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ASSESSING RESPONSES TO THE PTO'S 2021 PATENT ELIGIBILITY STUDY¹

Victoria T. Carrington² and Jorge L. Contreras³

Background

From 2010 through 2014, the U.S. Supreme Court issued a series of decisions relating to patent eligibility under Section 101 of the Patent Act (*Bilski v. Kappos*,⁴ *Mayo v. Prometheus*,⁵ *Assn. for Molecular Pathology v. Myriad Genetics*⁶ and *Alice v. CLS Bank*⁷). These decisions have generated substantial public debate over the appropriate scope of Section 101 and various calls for “reform” of patent eligibility jurisprudence.⁸ In response, on March 5, 2021, Senators Thom Tillis (R-NC), Mazie Hirono (D-HI), Tom Cotton (R-AR), and Christopher Coons (D-DE) requested that the U.S. Patent and Trademark Office (PTO) conduct a study regarding public views on “how the current jurisprudence has adversely impacted investment and innovation in critical technologies like quantum computing, artificial intelligence, precision medicine, diagnostic methods, and pharmaceutical treatments.”⁹ The Senators also asked the PTO to evaluate the responses and provide a detailed summary of its findings by March 5, 2022.¹⁰ The PTO released its public request for information (RFI) on July 9, 2021.¹¹ The original deadline for response was September 7, 2021, which was extended to October 15, 2021.¹² A total of 145 comments were

¹ The data for this note is archived at “Updated Patent Eligibility Public Comment Data”, <https://doi.org/10.7910/DVN/8PXCKS>, HARVARD DATAVERSE (2022).

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⁴ 561 U.S. 593 (2010).

⁵ 566 U.S. 66 (2012).

⁶ 569 U.S. 576 (2013).

⁷ 573 U.S. 208 (2014).

⁸ See, e.g., Testimony of Judge Paul R. Michel (Ret.) United States Court of Appeals for the Federal Circuit Before the Subcommittee on Intellectual Property U.S. Senate Committee on the Judiciary Hearing on June 4, 2019, Statement of David J. Kappos, The State of Patent Eligibility in America: Part I, Hearing Before the Subcomm. on Intellectual Property of the S. Comm. of the Judiciary, 116th Cong. (2019).

⁹ Letter from Thom Tillis, Mazie K. Hirono, Tom Cotton & Christopher A. Coons, Senators, to Drew Hirshfeld, Comm’r Pat. (Mar. 5, 2021), <https://www.tillis.senate.gov/services/files/04D9DCF2-B699-41AC-BE62-9DCA9460EDDA>.

¹⁰ *Id.*

¹¹ *Patent Eligibility Jurisprudence Study*, U.S. PAT. & TRADEMARK OFF., 86 Fed. Reg. 36,257 (July 9, 2021), <https://www.federalregister.gov/documents/2021/07/09/2021-14628/patent-eligibility-jurisprudence-study>.

¹² *Request for Information: Patent Eligibility Jurisprudence Study*, U.S. PAT. & TRADEMARK OFF. (Sept. 2, 2021), <https://www.regulations.gov/document/PTO-P-2021-0032-0004>.

submitted prior to the extended deadline.¹³ This note summarizes the content of those public comments.

Methodology

We reviewed each submission made in response to the PTO’s 2021 Patent Eligibility RFI, as posted by the USPTO on Regulations.gov.¹⁴ Information noted and tracked include submitter name, submitter industry or specialty, date submission received, submitter location (if listed), and the substantive content of the submitter’s comments.

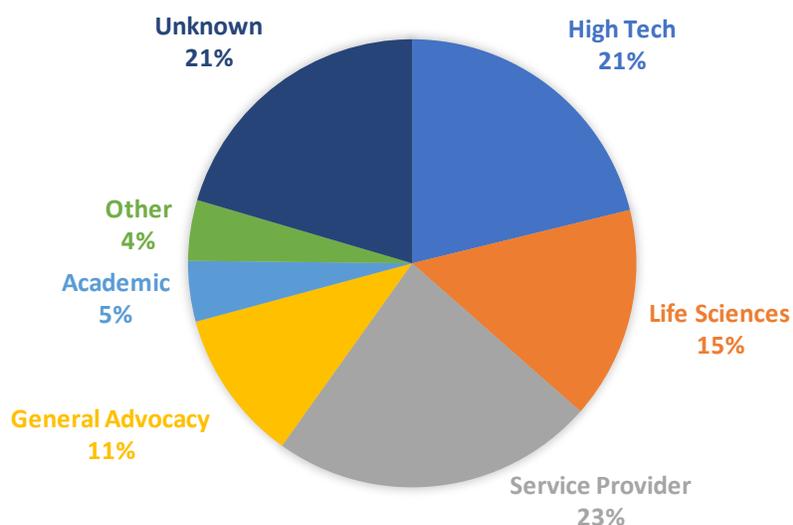
There was a total of 145 submissions. Multiple submissions by the same individual were combined, yielding a total of 137 unique submissions. Fifteen submissions were anonymous.

