Hon. Drew Hirshfeld
Commissioner for Patents, Performing the Functions and Duties of Undersecretary of Commerce for Intellectual Property and Director
U.S. Patent and Trademark Office
P.O. Box 1450
Alexandria, Virginia 22313-1450

Via Federal eRulemaking Portal
Docket No. PTO-P-2021-0032

Dear Commissioner Hirshfeld:

IGT respectfully submits this response to the request of Senators Tillis, Hirono, Cotton, and Coons, and the United States Patent & Trademark Office for comments from the public regarding the current state of patent eligibility jurisprudence in the United States, and how the current jurisprudence has impacted investment and innovation. IGT is the world leader in gaming technology creation and development. IGT holds thousands of patents to gaming technology, including patents covering innovative features of gaming systems, gaming machines, and lottery gaming systems, and IGT has licensed portfolios of its patents throughout the gaming industry and beyond. Since the Supreme Court's decision in *Bilski* in 2010, IGT has filed over 1,500 new patent applications, licensed its patents to over 30 different entities, and has been involved in several patent cases as both plaintiff and defendant. Given the high level of investment in its intellectual property, IGT has been directly impacted by the current jurisprudence concerning patent eligibility and is concerned about its chilling effect on investment in new technologies, reliability of the U.S. patent, and the ability to protect innovation in emerging fields.

I. Question 1: Please explain how the current state of patent eligibility jurisprudence affects the conduct of business in your technology area(s).

IGT makes significant investments in research and development directed toward software-based innovations in the gaming industry. The consumer appeal of complex video-based gaming relies heavily on user experience, which is highly visible to the outside world and thus subject to reverse-engineering. Accordingly, effective patent protection is critical to protect these innovations from competitors who can copy and imitate successful software-based games. IGT has obtained numerous patents covering its software technology (many falling under Patent Technology Center 2100) and continues to file new patent applications directed to its software-based innovations. However, the seeming randomness with which software innovations are deemed eligible or ineligible for patent protection under 35 U.S.C. § 101 ("Section 101") poses a significant risk to IGT's business and its investments in intellectual property.

IGT's business relies heavily on software innovations to maintain a competitive edge for its gaming systems; as a result, IGT's business also relies heavily on a predictable system for securing and enforcing patents which the current Section 101 jurisprudence has unfortunately destabilized. The casino floor of today is far more technologically sophisticated than the casino floor of 50 years ago. While gaming systems such as slot machines have been a fixture for the entire time, the standard slot game with three mechanical reels that paid winnings based on

symbols appearing along one horizontal line in the center have been largely replaced by a nearly endless variation of more complex video-based slot and other gaming machines. Led by companies like IGT, the gaming industry has developed a multitude of new features and game-play improvements that have made slot machines more exciting, more enticing, and more engaging for players. Many of these innovations rely on software for implementation and points of novelty, whether they comprise improvements in game functionality, display, security, or other aspects of the user experience. These inventions represent concrete and particularized improvements that have had a tangible and meaningful impact on the industry. Despite the clear technological value of these inventions, the chaotic and unpredictable application of Section 101 leaves IGT and other innovators guessing if applications on these technologies will be deemed eligible at the Office. IGT's ability to protect its core technologies and maintain a competitive edge is drastically undermined by this unpredictability in securing and enforcing patents.

