by the use of AI, but even if it is a new and non-obvious innovation, it may be erroneously viewed as too abstract to be patent eligible. In other words, it is often difficult to adequately claim an AI invention without focusing the claim on the desired result. Given that AI techniques are intended to cause a computer to learn and respond as a human would, patent applications for such techniques face the illogical situation where the more broadly an invention achieves these goals, the more difficult it is to obtain meaningful patent protection directed at the broader scope of the invention. This increasingly leads applicants to decide between accurately detailing the novel aspects of the invention and drafting the application to maximize the chance of being found patentable under the current subject matter eligibility jurisprudence. For this reason, navigating the current patent eligibility jurisprudence may require unduly narrowing AI claims away from the more valuable aspects of the innovation.

The impact of patent eligibility jurisprudence on quantum computing innovation can also be significant. Quantum computers use the properties of quantum physics, such as superposition and entanglement, to process data and perform computations. Descriptions of innovations in quantum computing may be erroneously viewed as abstract ideas, such as the developments of quantum algorithms (analogous to software) and key areas such as error correction processes. While a given quantum computing innovation may ultimately be considered as "something more" than the associated abstract ideas, because it is viewed as improving the underlying technology, determining how a court will later view the claimed invention will often remain uncertain. Even in classical computing applications, the underlying technology and the result of the invention (which courts have found are not patentable) often blend together under subjective

judicial scrutiny. Because we are still at the cusp of widespread commercial adoption of quantum computing, it is too soon to know how courts will apply the current patent eligibility jurisprudence.

IBM and others are investing significant amounts on research within the U.S. on AI, quantum computing, and other computer-related fields. Patent protection facilitates attracting investment capital for R&D in all fields, including computer implemented inventions, and investors naturally want to see a return on their investment. In today's economy, where the main commercial value often takes the form of intellectual property (which very often regards software), companies need to show that the intellectual property they have created through R&D expenditures can be adequately protected. But where patent coverage is uncertain and weaker, the investment return tends to be reduced, particularly for smaller firms with smaller market share. With less return on investment, it is to be expected that there is less incentive to invest in critical emerging technologies.[13] Our concern is not just for the information technology business sector, but more importantly the effects throughout the broader U.S. economy, as AI and other advanced software innovations are increasingly infused across all industries, such as automotive, healthcare, and manufacturing. Because software transforms algorithms into meaningful results that can be replicated and easily modified, software is the medium of modern innovation. Software enabled innovations are the main value driver throughout our economy, and software is expected to play an even bigger role in the future because innovations in almost every economic sector generally involve and are embodied in computer technology (i.e., software). Information technology is the platform of choice for development and manufacturing and lies behind technologies such as computer aided design, 3D printing (even of living tissue), and computational biology. Even simple objects, such as a pencil, may be first specified using complex computer-aided design tools or manufactured using the software tools underlying 3D printing. But the reach of computer enabled innovation, and a logical extension of the current patent eligibility jurisprudence, have even led courts to find inventions lacking eligible subject matter in cases involving mechanical devices and processes such as an electric car charger, a garage door opener, a method for tuning driveshaft liners, and most recently the design of a digital camera.[14]

There is an accelerating confluence of use of software enabled inventions, such as AI and high performance computing, with technologies in other fields, especially in life sciences, where application of computer-implemented technologies can speed drug discovery and improve health outcomes.[15] For example, last year, IBM, the White House Office of Science and Technology Policy, and the U.S. Department of Energy spearheaded creation of the COVID-19 High Performance Computing Consortium, which brought more than 30 supercomputers into the fight against COVID-19. This public-private consortium offers free computing time and technical resources on world-class machines to be used for extensive research in areas like bioinformatics, epidemiology, and molecular modeling.[16] Certainty in patent eligibility jurisprudence, especially in areas of technological confluence, will become even more critical in the case of quantum computing technologies, which promise exponentially-higher computational performance to unlock the secrets of biological processes such as photosynthesis, and lead to breakthrough advancements.