Findings

Demographics

Figure 1 below shows the breakdown of industry affiliation of all unique submitters.

Figure 1. Submitters by industry [N=137].



“High Tech” includes firms, associations and individuals that operate primarily in areas such as software, electronics, telecommunications, computers and networking equipment.

“Life Sciences” includes firms, associations and individuals that operate primarily in areas such as biotechnology, pharmaceuticals, healthcare and medical devices.

¹³ *Patent Eligibility Jurisprudence Study: Comments*, <https://www.regulations.gov/docket/PTO-P-2021-0032/comments?sortBy=postedDate>

¹⁴ *Id.*

“Service Providers” include attorneys, law students and investors, as well as associations of the same, in each case where the submitter did not indicate a primary identification with either the High Tech or Life Sciences sectors.

“General Advocacy” includes trade and professional associations of a general nature that did not indicate a primary identification with either the High Tech or Life Sciences sectors, such as the Intellectual Property Owners Association and the American Civil Liberties Union.

“Academic” includes individual academic faculty.

“Other” includes firms that did not readily fit into the High Tech or Life Sciences categories, such as the mining conglomerate Rio Tinto and the sporting goods manufacturer Acushnet.

“Unknown” includes submitters that were anonymous or did not fit into any of the above categories.

Sixty-three submitters specified a location. California had the highest number of submissions (11). Six submissions came from outside of the U.S.: Canada, Japan, Macedonia, Switzerland, and two from the United Kingdom.

Analysis of Positions

Figure 2 below illustrates the breakdown of submissions among those who generally view current jurisprudence regarding patent eligibility in a positive versus a negative light, as well as those who adopted a neutral stance. The 15 unique submissions that were not about patent eligibility jurisprudence are not shown.

Figure 2. Views of current eligibility jurisprudence [N=122].

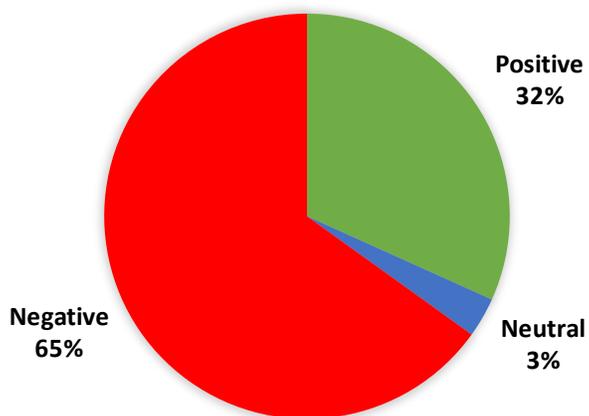


Figure 3 shows the comparison of the general tenor of submissions made by industry classification. Below this, **Table 1** lists submitters specific to high tech and **Table 2** lists

submitters specific to life science, in each case summarizing the general tenor of their comments.

Figure 3. General tenor of comments by industry [N=122].