The unpredictability in securing and enforcing patents is evidenced by the conflicting application of Section 101 by the Federal Circuit and the Office. For example, in *Cleveland Clinic Found. v. True Health Diagnostics LLC*, 760 Fed. Appx. 1013 (Fed. Cir. Apr. 1, 2019), the patent holder relied in part on official guidance from the Office regarding Section 101 eligibility that was published in 2016, after *Alice* was decided. *Id.* at 1020. The Federal Circuit acknowledged that under the Office's guidance, the claims at issue would be patent eligible. *Id.* Nonetheless, applying its own Section 101 principles, the Federal Circuit reached the opposite conclusion, stating, "While we greatly respect the PTO's expertise on all matters relating to patentability, including patent eligibility, we are not bound by its guidance." *Id.* That case, decided in April 2019, involved a set of Office guidelines published in 2016, and thus innovators and their attorneys and representatives spent three years relying upon one set of guidelines in obtaining patents only to have those guidelines disregarded by a single panel of the sole Court of Appeals empowered to interpret patent law. While that case was pending, in January 2019, the Office published an updated set of guidelines, titled *2019 Revised Patent Subject Matter Eligibility Guidance*. 84 Fed. Reg. 4, 50 (Jan. 7, 2019). Subsequently, the Federal Circuit reaffirmed that "the Office Guidance is not, itself, the law of patent eligibility, does not carry the force of law, and is not binding in our patent eligibility analysis." *In re Rudy*, 956 F.3d 1379, 1382 (Fed. Cir. 2020). The court further held that "[t]o the extent the Office Guidance contradicts or does not fully accord with our caselaw, it is our caselaw, and the Supreme Court precedent it is based upon, that must control." *Id.* at 1383. Thus, while innovators and practitioners rely on the Office Guidelines in *securing* patent protection, they cannot rely on them when *enforcing* patents in the courts. This leaves inventors with even less confidence that their investments will be adequately protected even if the Office grants patent protection.

In addition to the decreased confidence in patents, IGT is having to spend more to obtain patents due to the erratic application of Section 101 at the Office. The *Alice* framework allows ample room for subjectivity. While the Office's Guidelines may treat the framework as straightforward, IGT has encountered severe differences among examiners on what inventions are considered abstract, what constitutes an improvement or a practical application, and what constitutes "significantly more." These discrepancies drive up costs by prolonging prosecution, increasing the number of RCEs, and forcing abandonment or appeal of applications that should be considered eligible. Unfortunately, the PTAB has also struggled to consistently apply Section 101 making the decision to spend the money to appeal an application a gamble. Ultimately, the

inconsistent application of Section 101 has made it difficult for all applicants to determine whether pursuing a patent application is a prudent financial decision.

Question 2: Please explain what impacts, if any, you have experienced as a result of the current state of patent eligibility jurisprudence in the United States. Please include impacts on as many of the following areas as you can, identifying concrete examples and supporting facts as possible.

The current state of patent eligibility jurisprudence has deeply and negatively impacted IGT in several different areas:

a. Patent prosecution strategy and portfolio management

While IGT continues to file patent applications related to software technology, it is done so with the understanding that any success in these areas relies upon, to a large extent, the particular Examiner that is assigned to review the application. As mentioned above, the current *Alice* framework allows for significant subjectivity, and different Examiners may have different ideas as to what constitutes "significantly more." In the absence of a clear, objective, easily applied test for patent eligibility, informed decisions as to what innovations should be filed on (or not) are not possible, and ultimately IGT wastes significant resources filing software applications that are assigned to Examiners who take a very "hard line" approach to patent eligibility.

In situations where an application is consistently being rejected based upon the same patent eligibility analysis, appealing from the Examiner's decision is also undesirable. No matter how unreasonable the ineligibility analysis found in the final rejection, there is no assurance that the PTAB will overturn the Examiner, and a very real likelihood that the board's decision will create yet another flawed precedent that will be blindly used as a touchstone in future rejections. One might suggest that the avoidance of an appeal saves time and money, but for the applicant who has overcome all other novelty and obviousness rejections, the creation of such a precedent is a very real danger. Hopefully, the Examiner corps learns from their experiences when a final rejection is overturned, but that assumes that applicants feel confident enough about the outcome to file an appeal to begin with.

c. Patent counseling and opinions

In-house IP counsel at IGT has found it increasingly difficult to counsel their business clients, who are most often interested in patents from the enforcement perspective. While it is relatively easy to explain to the business why patent claims read or do not read upon competitor's products on an element-by-element basis, it is nearly impossible to convey the nugget of current patent eligibility standards to experienced inventors or business representatives in a way that is not so over-generalized as to become meaningless. Patent practitioners have struggled to reconcile these issues far too long already amongst themselves. Prudent counseling now includes the caveat that even if every claim element is clearly practiced by a competitor, there is always a chance that software-related claims might be invalidated through post-grant or litigation proceedings.

j. Licensing of patents and patent applications

Current patent eligibility jurisprudence has made it more difficult for IGT to bring potential licensees to the negotiating table, and it encourages existing licensees to willfully breach their agreements. Unsophisticated parties often take the extreme view that any software patent is invalid, which results in additional time and effort to explain why this isn't the case. In fact, some sophisticated licensees have made arguments (in state courts) that filing a software patent application under the current patent eligibility standards (or lack thereof) amounts to fraud, in an attempt to characterize the licensor as acting in bad faith.