Topic 4. Many countries only consider an invention to be patentable if the invention has a technical character. Determining whether an invention has a technical character is not always easy, and may lead to some uncertainty, but this test is easier to apply and more predictable than the "abstract ideas" jurisprudence we must wrestle with in the United States. Most inventors, attorneys, examiners, and judges have a common-sense notion of what is considered technical. By contrast, there is no experience or training that equips members of the patent community to decide whether an invention is directed to an idea that is "abstract," or to decide whether the invention nonetheless contains the "something more" that would make it patent eligible. Courts have never adequately defined what is meant by "abstract" (due to the difficulty of the task). Without such a foundation, determining if a claim is something more than the (undefined) abstract idea is even more subjective. Because it is so subjective, the "abstract ideas" jurisprudence leads courts to frequently invalidate patents as ineligible subject matter, which is why many

commentators view the U.S. as having adopted the most restrictive patent eligibility requirements. And because the fate of a larger number of patents is impacted by the "abstract ideas" jurisprudence than by a technicity test, this results in U.S. users of patented technology as a whole exhibiting more resistance to the otherwise routine enforcement of patent rights than occurs in many other countries.

Even so, the technicity requirements vary from country to country, and they do not provide specific, useful guidance for Section 101 reform in the United States. For example, some countries conflate their technicity requirement for eligibility with inventive step considerations (analogous to U.S. obviousness considerations). What we can learn from the approach of other countries is that patent eligibility should be a coarse filter, and that the test for patent eligibility should be distinct from inventiveness analysis.

Topic 5. Since *Alice*, a high percentage of IBM's U.S. patent applications that we identified as having been abandoned solely because of patent eligibility, and as having counterpart applications that concluded prosecution, resulted in a different conclusion in the other country, but our sample size is very small.[17] Because IBM generally files applications in the U.S. before filing in other jurisdictions, some counterparts to applications IBM abandoned in the U.S. solely because of patent eligibility are still pending in other countries. In addition, the Office's precise request in Topic 5, which asks about applications abandoned "solely" on the basis of patent subject matter ineligibility, understates the extent of the problem. Many applications abandoned with outstanding rejections under Section 101 also have other pending rejections. While the reason for abandonment in such cases may have been eligibility, most applicants do not have records detailing the reasons for abandonment that allow easy identification of these applications as "solely" due to Section 101.

The USPTO can obtain a more comprehensive view of the problem by performing an analysis of its own databases. The USPTO and other patent offices around the world maintain official patent prosecution data for each application, which records abandonments, rejections at time of abandonment, and patent grant in each country. The USPTO should consider using its search experts to generate its own data analysis for the entirety of the patent system, rather than asking each respondent to this Federal Register Notice to generate data about their own patents. As noted above, many applicants do not ordinarily maintain or cannot easily obtain this type of data, particularly as to reasons for abandonment.

Moreover, abandonment of patent applications in the U.S. is only a small part of the problem caused by subject matter eligibility jurisprudence. As discussed in our response to Topic 2, the uncertainty of the subject matter eligibility test and the bias against computer-related inventions make it more difficult to license U.S. patents and thus reduces the reward to U.S. inventors of such technology. But even though it does not capture the entirety of the problem, Topic 5 correctly recognizes the importance of comparing eligibility in the U.S. with other countries. If the U.S. is less protective of innovations than other countries, we will have less of a defense against foreign companies copying those innovations in our own market. And investments could shift to countries with more predictable and reliable patent protection.

Topic 7-9. It is likely that the current state of patent eligibility jurisprudence could cause businesses to change their patent strategy and behaviors by filing fewer patent applications and receiving fewer patents in the U.S. for computer-related inventions. These changes could increase over time. One reason for a lag in behavioral changes is that the amount of ambiguity in the law leaves some to incorrectly believe that their patent activity will lead to successful results. In that regard, because the Office has been applying different eligibility guidance than is applied in the courts, innovators find it easier to obtain patent grants than to use the granted patents to protect their investment. In addition, it could take time for some companies to adapt their business models in reaction to changes in the law. Other companies, like startups that have not yet invested in a strategy, could more easily steer away from filing patents on

computer-related inventions and could target more of their research investment in areas where they could obtain more coherent patent protection.

