Patent Public Advisory Committee
ANNUAL REPORT
2020

PATENT PUBLIC ADVISORY COMMITTEE OF THE UNITED STATES PATENT AND TRADEMARK OFFICE

October 30, 2020

The President of the United States
The White House
1600 Pennsylvania Avenue, N.W.
Washington, D.C. 20500

Re: The Patent Public Advisory Committee's FY 2020 Annual Report

Dear Mr. President:

As Chair of the Patent Public Advisory Committee (PPAC) for the U.S. Patent and Trademark Office (USPTO or Office), it is my honor to present to you the PPAC's FY2020 Annual Report.

The Public Advisory Committees for the USPTO were created by statute in the **American Inventors Protection Act of 1999** (AIA). The Secretary of Commerce makes the appointments to the Public Advisory Committees. Voting members may serve a maximum of two consecutive three-year terms upon re-appointment by the Secretary of Commerce. Included as non-voting members are representatives from the three unions covering the employees at the USPTO.

The PPAC consists of citizens of the United States chosen to represent the interests of the diverse users of USPTO services, typically people who interact with the USPTO through being inventors or patent practitioners. This letterhead lists this year's members of the PPAC. In accordance with the AIA, the PPAC reviews and advises the Under Secretary of Commerce for Intellectual Property and Director of the USPTO (the Director) on the management of the Office's patent-related operations, including policies, goals, performance, budget, and user fees.

The PPAC holds an unwavering belief that patents are critical to the nation's economic health, growth, and competitiveness. Notwithstanding the numerous and

varied attacks on the patent system, the decision-makers must carefully address any changes or improvements to its policies and processes without damaging the vital patent system, innovative spirit, and entrepreneurship. Fundamentally, to protect and strengthen the U.S. patent system is to maintain the U.S.'s foothold as the leader in the world economy and the world of innovation.

For FY 2020, the PPAC chose "20/20 Vision" as its theme. In optometry, 20/20 vision refers to the clarity and sharpness of vision measured from a distance. In a similar vein, PPAC's goal for this year's review is to examine USPTO operations from a point in the future. This vantage point affords the PPAC added clarity and sharpness in identifying and advising the Office on the financial, Information Technology (IT) infrastructure (including Artificial Intelligence (AI) technologies and tools), policies, and workforce metrics, needed for the overall objective of improving the accessibility, quality, and durability of the patent asset to the users of USPTO services.

The PPAC has eight subcommittees: (1) Patent Quality & Pendency; (2) IT; (3) International; (4) Patent Trial and Appeal Board (PTAB); (5) Legislative; (6) Finance; and two new subcommittees: (7) AI; and (8) Innovation Expansion.

The PPAC formed the AI Subcommittee to provide the USPTO guidance on pertinent AI-related issues and ensure that the USPTO's leadership stance among the world's patent offices is secure. Having a robust AI system in place will serve many USPTO initiatives now and in the foreseeable future. Some initiatives include, for example: advancing overall quality through big data, improving external stakeholder accessibility to USPTO services, honing AI-related policies and regulations, as well as affording the Office firsthand insights and understanding of AI-related inventions. To define, build, and implement such a robust system would benefit from the USPTO having an experienced AI technical expert.

Moreover, consistent with **Congress's 2018 Study of Underrepresented Classes Chasing Engineering and Science Success (SUCCESS) Act**, and the **USPTO's 2019 SUCCESS Report**, the PPAC encourages the Office to take meaningful steps to increase the diversity of inventorship in our inventor community. With the formation of the Innovation Expansion Subcommittee, the PPAC seeks to support and help advance the Department of Commerce (DOC) and the USPTO's commitment to increase diversity among the inventor community through dialogue with and on behalf of the external stakeholders. To achieve sustainable growth of the U.S. economy, the PPAC fully agrees with the USPTO's commitment to making the U.S. Patent System more accessible to all Americans, including underrepresented groups based on demographic characteristics, geography, and economic conditions.

In FY2020, the PPAC assessed the USPTO's performance in the areas on which the PPAC is mandated to advise Director Iancu, against the **USPTO's 2018-2022 Strategic Plan**. The Strategic Plan is the USPTO's roadmap to protecting the future of America's inventions and their improvements (i.e., innovations). By doing so, America's technological leadership and strengthening America's economy are secured for all its citizens. At the halfway mark of its Plan, the PPAC reviewed the USPTO's current performance metrics against its stated goals. That review concludes the USPTO is, indeed, making good headway and, in some instances, is well ahead of the Plan's 2022 goal line. While impressive by itself, when viewed against all the challenges 2020 presented us, particularly COVID-19, the USPTO, under the leadership of Director Iancu and the entire USPTO workforce, has performed steadily and steadfastly.