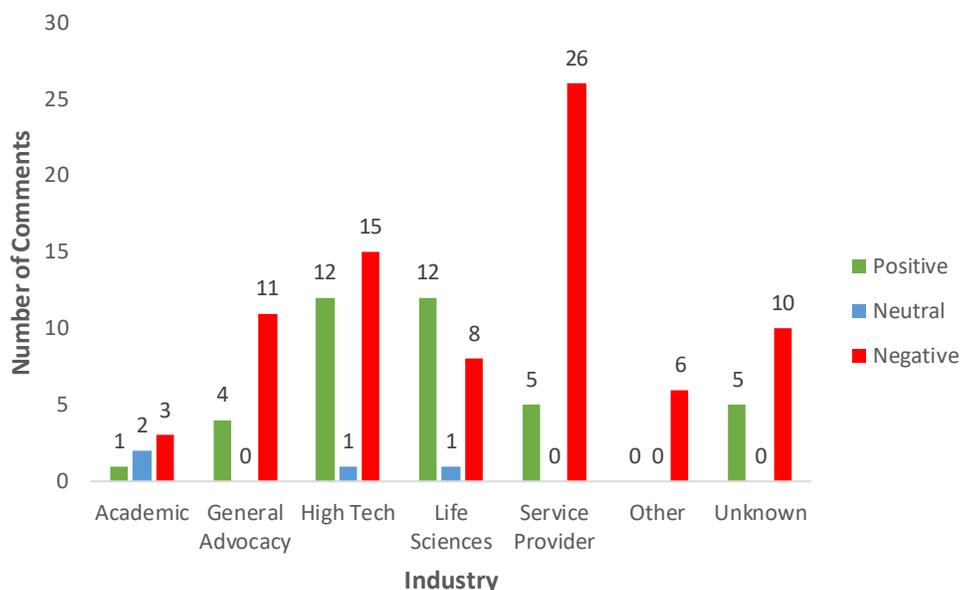


Table 1. High tech submitters [N=28]

Submitter	Type	General Tenor of Comment
Dell Technologies Inc.	Company	Positive
EasyTacGPS, LLC	Company	Positive
Google	Company	Positive
Juniper	Company	Positive
Wikimedia Foundation, Inc.	Company	Positive
Alliance for Automotive Innovation (Auto Innovators)	Organization	Positive
Computer & Communications Industry Association	Organization	Positive
Developers Alliance	Organization	Positive
Electronic Frontier Foundation	Organization	Positive
Software & Information Industry Association	Organization	Positive
The High Tech Inventors Alliance	Organization	Positive
Anonymous #14 [Quantum Economic Development Consortium]	Organization	Neutral
Arrow Antennas, LLC	Company	N/A
IGT	Company	Negative
Peter Cheng	Individual	Negative
ACT The App Association	Organization	Negative
Ericsson	Company	Negative
International Business Machines	Company	Negative
Internet Promise Group LLC and Tara Chand	Company	Negative

Submitter	Type	General Tenor of Comment
Quantum Industry Coalition	Organization	Negative
Robert Osann, Jr.	Individual	Negative
Seth Nehrbass	Individual	Negative
Exhaustless Inc.	Company	Negative
Kraftwurx	Company	Negative
Marc Brown	Individual	Negative
Mark Tornetta and Mark Tornetta #2	Individual	Negative
Rutmian IP	Individual	Negative
STT WebOS, Inc., and TS Patents LLC	Company	Negative

Table 2. Life science submitters [N=21]

Submitter	Type	General Tenor of Comment
Association for Molecular Pathology (AMP)	Organization	Positive
Association of American Medical Colleges	Organization	Positive
Breast Cancer Action	Organization	Positive
Coalition Against Patent Abuse	Organization	Positive
Coalition for the Life Sciences and Coalition for the Life Sciences #2	Organization	Positive
College of American Pathologists	Organization	Positive
Invitae Corporation	Company	Positive
Laboratory for Clinical Genomics and Advanced Technology (CGAT)	Organization	Positive
My Gene Counsel, LLC	Company	Positive
Sinai Health System	Company	Positive
The Breasties	Organization	Positive
Timothy O'Leary	Person	Positive
Centre for Law, Medicine and Life Sciences (LML)	Organization	Neutral
Anonymous #7	Person	Negative
Biotechnology Innovation Organization (BIO)	Organization	Negative
Genentech, Inc.	Company	Negative
John Storella	Person	Negative
Johnson & Johnson	Company	Negative
Novartis	Company	Negative
PhRMA	Organization	Negative
Wisconsin Alumni Research Foundation	Organization	Negative

Below these findings are discussed in more detail.