Question 8: Please explain whether you have changed your behavior with regard to filing, purchasing, licensing, selling, or maintaining patent applications and patents in the United States as a result of the current state of patent eligibility jurisprudence in the United States. If so, please describe how you changed your behavior.

The muddled state of patent eligibility jurisprudence has affected IGT's determination as to whether to pay maintenance fees, especially the third maintenance fee. Even if an issued software patent successfully overcame a 101 rejection during prosecution, there is a perception amongst potential licensees that ANY software-related patent can successfully be challenged through post-grant proceedings or litigation, eroding the "presumption of validity" that such patents would otherwise enjoy. In other words, the state of Section 101 patent eligibility jurisprudence has given issued software patents a "presumption of invalidity" amongst licensees and thus, even software patents with 6 or more years until expiration are being given increased scrutiny and consideration as to value when the time comes to pay the third maintenance fee. In some cases IGT has elected not to pay the third maintenance fee based on the uncertainty present and not the underlying value of the inventive concept, as was done pre-Alice.

II. Question 11: Please identify how the current state of patent eligibility jurisprudence in the United States impacts the U.S. economy as a whole.

Fundamental to the American patent system is the understanding that protections against copying are necessary to "promote the progress of science and useful arts." Patent Clause of the U.S. CONST. ART. I § 8 Cl. 8. That is, without patent protection creators will be disincentivized to innovate because their creations will simply be copied by competitors without a comparable investment in development. Not only will such a situation inhibit the ability of creators and inventors to maintain gainful employment, but consumers will be harmed by a lack of access to new and innovative products and services. The Supreme Court has recognized these fundamental principles of patent law numerous times. See, e.g., Halo Elecs., Inc. v. Pulse Elecs., Inc., 136 S. Ct. 1923, 1937 (2016) (Breyer, J., concurring) ("Through a complex system of incentive-based laws, patent law helps to encourage the development of, disseminate knowledge about, and permit others to benefit from useful inventions."); Federal Trade Comm'n v. Actavis, Inc., 570 U.S. 136, 161 (2013) (Roberts, C.J., dissenting) ("The point of patent law is to grant limited monopolies as a way of encouraging innovation."); Mayo Collaborative Servs. v. Prometheus Labs., Inc., 566 U.S. 66, 92 (2012) ("[T]he promise of exclusive rights provides monetary incentives that lead to creation, invention, and discovery."); Eldred v. Ashcroft, 537

U.S. 186, 216 (2003) ("Patents are not given as favors ... but are meant to encourage invention by rewarding the inventor with the right, limited to a term of years fixed by the patent, to exclude others from the use of his invention.") (quoting Sears, Roebuck & Co. v. Stiffel Co., 376 U.S. 225, 229 (1964)).

Indeed, the Supreme Court has recognized that the Patent Clause ensures a robust economy to the benefit of American citizens. As Chief Justice Burger explained:

> The stated objective of the Constitution in granting the power to Congress to legislate in the area of intellectual property is to 'promote the Progress of Science and useful Arts.' The patent laws promote this progress by offering a right of exclusion for a limited period as an incentive to inventors to risk the often enormous costs in terms of time, research, and development. The productive effort thereby fostered will have a positive effect on society through the introduction of new products and processes of manufacture into the economy, and the emanations by way of increased employment and better lives for our citizens.

Kewanee Oil Co. v. Bicron Corp., 416 U.S. 470, 480 (1974); see also *Mazer v. Stein*, 347 U.S. 201, 219 (1954) ("The economic philosophy behind the clause empowering Congress to grant patents and copyrights is the conviction that encouragement of individual effort by personal gain is the best way to advance public welfare through the talents of authors and inventors in 'Science and useful Arts.'").