The PPAC's previous Annual Reports did not include a general recommendation to the USPTO. However, the PPAC would be remiss not to take this opportunity to make the following recommendations for this year with all its historical events and challenges.[1] These events and challenges have changed us as a people and as a nation. The PPAC's recommendations made in each section below are made with

[1] Please refer to the PPAC's 2020 Annual Report, attached hereto, for more detailed Executive Summaries, details, recommendations, and hyperlinks to the various cited information referred to therein and here.

optimism and caution, but all with the clear purpose of maximizing the quality of the examination of patent applications to produce high quality, durable patents. Likewise, the PPAC's recommendations are proffered with a desire for the U.S. patent system to be fair, predictable, reliable, and stable for all patent owners and users of the USPTO services, as is often expressed by Director Iancu. A high quality, durable patent is a strong U.S. patent, and a strong U.S. patent supports a strong U.S. economy.

The USPTO has not only evolved due to COVID-19, but the USPTO laudably has shown that it can adapt quickly and effectively. For example, to help entities financially impacted by the pandemic, the USPTO has waived or delayed certain fees. On March 16, 2020, the Office announced that it would waive fees for petitions to revive abandoned patent applications if the abandonment was because of the COVID-19 virus. The Coronavirus Aid, Relief, and Economic Security Act (CARES) signed by the President on March 27, 2020, authorized Director Iancu to defer deadlines and fee payments. Within the scope of the authorization, the USPTO announced on March 31, 2020, that certain deadlines, including for fee payments, would be extended. These deadlines were further extended by announcements on April 28, 2020, and May 27, 2020. On June 29, 2020, the USPTO also extended these deadlines until September 30, 2020. However, these further extensions were primarily targeted toward small and micro-entities. In total, this deferral of fees, from March 2020 through August 2020, had an estimated impact of approximately $6.0 million for Patents. Notwithstanding, the USPTO had enough reserves to absorb this one-time financial hit.

However, to be sustainable, especially with the pandemic's apparent protraction into 2021, Congress must give the USPTO access to the funds held in its accounts at the Department of Treasury. From FY 1990 through FY 2011, and before the USPTO obtained full access to collections and fee setting authority through the AIA, all the fees and surcharges collected from customers were not always appropriated to the USPTO. Previously collected and currently unavailable fee collections on deposit in the USPTO accounts at Treasury are $1,024 million ($814 million from previously collected fees for patent services provided to customers). The USPTO has confirmed with Treasury that the funds are on deposit in the USPTO Treasury account, but the USPTO requires Congressional approval to access the funds. Access to these funds would result in the USPTO reaching optimal reserve levels for the USPTO, defined as three months of operating requirements for both the patent and trademark business lines.
Access to these funds would mitigate the risk of current and future economic uncertainty.

Moreover, access to these funds would, among other things, increase the USPTO's ability to improve its infrastructure and services. Additional details on the unavailable amounts are found in the Financial Section of the **2019 Performance and Accountability Report**. The PPAC recommends that Congress make these previously collected user fees available to the USPTO. In fact, the **PPAC sent a letter on April 9, 2020, to Senate Judiciary Subcommittee on Intellectual Property and the House Judiciary Subcommittee on Courts, Intellectual Property, and the Internet** requesting that these funds be available to the USPTO for its operations.

As both the USPTO and the PPAC recognize, the quality, efficiency, and productivity of the Office's operations, "correlate to the performance of their I.T. systems." Under the USPTO's FY 2020 Congressional Justification submission, dated March 2019, significant focus and improvements have already been made to the Patent End-to-End (PE2E) IT capability, supporting the front-end of the quality process and metric. Therefore, the PPAC directed much of its attention to the USPTO's deployment of the PTAB End-to-End (PTAB E2E) IT capability and development efforts to support the back-end, post-grant review of patent assets.

In addition to focusing on the USPTO's operations, the PPAC dedicated much of its time to increase the quality and durability of the USPTO's patent products. In particular, the PPAC's Patent Quality and Pendency Subcommittee focused on both the quality of the Agency's front-end process (i.e., examining applications for patents) and its back-end process (i.e., the post-grant review that can establish the durability of the patent asset).