Neutral Comments

Four submissions adopted a neutral standpoint toward Section 101 jurisprudence. One such comment was submitted by Professors Maya M. Durvasula, Lisa Larrimore Ouellette, and Heidi L. Williams.¹⁵ It effectively critiques the empirical validity of the PTO study itself: “Many have argued—largely based on anecdotes or descriptive data—that recent changes in patent eligibility caselaw have either increased or decreased innovation. Here . . . we argue that neither view is supported by the available empirical evidence.”¹⁶ “It is unclear whether limits on patent eligibility increase or decrease innovation.”¹⁷ “Current evidence does not demonstrate whether the *Alice/Mayo* framework is good or bad for social welfare in contested fields [specifically the biomedical and software markets].”¹⁸

Positive Comments

Thirty-nine submissions (32%) describe current patent eligibility jurisprudence in a positive light, noting general satisfaction with the Supreme Court’s eligibility case law and its application within the market. Notable commenters in this camp include the American Civil Liberties Union (ACLU), Google, and the Association of American Medical Colleges (AAMC).

The ACLU also criticized the framing of the PTO study, observing that “[t]roublingly, the RFI seems to adopt the same framing as the Senators’ request, presupposing that patent-eligibility jurisprudence lacks clarity and consistent application and that this lack of clarity is causing harms. Neither the Senators’ letter nor the RFI provides any basis for the allegation that the law is inconsistent or unclear. . . .”¹⁹ The ACLU points to the fact that there is a high affirmance rate of subject matter eligibility decisions made by district courts and the PTAB to argue that current patent eligibility jurisprudence is relatively clear.²⁰ It also points to statements in Federal Circuit Opinions showing that judges are able to apply 101 in a clear and consistent manner.²¹

Google commented that “robust data supports that the balance in our IP system has allowed patenting in emerging technologies to flourish[]. We urge the PTO to reject the premise set forth in the RFI that ‘the current jurisprudence has adversely impacted investment and innovation in critical technologies like quantum computing and artificial intelligence.’”²²

¹⁵ Maya M. Durvasula, Lisa Larrimore Ouellette & Heidi L. Williams, *In the Matter of Request for Comments on Patent Eligibility Jurisprudence Study* (Sept. 7, 2021), <https://www.regulations.gov/comment/PTO-P-2021-0032-0057>.

¹⁶ *Id.* at 1.

¹⁷ *Id.*

¹⁸ *Id.* at 4.

¹⁹ *Re: Comments on Patent Eligibility Jurisprudence Study*, AM. CIV. LIBERTY UNION (Sept. 7, 2021), <https://www.regulations.gov/comment/PTO-P-2021-0032-0052>.

²⁰ *Id.* at 2.

²¹ *Id.* at 4.

²² Laura A. Sheridan, *Comments of Google LLC*, GOOGLE (Oct. 15, 2021), <https://www.regulations.gov/comment/PTO-P-2021-0032-0106>.

From the life and health sciences perspective, the AAMC drew on public health and access considerations, noting “that law and policy must protect and balance the public good, including access to timely patient care, with proprietary rights in support of science and technology, particularly in the fields of medicine and public health. We believe that these principles are reflected in current jurisprudence.”²³

Negative Comments

Seventy-nine submissions (65%) expressed at least one major concern with the state of current patent eligibility jurisprudence. The two primary concerns were that (1) eligibility requirements are too unclear and/or uncertain and (2) too many useful inventions are currently ineligible for patent protection.

International Business Machines (IBM) specifically critiqued the judicially created “abstract idea” exclusion from patent eligibility, noting that it:

continue[s] 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.²⁴

The “too-many-inventions-are-ineligible” camp includes the IP Law Section of the State Bar of Nevada.²⁵ It specifically highlights that there has been an “[o]verly broad application of” *In re Smith* to reject electronic gaming machine inventions under Section 101.²⁶

Novartis’s submission sums up both reasons most submitters are unsatisfied with patent eligibility: the uncertainty created by eligibility cases and the ineligibility of specific important inventions.²⁷

²³ Ross McKinney, *Re: Patent Eligibility Jurisprudence Study* 86 FR 36257-60, ASS’N AM. MED. COLLS. (Oct. 15, 2021), <https://www.regulations.gov/comment/PTO-P-2021-0032-0112>.

²⁴ Manny W. Schechter & Kenneth R. Corsello, *IBM Corp. Comments for “Patent Eligibility Jurisprudence Study,”* 86 Fed. Reg. 36257 (July 9, 2021), INT’L BUS. MACHS. (July 9, 2021), <https://www.regulations.gov/comment/PTO-P-2021-0032-0078>.