One of the important features of the patent system is that it requires inventors to disclose to the world their invention and how to make and use it. Companies who do not file patent applications for innovations that are hard to discover upon use would, by default, rely on trade secret and copyright protection. In general, to qualify as a trade secret, the information must be commercially valuable because it is secret, be known only to a limited group of persons, and be subject to reasonable steps to keep it secret.[18] Thus, inventions are born as trade secrets, and IBM and most other companies already leverage trade secret protection. Since Congress passed the Defend Trade Secrets Act of 2016, creating a general Federal law of trade secrets, there has been renewed focus on using a trade secret approach to protect a company's innovations. While trade secret law has its place in a balanced overall strategy, the lack of predictability in patent eligibility, especially for many computer-implemented inventions, will skew companies away from patent filing and toward keeping more inventions from the public. But trade secrets are not a substitute for patents—they are not applicable if an innovation is readily discoverable upon use, they provide narrower protection, and they inhibit collaboration, which is bad for our innovation economy. Similarly, copyright protection is not a substitute for patents. While the expressive components of software and other works of authorship are protected by copyright law, that protection does not extend to the functional aspects of the work.

Patent protection facilitates collaboration and innovation in many ways. For example, partners typically rely on pre-existing patents to prevent the other party to a collaboration from taking the innovations disclosed. As today's research initiatives are highly technical and complex and the costs too high for most organizations to go it alone, companies routinely enter into joint development agreements (JDAs) with research partners. Through these JDAs, partners typically cross-license each other's patents, but only for the purposes of that research effort. If it is difficult or impossible to enforce patents on a particular subject matter, such as computer-implemented inventions, there is increased risk that disclosure of innovations to a research partner may result in that partner commercializing those innovations without just compensation.

One illustration of the benefits of cross-licensing to spur collaborative innovation is in the semiconductor industry, an industry characterized as one of intense capital investment. The significant amount of investment required to develop and bring semiconductors to market in a way that broadly benefits the U.S. economy is too great for any one company. Broad cross-licensing has facilitated and encouraged cooperation among companies in developing new technologies by minimizing the risk and associated costs of infringement suits. Cross-licensing also benefits consumers of semiconductor-driven products by decreasing product design cycles, yielding better products, and creating efficiencies that result in lower end-user prices. Also, because cross-licenses allow competitors to produce similar products without fear of infringement, companies compete on quality and price, to consumers' benefit. Moreover, this cross-licensing in the semiconductor industry benefits the broader economy since semiconductors are increasingly critical components of so many vital products on which consumers depend today.

Patent eligibility jurisprudence has affected licensing, patent sales, and infringement litigation in the United States. Because some infringers do not take charges of infringement seriously (and hide behind the ambiguity in patent eligibility), patentees who seek to license their patents have no other option but to consider litigation against the infringer. The costs and uncertainties of litigation have always meant that it is considered a last resort, and as a consequence, some patents then go unenforced and some innovators go unrewarded, are ripped off, or put out of business. Where litigation does ensue, many cases feature briefing and arguments as to whether the invention is patent eligible subject matter. Due to the

ambiguous nature of the eligibility requirements, most defendants can present a legal argument without the need for any evidentiary support. This additional briefing raises the costs of the litigation and, where the argument is raised early and repeatedly, can significantly increase the burden on courts. And as has become the rule for computer-related inventions, defendants are less likely to settle because the ambiguity in the law leaves open the possibility, however remote, that any given innovation will be deemed just too abstract during one of the multiple rounds of scrutiny.

Rather than make drastic changes to our intellectual property strategies, IBM has been trying to reform and repair the patent system. IBM has long expressed interest in fixing other areas of the patent system. We strongly supported the AIA, which contained patent quality enhancement provisions including authorizing submission of evidence of prior invention during examination and establishing new mechanisms to challenge the validity of issued patents at the Patent Trial and Appeal Board. Further, IBM has frequently filed amicus briefs with the courts advocating for decisions in patent matters that balance the interests of both inventors and implementers. IBM appreciates the Office conducting this Patent Eligibility Jurisprudence Study and we hope that IBM's comments and the comments of others leads to reform and to a more principled and certain eligibility standard.