The Patent Examining Corps under Commissioner for Patents (Patents) Andrew Hirshfeld is instituting changes to the management structure to bring more efficiencies to that organization. The PTAB, under Chief Judge Scott Boalick, has worked hard to answer Director Iancu's calls for a fair and predictable landscape for post-grant proceedings. This year, the PPAC has urged Patents and the PTAB to cross-train their teams and to share their respective data to enhance the quality of Patent's examination process and the durability of the USPTO's product. Doing so would also energize and create opportunities for the USPTO workforce and give its stakeholders greater incentives to innovate in their businesses, the patent system, and, ultimately, the U.S. economy. Accordingly, the PPAC further recommends the USPTO make a unified effort to bridge the gap between Patents and the PTAB processes so that all "Americans have the opportunity to innovate, seek patent protection for their inventions, and reap the rewards from innovation through entrepreneurship and commercialization."[2]

In the interim period between the last presidential election in 2016 to this year's upcoming election, the Supreme Court of the United States (SCOTUS) has recently granted cert on three USPTO patent-related petitions and issued several USPTO patent-related decisions including, in reverse chronological order:

October 13, 2020: *Arthrex*. SCOTUS granted cert on three petitions[3] (referred to here as *Arthrex*) seeking review of a decision by the Court of Appeals for the Federal Circuit (CAFC). The CAFC held that administrative patent judges of the Patent Trial and Appeal Board (PTAB) of the USPTO must be appointed by the president and confirmed by the Senate. The CAFC further ruled that federal laws that restrict when officials can be removed from office do not apply to administrative patent judges (APJ) and remanded the dispute for a new hearing with a new panel of APJs. The CAFC also indicated that its ruling and remand remedy would apply to cases where the litigants argued that the judges' appointment violated the Constitution. The issues to be addressed are whether the APJs must be appointed by the president and confirmed by the Senate. If so, whether the remedy that the CAFC imposed was appropriate.

April 4, 2020: *Thryv v. Click-to-Call Technologies, 590 U.S._____(2020)*: held that the USPTO has unreviewable authority to decide whether a party properly petitioned under the AIA within one year of being served a complaint for patent infringement.

December 11, 2019: *Peter v. NantKwest, Inc.*, 589 U.S.____(2019): held that the USPTO was not entitled to reimbursement of attorneys' fees from patent applicants who file appeals against USPTO decisions.

***June 6, 2019**: Return Mail v. U.S. Postal Service*, 138 S. Ct. 1853 (2019): held that a government agency cannot challenge patents using *Inter Partes* Review (IPR), post-grant review (PGR), and covered business method reviews (CBM), because the word "person" has long been presumed to exclude the government or any agency thereof and nothing in the AIA justifies displacing that presumption.

April 24. 2018: *SAS Institute Inc. v. Iancu*, 138 S. Ct. 1348 (2018): held that when the USPTO institutes an IPR, it must decide the patentability of all the claims the petitioner challenged.

April 24, 2018: *Oil States Energy v. Greene's Energy Group*, 138 S. Ct. 1365 (2018): held that post-grant challenges, specifically IPR challenges, are constitutional.

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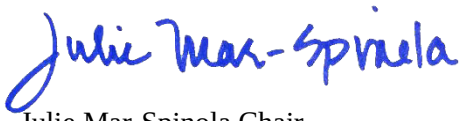
[2] United States Patent and Trademark Office SUCCESS Act Report to Congress, October 2019.

[3] *United States v. Arthrex Inc* (19-1434), consolidated with *Smith & Nephew Inc. v. Arthrex Inc.* (19- 1452), and *Arthrex Inc. v. Smith & Nephew Inc.* (19-1458).

June 20, 2016: *Cuozzo Speed Technologies, LLC v. Lee*, 579 U.S._____(2016): upheld the USPTO's regulation requiring the PTAB to apply the broadest reasonable interpretation (BRI) standard in IPR proceedings and further held that the USPTO's decision to institute an IPR proceeding is not appealable to the federal courts.

In closing, the PPAC thanks the President and the Administration for supporting the USPTO's efforts to promote innovation among all Americans and grant high quality, durable patents to America's inventors, which in turn supports a strong U.S. economy. The PPAC is available to discuss our recommendations in the Annual Report with you or your staff and discuss the PPAC's future planning with the USPTO for FY 2021.

Very truly yours,



Julie Mar-Spinola Chair
Patent Public Advisory Committee
U.S. Patent and Trademark Office

Enclosure: Patent Public Advisory Committee Fiscal Year 2020 Annual Report

Cc: The Honorable Lindsey Graham, Chairman, Senate Judiciary Committee
The Honorable Dianne Feinstein, Ranking Member, Senate Judiciary Committee
The Honorable Thom Tillis, Chairman, Subcommittee on Intellectual Property
The Honorable Chris Coons, Ranking Member, Subcommittee on Intellectual Property
The Honorable Jerrold Nadler, Chairman, House Judiciary Committee
The Honorable Jim Jordan, Ranking Member, House Judiciary Committee
The Honorable Hank Johnson, Chairman, Subcommittee on Courts, Intellectual Property, and the Internet
The Honorable Martha Roby, Ranking Member, Subcommittee on Courts, Intellectual Property, and the Internet
The Honorable Wilbur Ross, U.S. Secretary of Commerce
The Honorable Andrei Iancu, Under Secretary of Commerce for Intellectual Property and Director of the U.S. Patent and Trademark Office
Andrew Hirshfeld, Commissioner for Patents