The relationship between federal patent law precedent and innovation is not simply a matter of economic theory. Its real-world effects are well-established. For example, in *State Street Bank & Trust Co. v. Signature Fin. Group, Inc.*, 149 F.3d 1368, 1372 (Fed. Cir. 1998), the Federal Circuit held that any claimed software invention that involved some practical application and "produce[d] a useful, concrete and tangible result" is eligible for patent protection. In particular, the court affirmed the patentability of "the transformation of data, representing discrete dollar amounts, by a machine through a series of mathematical calculations into a final share price," which "constitutes a practical application of a mathematical algorithm, formula, or calculation." *Id.* This broad formulation of patent eligibility confirmed the patentability of software innovations.

The *State Street* decision came amid the technology boom of the 1990s, when technical innovations – many in the form of software applications – permanently transformed the U.S. economy. The decision led directly to a sharp increase in the number of software-related patents granted each year, from approximately 25,000-35,000 per year before *State Street* to approximately 50,000-75,000 per year in the ensuing years, increasing to approximately 125,000 per year by 2011. U.S. GOV'T ACCOUNTABILITY OFFICE, GAO-13-465, INTELLECTUAL PROPERTY: ASSESSING FACTORS THAT AFFECT PATENT INFRINGEMENT LITIGATION COULD HELP IMPROVE PATENT QUALITY 12 (2013). It is undeniable that the increase in software patents was connected to a dramatic increase in software-based technological innovation. "According to legal commentators, the number of software-related patents grew as computers were integrated into a greater expanse of everyday

products." Id. at 12-13. Thus, the *State Street* decision enabled the Office to reward increased innovation in computer technology with robust patent protection. Id. at 13 ("According to PTO officials, the agency interpreted [*State Street and Diamond v. Diehr*, 450 U.S. 175 (1981)] as limiting their ability to reject patent applications for computer processes.").

Today's Section 101 jurisprudence is undoing these economic gains in the software industry by injecting uncertainty into the fabric of software patent protection. The state of Federal Circuit law leaves the software industry with sharply curtailed legal protections for its innovations solely due to the form those innovations take – software. This cannot have been the intent of Congress in passing Section 101, and Congress should return American patent law to its proper course.

III. Question 12: Please identify how the current state of subject matter eligibility jurisprudence in the United States impacts the global strength of U.S. intellectual property and the U.S. economy in any of the following areas - f . other computer-related inventions (e.g., software, business methods, computer security, databases and data structures, computer networking, and graphical user interfaces).

The chaotic current state of subject matter eligibility jurisprudence has harmed the global strength of U.S. intellectual property by creating a system where no inventor can be sure his or her invention will be afforded reliable patent eligibility by the U.S. legal system. This uncertainty is no more evident than in software innovations. The Federal Circuit has effectively created a *per se* test for Section 101 eligibility as to software innovations – a software-based invention is patentable only if it improves the basic functions of the computer itself. Not only is the *per se* test itself improper under Supreme Court precedents, but the test has not been applied consistently, creating chaos among American innovators.

A sample of recent decisions from the Federal Circuit applying Section 101 to software illustrates the inconsistency of that court's jurisprudence. For example, patents directed to the following technologies have been rejected under the "abstract idea" test: a digital camera that uses multiple images to enhance a final image;[1] "a system wherein a television and a mobile device are intermediated by a content identification server";[2] a "gesture-driven control interface for computer gaming";[3] "computerized statistical methods for determining haplotype phase";[4] "improving a user's experience while using a computer application";[5] a "system and method for electronically processing paper checks,"[6] "processing data sent from a user of a client computer