Topic 10-13. The current state of patent eligibility jurisprudence in the U.S. has weakened patent protection in the U.S. compared to the rest of the world. Innovators are less likely to file patent applications in the U.S. and are less likely to enforce their patents in the U.S., allowing other countries to become forums where global disputes are litigated, under the laws of those other countries. The impact of patent eligibility policies to the U.S. economy as a whole is driven by the reduced rewards that are available for a particular type of invention when patents are unavailable because that type of invention is judged not worthy. This has more of an impact on smaller entities lacking in market power. As IBM explained above in response to Topic 3, the current U.S. patent eligibility law has an outsized impact on patents for inventions in AI, quantum, and other computer-related inventions, which by nature involve abstractions. The public suffers because there is less innovation available in these fields. When there is a high degree of uncertainty as to whether many patents in key sectors of our economy may be invalid, as ideas judged to be just too abstract, that undermines the ability of the patent system to promote the progress of innovation.

Respectfully submitted,

Manny W. Schecter
Chief Patent Counsel, Intellectual Property Law, IBM Corporation
schecter@us.ibm.com

Kenneth R. Corsello
Counsel, Intellectual Property Law, IBM Corporation
kcorsell@us.ibm.com

Endnotes

[1] Some of IBM's prior comments on this topic, which are still pertinent today, are:

- Testimony of Manny Schecter, Chief Patent Counsel, IBM, submitted to Senate Jud. Comm., Subcomm. on Intellectual Property, "The State of Patent Eligibility in America" (June 11, 2019), *available at* https://www.judiciary.senate.gov/imo/media/doc/Schecter%20Testimony.pdf
- IBM Corporation's Comments on "Notice of Roundtables and Request for Comments Related to Patent Subject Matter Eligibility," 81 Fed. Reg. 71485 (October 17, 2016), *available at* https://www.uspto.gov/sites/default/files/documents/comments_ibm_jan182017.pdf
- IBM Corporation's Response to "Request for Comments On 2019 Revised Patent Subject Matter Eligibility Guidance," 84 Fed. Reg. 50 (Jan. 7, 2019), *available at* https://www.uspto.gov/sites/default/files/documents/eligibility2019comments_e_ibm_2019mar08.pdf

[2] *See* U.S. Patent Nos. 395,782 and 11,095,652. It is unclear whether this first of many patents issued to Mr. Hollerith, which later were foundational assets of the company that became IBM, would be patentable subject matter under today's jurisprudence. U.S. Patent No. 11,095,652, which is one of IBM's most recent patents and which is directed to encrypting data at a container level within a computer system, was originally rejected by the Examiner in the first Office Action as lacking patentable subject matter under §101.

[3] *See* U.S. Patent Nos. 3,503,060 (Direct Access Magnetic Disc Storage Device); 3,387,286 (Field-Effect Transistor Memory); 4,528,626 (Microcomputer System with Bus Control Means for Peripheral Processing Devices); and 2,612,994 (Classifying Apparatus and Method), which were cited for the IBM inventors' inductions into the National Inventors Hall of Fame. A summary of these and other IBM innovations can be found at: https://www.ibm.com/ibm/history/ibm100/us/en/icons/.

[4] *See* IBM 2020 Annual Report, at 37, *available at*: https://www.ibm.com/annualreport/assets/downloads/IBM_Annual_Report_2020.pdf

[5] *See* https://www.ibm.com/blogs/research/2021/01/ibm-patent-leadership-2020/

[6] *See* https://newsroom.ibm.com/index.php?s=34178&item=31937

[7] *See, e.g.*, 18 U.S.C. § 1839(3) (defining "trade secrets" for the purposes of the Defend Trade Secrets Act as requiring, among other things, that the information not be "readily ascertainable through proper means").