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EXECUTIVE SUMMARY

I. INTRODUCTION

The Patent Public Advisory Committee (PPAC) chose "20/20 Vision" as its theme for 2020. In optometry, 20/20 vision refers to the clarity and sharpness of vision measured from a distance. In a similar vein, PPAC's goal for this year's review is to examine U.S. Patent and Trademark Office (USPTO or the Office) operations from a point in the future. This vantage point, the PPAC believes, affords us added clarity and sharpness in identifying and advising the Office on the financial, Information Technology (IT) infrastructure (including, Artificial Intelligence (AI) technologies and tools), policies, and workforce metrics, needed for the overall objective of improving the accessibility, quality, and durability of the patent asset to the users of USPTO services.

The PPAC has eight subcommittees, chaired and attended by appropriately qualified members of the PPAC (see PPAC Member Biographies at 63-67): (1) Patent Quality & Pendency; (2) IT; (3) International; (4) Patent Trial and Appeal Board (PTAB); (5) Legislative; (6) Finance; and two new subcommittees: (7) AI; and (8) Innovation Expansion. With the formation of the AI Subcommittee, the PPAC seeks to ensure that where AI technology and tools are needed to modernize and uphold the USPTO's leadership role among the world's patent offices, we can provide guidance, help identify issues and, ultimately, confidently support the Office in securing proper funding for a robust AI infrastructure that is sustainable for years to come. Having a robust AI system in place will serve a multitude of USPTO initiatives now and in the foreseeable future, such as advancing overall quality through big data, improving external stakeholder accessibility to USPTO services, honing AI-related policies and regulations, as well as affording the Office firsthand insights and understanding of AI-related inventions. To define, build, and implement such a robust system would benefit from the USPTO having an experienced AI technical expert.

Moreover, consistent with Congress's Study of Underrepresented Classes Chasing Engineering and Science Success (SUCCESS) Act of 2018 (2018 SUCCESS Act, Ref. 1) (https://www.congress.gov/115/plaws/publ273/PLAW-115publ273.pdf), and the USPTO's October 2019 SUCCESS Act Report (USPTO SUCCESS Act Report, Ref. 2) (https://www.uspto.gov/sites/default/files/documents/USPTOSuccessAct.pdf), the PPAC is focused on encouraging the Office to take meaningful steps to increase the diversity of inventorship in our inventor community. With the formation of the Innovation Expansion Subcommittee, the PPAC seeks to support and help advance the Department of Commerce (DOC) and the USPTO's commitment to increase diversity of inventorship through dialogue with and on behalf of the external stakeholders. Indeed, to achieve sustainable growth of the U.S. economy, the PPAC fully agrees with the Office's commitment to make the U.S. Patent System more accessible to all Americans, including underrepresented groups based on demographic characteristics, geography, and economic conditions.[2]

Looking more broadly, this year the PPAC referred to the U.S. Department of Commerce Strategic Plan | 2018-2022, Strategic Goal 1, titled Accelerate American Leadership, (DOC Strategic Plan, Ref. 3) (https://www.commerce.gov/sites/default/files/2020-

[2] USPTO SUCCESS Act Report, Ref. 2.

08/us_department_of_commerce_2018-2022_strategic_plan.pdf), as well as the USPTO's corresponding 2018-2022 Strategic Plan (Ref. 4) (https://www.uspto.gov/sites/default/files/documents/USPTO_2018-2022_Strategic_Plan.pdf), (collectively "2018-2022 Strategic Plans") as their respective roadmaps to protecting the future of America's inventions and their improvements (i.e., innovations), with the ultimate goal of protecting America's technological leadership and strengthening America's economy for all its citizens. Now at the halfway mark of both plans, the PPAC reviews the USPTO's current performance metrics against their stated goals. As discussed in greater detail throughout this Report, the USPTO is, indeed, making good headway and in some instances is well ahead of the USPTO Strategic Plans' 2022 goal lines. While impressive by itself, when viewed against all the challenges 2020 presented us, particularly COVID-19, the USPTO, under the leadership of Under Secretary of Commerce and Director of the USPTO Andrei Iancu and the entire USPTO workforce, has performed steadily and steadfastly.