[1] *Yu v. Apple Inc.*, 1 F.4th 1040, 1044 (Fed. Cir. 2021).
[2] *Free Stream Media Corp. v. Alphonso Inc.*, No. 2019-1506, 2021 WL 1880931 (Fed. Cir. May 11, 2021)
[3] *GREE, Inc. v. Supercell Oy*, No. 2020-2125, 2021 WL 1850954, at *1 (Fed. Cir. May 10, 2021)
[4] *In re Bd. of Trustees of Leland Stanford Junior Univ.*, 991 F.3d 1245, 1250 (Fed. Cir. 2021)
[5] *Simio, LLC v. FlexSim Software Prod., Inc.*, 983 F.3d 1353, 1361 (Fed. Cir. 2020)
[6] *Solutran, Inc. v. Elavon, Inc.*, 931 F.3d 1161, 1164 (Fed. Cir. 2019).

over a network,"[7] "implementing a multi-dimensional interpolation,"[8] "using a desktop interface to access an application server,"[9] "converting [a] physiologic treatment data from a machine specific format into a machine independent format within a computing device remotely located from said bedside machines,"[10] and "entering, transmitting, locating, compressing, storing, and displaying data (including text and image data) to facilitate the buying and selling of items."[11]

In other cases, however, similar technologies have been upheld as at least potentially patentable notwithstanding the "abstract idea" exclusion. These include: "[a]method for providing multi-level multimedia security in a data network";[12] "hierarchical event monitoring and analysis within an enterprise network,"[13] "capturing and transmitting data from one device to another,"[14] "limiting a computer's running of software not authorized for that computer to run,"[15] and "data processing system for designing, creating, and importing data into, a viewable form viewable by the user of the data processing system."[16]

There are many more decisions, but this sampling illustrates the core lack of consistency among the Federal Circuit's decisions. Legal principles that place "entering, transmitting, locating, compressing, storing, and displaying data" and "designing, creating, and importing data into a viewable form" on opposite sides of the patent eligibility divide do not provide the courts, the Office, or inventors with the proper guidance to make a determination whether or not a software innovation is eligible for a patent. The Federal Circuit's "basic functions" test attempts to provide guidance, but that test is unclear in its application. For example, must a patent claim an improvement to the core functions and components of a computer itself (*e.g.*, the processor, memory, input/output devices, etc.), or is it sufficient that a patent claim an improvement on a function that a computer is designed to do (*e.g.*, process data or monitor security)? *Compare Bridge and Post*, 2019 WL 2896449 at *5 (rejecting the eligibility of the use of a computer to track users) *with SRI Int'l*, 930 F.3d at 1304 (affirming the eligibility of an improved use of a computer to monitor network security). These questions have confounded inventors and their attorneys, as well as Federal Circuit judges, district court judges, and Examiners, in the years since the Supreme Court's *Alice* decision due to the unpredictable nature of Federal Circuit decisions.

No innovator studying these irreconcilable precedents could approach any court, let alone the Office, with sufficient confidence that their innovation would be afforded reliable patent eligibility by the U.S. legal system. Such unpredictability dissuades innovators from not only

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[7] *Bridge and Post, Inc. v. Verizon Comms., Inc.*, No. 2018-1697, 2019 WL 2896449, at *4 (Fed. Cir. July 5, 2019).
[8] *In re Gitlin*, 775 Fed. Appx. 689, 690 (Fed. Cir. June 13, 2019).
[9] *Uniloc USA, Inc. v. ADP, LLC*, 772 Fed. Appx. 890, 899 (Fed. Cir. May 24, 2019).
[10] *Univ. of Fla. Res. Found., Inc. v. General Elec. Co.*, 916 F.3d 1363, 1368 (Fed. Cir. 2019).
[11] *Voit Techs., LLC v. Del-Ton, Inc.*, 757 Fed. Appx. 1000, 1002 (Fed. Cir. Feb. 8, 2019).
[12] *TecSec, Inc. v. Adobe Inc.*, 978 F.3d 1278, 1282 (Fed. Cir. 2020).
[13] *SRI Int'l, Inc. v. Cisco Sys., Inc.*, 930 F.3d 1295, 1301 (Fed. Cir. 2019).
[14] *Cellspin Soft, Inc. v. Fitbit, Inc.*, 927 F.3d 1306, 1315 (Fed. Cir. 2019).
[15] *Ancora Techs., Inc. v. HTC Am., Inc.*, 908 F.3d 1343, 1344 (Fed. Cir. 2018).
[16] *Aatrix Software, Inc. v. Green Shades Software, Inc.*, 882 F.3d 1121, 1123 (Fed. Cir. 2018).

seeking patents from the Office but also from investing the substantial resources in research and development necessary to create the invention in the first place, and, even if they are granted a patent, from enforcing their rights in the courts. This situation is untenable.