²⁵ Seaton J. Curran, Robert C. Ryan, Paxton Fleming, Dave Kaplan & Jing Zhao, *RE: Request for Information Regarding the Current State of Patent Eligibility Jurisprudence in the United States for use in the Patent Eligibility Jurisprudence Study: Docket Number PTO-P-2021-0032*, INTELL. PROP. L. SECTION STATE BAR NEV. (Sept. 7, 2021), <https://www.regulations.gov/comment/PTO-P-2021-0032-0060>.

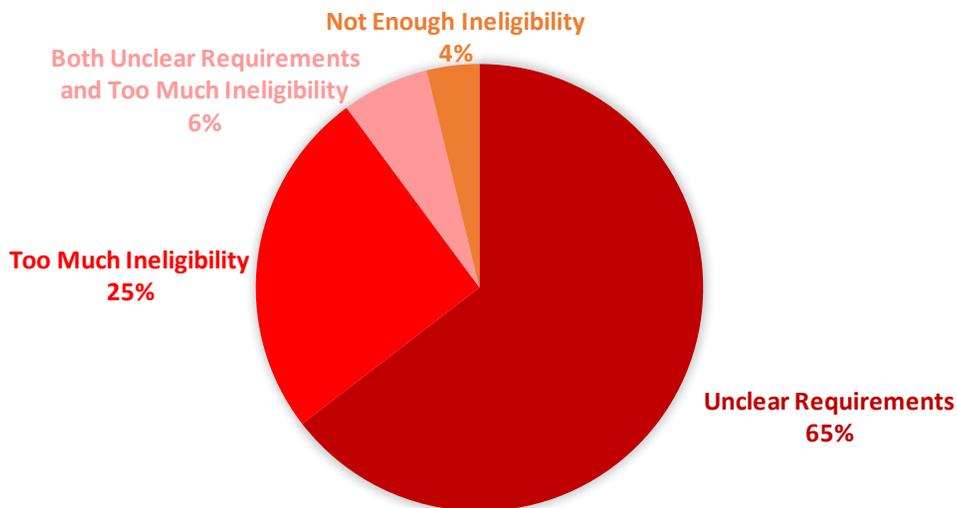
²⁶ *Id.*

²⁷ Cory Salsberg, *Novartis Comments in Response to USPTO’s “Patent Eligibility Jurisprudence Study Request for Information”* (86 Fed. Reg. 36257–36260 (July 9, 2021)), NOVARTIS (Oct. 15, 2021), <https://www.regulations.gov/comment/PTO-P-2021-0032-0113>.

Interestingly, three submissions (4%) expressed dissatisfaction with current 101 jurisprudence on the ground that *not enough* inventions were found ineligible for patent protection.

Figure 4 illustrates the relative frequency of these different negative arguments made regarding patent eligibility.

Figure 4. Submissions viewing eligibility jurisprudence negatively [N=79].



Submissions Regarding U.S. Competitiveness with China

Twenty-eight submitters discussed the impact of patent eligibility jurisprudence on the United States' ability to compete with China. Many of these comments (86%) argued that higher thresholds for patent eligibility in the U.S. would impair, or have already impaired, U.S. international competitiveness. These comments were generally negative toward U.S. patent eligibility jurisprudence overall. The other 4 comments (14.3%) however, argued that current U.S. patent eligibility jurisprudence has been helpful to U.S. international competitiveness.

Negative comments tended to fit into at least one of two approaches: emphasizing that because of the U.S.'s current patent eligibility jurisprudence (1) U.S. businesses are becoming less competitive relative to Chinese businesses and/or (2) the U.S.'s patent system is becoming less competitive relative to China's patent system. The first approach includes submissions directed to the U.S. falling behind in particular sectors (e.g., Market Institute's submission²⁸),

²⁸ Charles Sauer, *Re: Request for Information Regarding Patent Eligibility Jurisprudence Study*, Docket No. PTO-P-2021-0032, Mkt. INST. (Oct. 14, 2021), <https://www.regulations.gov/comment/PTO-P-2021-0032-0099>.

where the second approach includes submissions directed to the U.S falling behind in terms of where inventors file for patent protection (e.g., AIPLA's submission²⁹).

Table 3 excerpts these comments.

Table 3. Submissions mentioning U.S. competitiveness relative to China [N=28].