The pandemic challenged all of us like never before, but as the proverb goes: every cloud has a silver lining, meaning there is hope or something good to be found in every challenge, which we have had many in 2020. The USPTO rose to the occasion with agility and found new efficiencies in its operations that might not have been discovered or implemented without the numerous 2020 challenges. This Report, broken down by subcommittee topic, reveals the progress made, the improvements needed to timely and effectively meet the 2018-2022 Strategic Plans, some silver linings, and how well the USPTO has responded to each "sable cloud."[3]

II. EXECUTIVE RECOMMENDATIONS

The PPAC's previous Annual Reports did not include a general recommendation to the USPTO, but the PPAC would be remiss not to take this opportunity to make the following recommendations for this year with all its historical events and challenges. These events and challenges have changed us as a people and as a nation. The PPAC's recommendations made in each section below are done with optimism and caution, but all with the clear purpose of maximizing the quality of the examination of patent applications to produce high quality, durable patents. Likewise, the PPAC's recommendations are proffered with a desire for the U.S. Patent System to be fair, predictable, reliable and stable for all patent owners and users of the USPTO services as often expressed by Director Iancu. A high quality, durable patent is a strong U.S. patent and a strong U.S. patent supports a strong U.S. economy.

The USPTO has not only evolved, but as described in this Report, the USPTO laudably has shown that it can adapt quickly and effectively. For example, to help entities financially impacted by the pandemic, the USPTO has waived or delayed certain fees. On March 16, 2020, the Office announced that fees for petitions to revive abandoned patent applications would be waived if the abandonment was because of the COVID-19 virus. The Coronavirus Aid, Relief, and Economic Security Act (CARES) signed by the President on March 27, 2020 authorized Director Iancu to defer deadlines and fee payments. Within the scope of the authorization, the USPTO announced on March 31, 2020 that certain deadlines including for fee payments would be extended. These deadlines were further extended by announcements on April 28, 2020 and May 27, 2020. Then on June 29, 2020, the USPTO further extended these deadlines, until

[3] John Milton's 1634 poem "Comus" ("Was I deceived? or did a sable cloud Turn forth her silver lining on the night?")

September 30, 2020, but these further extensions were largely targeted toward small and micro entities. In total, this deferral of fees, from March 2020 through August 2020 had an estimated impact of approximately $6.0 million for Patents. Notwithstanding, the USPTO had enough reserves to absorb this one-time financial hit.

However, to be sustainable, especially with the apparent protraction of the pandemic into 2021, it is imperative that the USPTO is finally given access to the funds held in its accounts at the Department of Treasury. From FY 1990 through FY 2011 and prior to the USPTO obtaining full access to collections and fee setting authority through the AIA, all the fees and surcharges that were collected from customers were not always appropriated to the USPTO. Previously collected and currently unavailable fee collections on deposit in the USPTO accounts at Treasury are $1,024 million ($814 million from previously collected fees for patent services provided to customers). The USPTO has confirmed with Treasury that the funds are on deposit in the USPTO Treasury account, but the USPTO requires Congressional approval to access the funds. Access to these funds would result in the USPTO reaching optimal reserve levels, defined as three months of operating requirements, for both the patent and trademark business lines, thus mitigating the risk of current and future economic uncertainty. Access to these funds would also, among other things, increase the USPTO's ability to improve its infrastructure and services. Additional details on the unavailable amounts can be found in the Financial Section, at 29, of the 2019 Performance and Accountability Report. (Ref. 5) (https://www.uspto.gov/sites/default/files/documents/USPTOFY19PAR.pdf)

The PPAC recommends that Congress make these previously collected user fees available to the USPTO and, in fact, the PPAC sent a letter on April 9, 2020 to Senate Judiciary Subcommittee on Intellectual Property and the House Judiciary Subcommittee on Courts, Intellectual Property, and the Internet (PPAC Letter to Congress, Ref. 6) (https://www.uspto.gov/sites/default/files/documents/PPAC-TPAC_Letterr-to-Congress_re_Appropriation-of-PTO-Funds_041220.pdf) requesting that these funds be available to the USPTO for its operations.

It is also noteworthy that the Patent Examining Corps (Patents) under Commissioner for Patents Andrew Hirshfeld is instituting changes to the management structure to bring more efficiencies to that organization. The Patent Trial and Appeal Board (PTAB), under Chief Judge Scott Boalick, has worked hard to answer Director Iancu's calls for a fair and predictable landscape for post-grant proceedings. This year, the PPAC has in its advisory role, urged Patents and the PTAB to cross-train their teams and to share their respective data to enhance the quality of Patent's examination at the front end of the patent process and the durability of the USPTO's product at the back end of the post-grant proceedings. Doing so would also energize and create opportunities for the USPTO workforce and give its stakeholders greater incentives to innovate in their businesses, the patent system, and ultimately, the U.S. economy. The PPAC is pleased that Patents and the PTAB have, in fact, been working together to bridge the gap between the divisions.