[8] *See* 17 U.S.C. § 102(b) ("In no case does copyright protection for an original work of authorship extend to any idea, procedure, process, system, method of operation, concept, principle, or discovery, regardless of the form in which it is described, explained, illustrated, or embodied in such work.").

[9] Even though the Office's most recent guidance applies a set of general rules instead of the case-by-case approach, the courts' primary method of analysis is to draw analogies to past cases, which makes it difficult to predict the results of future cases. As discussed below, *see* note 10, the courts have made clear that they are not bound by the Office's guidance or decisions on eligibility.

[10] *See In re Rudy*, 956 F.3d 1379, 1383 (Fed. Cir. 2020) ("We are not, however, bound by the Office Guidance, which cannot modify or supplant the Supreme Court's law regarding patent eligibility, or our interpretation and application thereof"); *Cleveland Clinic v. True Health*, App. No. 2018-1218, 760 Fed. Appx. 1013, **16 (Fed. Cir., Apr. 1, 2019) (non-precedential) ("While we greatly respect the PTO's

expertise on all matters relating to patentability, including patent eligibility, we are not bound by its guidance.").

[11] *See Eclipse IP v. McKinley Equip.*, 2014 U.S. Dist. LEXIS 125529 at *7 (C.D. Cal. Sep. 4, 2014) (comparing the *Alice* test to Justice Stewart's famous phrase in *Jacobellis v. State of Ohio*, 378 U.S. 184, 197, 84 S. Ct. 1676, 12 L. Ed. 2d 793 (1964) (Stewart, J. concurring) ("I shall not today attempt further to define the kinds of material I understand to be embraced within that shorthand description; and perhaps I could never succeed in intelligibly doing so. But I know it when I see it . . . .)).

[12] More detail on the OSI model can be found *at* https://www.ibm.com/docs/en/npi/1.1.0?topic=glossary-osi-model

[13] *See* Professor David O. Taylor, Answers to Written Questions for the Record by Senate Jud. Comm., Subcomm. on Intellectual Property, "The State of Patent Eligibility in America" (June 4, 2019), *available at* https://www.judiciary.senate.gov/imo/media/doc/Taylor%20Responses%20to%20QFRs.pdf. Professor Taylor's research found that investors overwhelmingly believe patent eligibility is an important consideration when their firms are considering whether to invest in companies developing technology.

[14] *See ChargePoint v. SemaConnect*, 920 F.3d 759 (Fed. Cir. 2019); *Chamberlain Group v. Techtronic Indus.*, 935 F. 3d 1341 (Fed. Cir. 2019); *Am. Axle & Mfg. v. Neapco Holdings LLC*, 967 F.3d 1285 (Fed. Cir. 2019); *Yu v. Apple*, 2021 U.S. App. LEXIS 17434 (Fed. Cir. June 11, 2021).

[15] *See* Katelyn Rothney, *How Keystonemab is Using Watson to Revolutionize Drug Discovery, at* https://www.ibm.com/blogs/watson/2021/04/keystonemab-drug-discovery/ (last visited September 14, 2021).

[16] *See* the *COVID-19 HPC Consortium* website, *at* https://covid19-hpc-consortium.org/ (last visited September 14, 2021).

[17] For example, JP Pat. No. 6132288 was issued by the Japanese patent office, but two counterpart applications filed in the United States as U.S. Appl. Serial No. 14/633,404 and U.S. Appl. Serial No. 14/748,265 were abandoned based on a rejection under § 101. Similarly, JP Pat. No. 5984142 was issued by the Japanese Patent Office, but a counterpart application filed in the United States as U.S. Appl. Serial No. 14/277,396 was abandoned based on a rejection under § 101. Another example is CN106030592B issued by SIPO in China, while a counterpart application filed in the United States as U.S. Appl. Serial No. 14/277,396 was abandoned based on a rejection under § 101.

[18] *See, e.g.*, 18 U.S.C. § 1839(3) (defining "trade secrets" for the purposes of the Defend Trade Secrets Act).