Submitter	General Tenor of Comment Toward U.S. 101 Jurisprudence	Argument(s) on U.S. Competitiveness Relative to China
Adam Mossoff	Negative – patent system	"China and European countries are now the ones forging ahead and securing reliable and effective patents in innovation that the U.S. no longer protects due to the closing of its patent system under the Alice-Mayo framework."
AIPLA	Negative – patent system	"Concomitantly, the current jurisprudence has narrowed the pipeline for inventions that are patent eligible under U.S. law, while applicants in other key jurisdictions, specifically China and Europe, are obtaining patent protection on applications claiming the same inventions." "In China, the availability of patent protection for computer-implemented inventions is becoming more permissive. China is now one of the global leaders in patent filings."
Alliance for Startups and Inventors for Jobs	Negative – business	"We urgently need – as an outcome of the current PTO Request – a renewal of this country’s commitment to the startups, entrepreneurs and inventors who have played such an important part in insuring U.S. dominance of critical technologies. Renewing that commitment is particularly important at this time, because (among other reasons) the People’s Republic of China, which is several times larger than the U.S., is rapidly developing the scientific expertise to challenge this nation’s dominance of critical strategic technologies."
American Bar Association Intellectual Property Law Section	Negative – business	"Loss of global competitiveness as certain technologies are recognized as patent eligible in major competitor countries like China, but not in the U.S., which over time risks moving R&D overseas where these technologies may be more easily protected than in the U.S." "China, for example, relaxed rules on software patentability beginning in 2017, and in the biotech field of technology research and development dollars have been reported as shifting to China. Thus, the uncertainty and unpredictability in patent eligibility appears to be weakening U.S. leadership"

²⁹ Joseph R. Re, *Re: AIPLA Comments on USPTO Request for Information to Assist Preparation of Patent Eligibility Jurisprudence Study*, 86 Fed. Reg. 36257 (9 July 2021) and 37316 (15 July 2021), AM. INTELL. PROP. L. ASS’N (Oct. 15, 2021), <https://www.regulations.gov/comment/PTO-P-2021-0032-0108>.

Submitter	General Tenor of Comment Toward U.S. 101 Jurisprudence	Argument(s) on U.S. Competitiveness Relative to China
Association of Amicus Counsel	Negative – business	"The [National Security] Commission [on Artificial Intelligence] finds further that '[C]hina is poised to 'fill the void' left by weakened U.S. IP protections, particularly for patents, as the U.S. under the Mayo/Alice test has lost its 'comparative advantage in securing stable and effective property rights in new technological innovation'." "America's biggest economic competitor – China – along with Europe, are perceived by entrepreneurs and investors as being more hospitable to and reliable concerning patent eligibility, and hence more predictable in patent enforcement outcomes and licensing projects."
AUTM	Negative – business	"At a time when we are fighting China and numerous other nations for economic wealth and opportunities, we simply cannot afford to have Section 101 issues impede our economic engine."
Boston Patent Law Association	Negative – patent system	"Current patent eligibility jurisprudence demotivates U.S. filing, leaving us at a competitive disadvantage, particularly relative to the rapidly growing Chinese patent system."
Chad Rafetto	Negative – business	"Further, in 2017, 48% of the funding for Artificial Intelligence startup companies went to China whereas the United States received only 38%. Because investment is crucial to developing certain technologies, less investment is likely to result in less innovation. The combination of other countries' patent systems allowing more protection coupled with the increasing funding they are receiving suggests that the two are correlated and thus the uncertainty in America's patent system is reducing funding and therefore reducing innovation."
Conservatives for Property Rights	Negative – business	"The harmful effects of patent-eligibility jurisprudence upon our IP's global strength show up in several ways. One sign is research and development (R&D) spending. China passed the United States in R&D expenditures in 2020 and is projected to invest \$621.5 billion in 2021, compared with the estimate of U.S. R&D spending of \$598.7 billion."
David Crowther	Negative – patent system	"There are times now that I recommend to American inventors not to even bother filing in the United States--that they will have better luck filing for protection and advancing their interests in places like Europe or China."