Accordingly, the PPAC's further recommends the USPTO continue to make it their collective, unified effort to bridge the gap between Patents and the PTAB to enhance the quality of the examination pre- and post- issuance processes so that all Americans have the opportunity to innovate, seek patent protection for their inventions, and reap the rewards from innovation

through entrepreneurship and commercialization." [4]

III. PATENT QUALITY AND PENDENCY

The Quality and Pendency PPAC subcommittees were combined in FY 2020. The simple reason is that both subcommittees share a common goal – ensuring a patent right that is timely, predictable, and reliable. The symbiotic relationship between quality and pendency is clear, and the PPAC determined that the subcommittees are best positioned to oversee these important attributes of examination as a single subcommittee. The Patent Quality and Pendency subcommittee met jointly with the PTAB subcommittee, recognizing that the two subcommittees, while serving very different roles within the Office, share the goal of durable patents. Patents that the public, inventors, and investors can rely upon to foster innovation, competitiveness, and job growth.

Objective 1.3 of the DOC Strategic Plan (Ref. 3) notes "[w]e will continue to achieve the highest quality of patent and trademark examination to maintain industry confidence in their validity and durability" and sets the strategic goal to "optimize patent and trademark quality and timeliness." Through initiatives that will be highlighted further in this report, the USPTO continues to make significant progress in implementing this Plan.

As reported in the 2019 PPAC Annual Report, the USPTO has shifted from an Agency Priority Goal (APG) of average pendency to the American Inventors Protection Act (AIPA) guarantees of timeliness in FY 2020. This report describes the status for the AIPA guarantees as well as the average pendency as previously reported. As of September 30, 2020, the average first action pendency, which is the average number of months from the patent application filing date to the date a first office action is mailed, is 14.8 months (FY 2019, 14.7 months), and total pendency, which is the average number of months from the patent application filing date to the date the application has reached final disposition, is 23.3 months (FY 2019, 23.8 months). The USPTO goal is 90% compliance with the AIPA guarantees by 2025. Overall AIPA compliance of mailed actions is 83% and overall AIPA compliance with remaining inventory is 88%. The PPAC congratulates the USPTO, particularly Patents, for the continued progress on these goals.

The quality of the patents issuing from the USPTO also continues to improve. Subject matter eligibility is a significant source of uncertainty in the law. Notably, however, the 2019 Revised Patent Subject Matter Eligibility Guidance (2019 PEG, Ref. 7) (https://www.govinfo.gov/content/pkg/FR-2019-01-07/pdf/2018-28282.pdf) and the October 2019 Update Subject Matter Eligibility (October Guidance Update, Ref. 8) (https://www.uspto.gov/sites/default/files/documents/peg_oct_2019_update.pdf) continue to provide a consistent and predictable structure for application of the jurisprudence during examination. The 2019 PEG has reduced the variability within the Office in applying 35 U.S.C. § 101. The PPAC congratulates the Office for its continued efforts to increase the predictability, at least with respect to matters before the Office, in this currently disputed area of law.

The starting point for a quality patent is classification and search. The USPTO has several initiatives focused specifically on search. Patents End-to-End (PE2E) Search is a new IT search tool developed for patent examiners. Implementation of PE2E Search began in FY 2020. The tool provides broader access to prior art and foundational capabilities that can be expanded with

[4] USPTO SUCCESS Act Report, Ref. 2.

AI. In addition to enhanced tools, the USPTO continues to pilot initiatives to improve search. The results of these pilots have been positive, both in examiner feedback and in a statistically significant increase in prior art citations.

The results of the semi-annual External Quality Survey (EQS) confirm that applicants are experiencing higher quality examination. (See Ref. 8 for a sample survey). The percentage of filers that rate the overall examination quality as "good" or "excellent" is 57%, which is level with prior survey data, and the percentage of filers that rate the overall quality at "poor" or "very poor" continues to trend downward with 6% rating overall quality as poor/very poor. The percentage of filers that reported that they agreed to a large extent that appropriate prior art was cited was 60% and notably only 5% of filers did not agree that the appropriate prior art was cited. The areas that continue to lag in the EQS are the extent to which filers perceive the examiners substantively addressing applicants' responses to office actions with 19% agreeing to a small extent, and the extent examiners are following appropriate restriction practice with 22% agreeing to a small extent.

In addition to timely and predictable prosecution, a quality patent is a patent right that is durable. Inventors, patent owners and investors expect the patent right to survive scrutiny if challenged in post-grant review (PGR), *inter partes* review (IPR), district court or other forum, particularly if challenged on prior art and facts that were before the examiner. A finding of unpatentability or invalidity on prior art and facts before the examiner should be exceptional, and the discovery of "new art" that was not available to the examiner should also not be the norm.