Even Federal Circuit judges are having difficulty implementing, and note the inconsistency resulting from, the *per se* test for Section 101 eligibility, as illustrated by the fact that many of these decisions have come from split panels. In *SRI Int'l*, for example, Judge Lourie criticized the majority for drawing a distinction from precedent that he believed did not exist. *SRI Int'l*, 930 F.3d at 1313 (Lourie, J., dissenting). Likewise, in *Bridge and Post*, Judge Bryson differed from the majority as to one of the patents deemed ineligible, identifying a string of that court's precedents that found similar claims eligible. *Bridge and Post*, 2019 WL 2896449 at *11 (Bryson, J., concurring in part and dissenting in part). Such splits reaching diametrically opposite conclusions from strings of precedential citations have become commonplace in the Federal Circuit's Section 101 decisions. And as a result, the outcome of a Section 101 appeal depends largely on the composition of the panel. The learned judges of the Federal Circuit have diligently sought to apply Supreme Court precedents in *Alice* and other decisions, but unfortunately the varying tests and analyses applied by different panels have created abundant confusion in a fundamental area of patent law. The uniformity of U.S. patent law intended by Congress in establishing the Federal Circuit as the nation's sole Court of Appeals for patent matters is thwarted by this inconsistency.

Judges of the Federal Circuit have explicitly requested guidance regarding Section 101 on numerous occasions. For example, Judge Plager lamented that Section 101 law "renders it near impossible to know with any certainty whether the invention is or is not patent eligible," and invited clarification of the law "'by a higher authority, perhaps by Congress, to work its way out of what so many in the innovation field consider are § 101 problems.'" *Interval Licensing LLC v. AOL, Inc.*, 896 F.3d 1335, 1348, 1353 (Fed. Cir. 2018) (Plager, J., concurring-in-part and dissenting-in-part) (quoting *Berkheimer v. HP Inc.*, 890 F.3d 1364, 1374 (Fed. Cir. 2017) (Lourie, J., concurring)). Judge Plager echoed an earlier sentiment expressed by Judge Lourie who, in an opinion concurring in the denial of *en banc* review, stated that "Section 101 issues certainly require attention beyond the power of this Court." *Berkheimer*, 890 F.3d at 1374. Similarly, in an earlier concurrence, Judge Linn noted that the inventions at issue were "the result of human activity and facilitate the use of bankcards for a new purpose heretofore considered practically foreclosed." *Smart Sys. Innovations, LLC v. Chicago Transit Auth.*, 876 F.3d 1364, 1383 (Fed. Cir. 2017) (Linn, J., dissenting in part and concurring in part). But because, "[r]egrettably . . . our precedent leaves no room for such an argument," Judge Linn concurred with the majority's decision barring the invention from patent protection under the "abstract idea" exception. *Id.* Judge Linn "disagree[d] with such a categorical exclusion" but was "constrained to concur with the majority's holding of patent ineligibility." *Id.*

The frustration of Federal Circuit judges with the judicially-created Section 101 exceptions was also on display regarding the closely-related "natural law" exception to patent eligibility. As explained in a (denied) Petition for a Writ of Certiorari in *Athena Diagnostics, Inc. v. Mayo Collaborative Servs., LLC*, Case No. 19-430, "[a]cross eight separate opinions in which the court divided 7-5 on denying *en banc* review, the Federal Circuit issued an

unprecedented cry for help from [the Supreme] Court to clarify the patent eligibility of medical diagnostic tests."

IV. Conclusion

American innovators, patent practitioners, the USPTO and the Federal Circuit itself continue to struggle under a growing weight of conflicting and inapplicable precedents concerning Section 101 eligibility. The fundamentals of U.S. patent law require clarification and correction by any arm of government capable of doing so.

Respectfully submitted on behalf of IGT, by:

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