Submitter	General Tenor of Comment Toward U.S. 101 Jurisprudence	Argument(s) on U.S. Competitiveness Relative to China
Dominion Harbor	Negative – patent system	"The loop is broken not only with respect to issued patents, but also at the patent application stage where scholars have identified nearly 1,700 patent applications, many of which represent 'innovative and life-saving inventions,' nevertheless rejected by the USPTO as a direct result of Alice jurisprudence. While investors ultimately abandoned their efforts to obtain U.S. patent protection for these advancements, which include 'diagnostic cancer treatments, medical devices, and ultrasound imaging,' foreign patent offices granted protection in Europe and China."
Ericsson	Negative – patent system	"[W]e have faced subject matter eligibility rejections in the U.S. for inventions where eligibility concerns are never even raised in China, Japan, Korea, and Europe. Many of these cases face the same art-based challenges across jurisdictions. It is extremely frustrating to overcome prior art challenges and obtain claims that are deemed patentable by every other jurisdiction, only to continue to face ambiguous § 101 challenges in the U.S."
Genentech	Negative – general	"Eligibility assessments pertaining to the bioinformatics intersection of software and pharmaceuticals appear to be much more consistent in Europe and China as compared to the United States."
Innovation Alliance	Negative – business	"While U.S. innovators have struggled to adjust to the recent changes in patent subject matter eligibility, other countries such as China have invested heavily in strengthening patent rights. Over the past few years, the China National Intellectual Property Administration ("CNIPA") has introduced several amendments aimed at courting emerging technology and broadening patent rights." "Former Director of the USPTO David Kappos testified before the U.S. Senate Subcommittee on Intellectual Property voicing these same concerns. The State of Patent Eligibility in America: Part I, Hearing Before the Subcomm. on Intellectual Property of the S. Comm. of the Judiciary, 116th Cong. (2019) (Statement of David J. Kappos). Detailing a study he performed analyzing patent applications filed in the U.S., China, and Europe, he testified that 'current U.S. law governing patent eligibility puts us behind China and Europe in life sciences and information technology—two critical technical areas for national competitiveness.'"

Submitter	General Tenor of Comment Toward U.S. 101 Jurisprudence	Argument(s) on U.S. Competitiveness Relative to China
Intellectual Property Owners Association	Negative – business	"In China, natural products and bioinformatics are also generally patent-eligible. Moreover, China has committed to making 'precision medicine' part of its five-year plan with an expected investment of over \$9 billion for research—the largest investment in precision medicine of any country in the world. Funding for biopharma companies in China from 2016 to 2020 increased exponentially, from \$1 billion to over \$200 billion. In 2020 alone, China’s life sciences sector investments reached \$28 billion, doubling the previous year’s amount."
Johnson & Johnson	Negative – general	"Often, these very same inventions do not face subject matter eligibility hurdles in other jurisdictions - including Europe and China."
Market Institute	Negative – business	"The current state of patent eligibility is troubling and putting us – the U.S - at a disadvantage to the rest of the world. Recent reports put China ahead of the U.S. in Artificial Intelligence innovation, we are falling behind the crypto-currency revolution, and who knows the impact of other innovations that we are missing because of the quagmire that has been created in deciding what is patent-eligible and what is not."
Novartis	Negative – business	"As uncertainty grows around the Section 101 gateway, and as more fields of technology fall to the expanding range of exceptions, the case for maintaining such a heavy US focus may weaken, particularly as other countries maintain or move to strengthen their IP regimes in the fields that are defining the future." "China, for example, has steadily strengthened its patent laws in the biopharmaceutical sector over the last few years (albeit with many remaining shortcomings), and just weeks ago released an 'Outline of Building a Powerful Intellectual Property Nation (2021-2035)' that specifically includes plans to strengthen and 'speed up legislation on intellectual property rights in new industries such as big data, artificial intelligence and genetic technology.'"
NYIPLA	Negative – business and patent system	"For (5) AI, (6) Blockchain, and (7) biotechnology and medical diagnostics, many Applicants are going so far as to forego filing a patent application in the U.S., resulting in a relative increase in patent filings in China and the EU. Some members have reported a reduction in the number of patent filings in the U.S. for inventions relating to medical diagnostics."
Samuel Johnson	Negative – patent system	"In general, we are falling behind other countries (China) in terms of innovation as a direct result of our tendency to approve software patents."