The USPTO issues hundreds of thousands of patents each year, and only a few thousand are challenged each year in post-grant proceedings. IPRs have been the most frequently used of the post-grant proceedings since the passage of the AIA. In an IPR, a petitioner is required to show a "reasonable likelihood" that the petitioner would prevail with respect to at least one of the claims challenged in the IPR petition. If the petitioner makes that showing and meets other discretionary considerations for institution, an AIA trial takes place. Only 34% of AIA petitions result in a final written decision. Of those, the PTAB finds all claims unpatentable in 62% of the proceedings and all claims patentable in 20% of concluded proceedings. *See also* PTAB June 2020 study of outcomes in AIA cases in FY2019 by patent and by claim (indicating that 25% of all claims challenged in petitions are found unpatentable in final written decisions).

While only a fraction of issued patents are challenged in post-grant proceedings, those challenges represent an important opportunity to improve examination and the overall patent system. The goal of durable patents demands continuous improvement in this regard. The PPAC notes that adequate data sharing between the Patents and the PTAB helps to enable the feedback or learning loop between the PTAB and the Patents. We urge the Office to share as much information as possible between the PTAB and Patents divisions to ensure that any finding of unpatentability is a potential "lesson learned" for the Office.

RECOMMENDATIONS

To further the goal of durable patents, the PPAC urges Patents and the PTAB to continue timely and comprehensive sharing of data. This data sharing is critical to creating feedback or learning loops that drive continuous improvement. Such data sharing will ensure continued production of high-quality work product by both divisions and the issuance of high quality, durable patents by the USPTO.

The PPAC recommends that the USPTO continue to make accessible data on pendency and quality. Specifically, the PPAC recommends expanding the Patents Data Visualization Center to reflect progress on the AIPA goal with interim targets for each fiscal year and to incorporate EQS and other key quality metrics.

The PPAC supports the USPTO conducting further initiatives to improve classification and search and to leverage the benefits observed from peer searching.

To further understand the impact of continuation practice on pendency and quality, the PPAC recommends further study of continuation practice during examination.

IV. INNOVATION EXPANSION

The U.S. patent system encourages and strengthens American innovation. It is critical to our economic prosperity, safety, and security. For this system to be most effective, all Americans must have the opportunity to innovate, seek patent protection for their inventions, and reap the rewards from innovation through entrepreneurship and commercialization. However, innovation in the U.S. is highly concentrated based on demographic characteristics, geography, and economic conditions. Underrepresented groups are not able to fully engage or compete in the current U.S. innovation ecosystem.

The DOC Strategic Plan, referred to in the preceding Quality and Pendency section, includes a first of two strategies to "Strengthen the Protection of Intellectual Property" and states: "American innovators and creators need enforceable IP rights to profit from their innovation and creativity. Our IP system needs to be efficient and cost-effective. [The] USPTO, the International Trade Administration, and the Minority Business Development Agency work with innovators, creators, businesses, and universities to increase the effectiveness of the U.S. IP system domestically and abroad." With respect to underrepresented groups, the DOC identifies the "Number of minority businesses receiving information on intellectual property protection" as one of three performance indicators, which is discussed in this Annual Report.

In its 2019 SUCCESS Act report (Ref. 2), the USPTO highlighted its plans to enhance and expand several of its existing initiatives to make the patent system more accessible to underrepresented groups. While the COVID-19 pandemic may have delayed the timelines for some of the USPTO's efforts in this regard, the USPTO demonstrated its commitment to innovation expansion throughout 2020 by: preparing an updated report[5] from the Office of the Chief Economist, titled "Progress and Potential | A profile of the women inventors on U.S. Patents" in February of 2019 (Progress and Potential Report, Ref. 9) (https://www.uspto.gov/sites/default/files/documents/Progress-and-Potential.pdf); on the representation of women in the innovation ecosystem; moving forward with the creation of the National Council for Expanding American Innovation (NCEAI), a council for innovation inclusiveness; launching a new dedicated website hub specifically for inventors and entrepreneurs to access useful information and resources; releasing new IP toolkits; transitioning scheduled in-person events into virtual events; and hosting and participating in numerous educational and informational events for increasing participation of underrepresented groups in the patent system.

[5] The Progress and Potential 2020 update on U.S. women inventor-patents. (Progress and Potential Update, Ref. 10) (https://www.uspto.gov/sites/default/files/documents/OCE-DH-Progress-Potential-2020.pdf)

The creation of the NCEAI was a significant step forward on the path to a truly inclusive and diverse innovation ecosystem in the U.S. However, this path is a long path that will require the hands-on support and engagement of the American public well beyond the NCEAI. Recognizing the important role that the public plays in this critical effort, the PPAC introduced the Innovation Expansion Subcommittee in FY 2020.