Submitter	General Tenor of Comment Toward U.S. 101 Jurisprudence	Argument(s) on U.S. Competitiveness Relative to China
Schwegman Lundberg & Woessner	Negative – general	"SLW clients who have filed patent applications in China, Japan, and Korea have faced few subject matter eligibility restrictions, even for computer-related applications having nearly identical subject matter to corresponding applications filed in the United States (e.g., through the Patent Cooperation Treaty (PCT)). For this reason, prosecution costs for SLW clients have been significantly lower in China, Japan, and Korea than they have been for those same clients in the United States and in Europe."
The Business Law Section of the Florida Bar	Negative – patent system	"While the U.S. continues to struggle with how to clearly and consistently define patent eligibility under Section 101, China has taken measures to increase certainty in negotiating its patent system. Earlier this year, Reuters reported that China was the biggest source of applications for international patents in the world in 2020 for the second consecutive year and extended its lead over the United States. According to information provided by the World Intellectual Property Organization ("WIPO"), the number of utility patent filings in China increased over 4 fold from 2010 through 2019, from 308,326 to over 1,327,847 applications. Further, the number of those applications filed by entities outside of China increased nearly 6 fold over the same time period, from a little over 15,000 to nearly 85,000 applications. The overall number of patents issued in China over this time period also increased over 3.5 times, from about 140,000 patents issued in 2010 to over 490,000 patents issued in 2019. With regard to patents issued based on applications originating outside of China, the increase is nearly 8 fold, from just over 5,000 patents issued in 2010 to nearly 40,000 patents issued in 2019 to foreign entities."
The Coalition for 21st Century Patent Reform	Negative – business and patent system	"Under the current state of the law, eligibility findings by courts have become unpredictable, making it difficult for businesses to invest in these technology areas, which are susceptible to eligibility attacks in litigation. This increases the potential for companies to divert funds to other industries or to foreign jurisdictions like China and Europe, where eligibility law is more predictable than in the United States."
U.S. Chamber of Commerce, Global Innovation Policy Center	Negative – patent system	"The Chamber's International IP Index has for nearly a decade measured the strength of the U.S. intellectual property system alongside a wide range of other national systems. In the 2017 and 2018 reports, the uncertainty and inconsistency in the courts' application of patent eligibility standard resulted in progressive lowering of the U.S. score. As a result, the U.S. score in that area dropped below that of some of our trading partners such as Australia, France, and even China."

Submitter	General Tenor of Comment Toward U.S. 101 Jurisprudence	Argument(s) on U.S. Competitiveness Relative to China
Dell Technologies Inc.	Positive	"Statistics in the artificial intelligence field belie the claim that the Alice decision is hurting the United States in comparison to other countries. According to CB Insights, 'the US leads as an AI hub, attracting 41% of deals. US-based companies also accounted for 41% of deals in the previous quarter. US deals are up 39% year-over-year.' China stands in a distant second place with 19% of global deals."
Google	Positive	"In a sampling of our patent prosecution for these technologies in which we compared results for patent families having applications in the United States, Europe, and China, we did not identify any instances in which we were denied patent protection in the United States on the basis of subject matter eligibility but obtained a patent in Europe or China. To the best of our knowledge, only the opposite has happened – patent protection was denied in Europe or China, but granted in the United States."
Software & Information Industry Association	Positive	"Evidence of the post-Alice health of the technology sector exists on a more granular level. In examining startup and venture capital activity, \$ 70.4 billion in U.S. venture funding was raised for technology-related activity, and global investing is at record levels. (China, in contrast, saw venture funding drop over the same period.) The benefits of the Alice decision in the more established fields of computer software have also filtered through to emerging technologies such as AI, and the United States remains the center of AI activity. The United States remains the preferred destination for investment in AI, which reached record levels in the second quarter of 2021. The U.S. received approximately \$23.6 billion, over double the next leading two countries (China and the UK)."
The High Tech Inventors Alliance	Positive	"Another common but equally implausible argument is that current patent eligibility jurisprudence poses an existential risk to U.S. competitiveness by undermining American innovation, thereby enabling rival nations like China to become dominant in the development of critical emerging technologies." "The U.S. Chamber of Commerce rankings also refute claims that eligibility jurisprudence has somehow elevated China to be a more attractive patent system than the U.S. China ranks close to the middle of the pack among the nations ranked, with more than 20 countries (including the U.S.) ahead of it."

Conclusion

This preliminary assessment shows a range of views expressed by public commenters in response to the PTO's Section 101 Patent Eligibility Study. There is clearly no majority or consensus view, meaning that any legislative response to the dissatisfaction voiced by some over current judicial eligibility decisions should be taken with care and provide further opportunities for public input and debate.