RECOMMENDATIONS

The PPAC recognizes that a significant challenge exists for the USPTO in the data acquisition and analysis for underrepresented groups. Without such data and analysis, it will be difficult, if not impossible, to identify hidden drivers of under-representation of specific groups. It will also be difficult or, more likely, impossible, to measure progress if an accurate baseline cannot be established. The PPAC recommends that the USPTO continue to engage with other DOC bureaus and U.S. government agencies, including the Small Business Administration (SBA) and the Treasury, regarding the potential to share data and analyses relevant to the number of, and benefits from, patents applied for and obtained by women, minorities, and veterans.

The PPAC recommends that the USPTO partner with private entities or organizations to access data and analyses that could provide a bigger picture or different perspective on how and why women, minorities, veterans, or other underrepresented groups participate or do not participate in the patent system. The PPAC also recommends that the USPTO continue to partner with private entities and organizations on public outreach and educational programs.

The PPAC recommends further that the USPTO continue to engage the broader IP community to get involved in STEM (science, technology, engineering, and math) and IP education and other efforts to increase representation of women, minorities, and veterans in the innovation ecosystem.

For lasting positive impact, the PPAC urges the USPTO to work with the NCEAI to ensure that the national strategy on innovation and intellectual property is based on a long-term vision and built for conscious inclusiveness, continuity, adaptability, and sustainability over time. This can only be accomplished if the NCEAI regularly seeks and considers input from a wide variety of underrepresented groups. The PPAC urges the USPTO to continue to seek out and consider such input.

V. ARTIFICIAL INTELLIGENCE

The proliferation of AI technologies throughout contemporary commerce and otherwise poses important challenges to the USPTO as it pursues its mission to promote the progress of science and useful arts, and to the DOC as it pursues its mission to create the conditions of economic growth and opportunity. Indeed, AI proliferation calls for comprehensive examination at a national level of whether our current laws and governmental institutions are adequate to govern the impact of AI technologies in ways consistent with the nation’s deepest principles and ideals.

RECOMMENDATIONS

The PPAC recommends that the USPTO continue to work with the Department of Commerce and the White House Office of Science and Technology Council to address the policy challenges arising from the proliferation of AI technologies. To assist the PPAC in its statutory mandate

and consistent with 35 U.S.C. §5 (f)[6], the PPAC also recommends the USPTO provide additional information on the costs, rationale, and estimated return on investment (ROI) of its key AI initiatives. The PPAC will consider and apply this information in FY 2021 to advise the Office on its policies and goals to support the 2018-2022 Strategic Plans, which recognize how AI technologies contribute to innovations that drive economic growth, create jobs, raise wages, and help Americans lead better lives.

VI. INFORMATION TECHNOLOGY

Often IT support works in the background of operations. With the onset of the COVID-19 pandemic in mid-March 2020, however, the USPTO's IT Group quickly found themselves on the front line of the Office's operations. Although the USPTO historically comprised one of the largest telework programs within the government and private sectors, the pandemic's shelter-in-place orders for all but essential workers required the entire workforce to transition to full remote work environments. Notwithstanding, the ability to file applications, correspond with examiners, pay fees, and conduct searches of prior art were already in place and suffered little perceived disruption by the stakeholders. In addition, phone and video conferences between examiners and stakeholders were already in common use. As a result, thanks to the IT Group's experienced team, the transition went relatively smoothly allowing the USPTO operations to run with minimal disruption.

The IT Group has essentially used the adage of "plan your work and work your plan" most effectively. The stabilization plan continues, as does the continued rollout of the new PE2E Search tool. Hardware has been improved, and Cloud storage has increased resiliency of the computing system. The IT Group has adopted the AGILE manifesto, which increases the rate and quality of software changes to the IT system. The IT Group continually tests the system for vulnerabilities to outside attacks. Importantly, as per federal requirements, the system is compliant with NIST security standards.

The Public and Private PAIR (Patent Application and Information Retrieval) systems are gradually being replaced by the next generation Patent Center system. The Patent Center allows an applicant or practitioner to readily access the prosecution history and all related documents, file applications and petitions, and to check the status of an application; it also allows access to see Patent Term Adjustments and check on maintenance fee status.

And probably most importantly, the Office has also increased resiliency by installing a separate processing system on the East Coast, in addition to the hardware in use at the Alexandria campus. The Office also recognizes that it would benefit by having off-site processing at a location west of the Mississippi River, and is working diligently in that regard.

RECOMMENDATIONS

In addition to severe weather events comprising a risk to the Office's IT systems, it is widely believed that security breaches and malware attacks are another particular risk that requires the

[6] 35 U.S.C. §5 (f), titled, Patent and Trademark Office Public Advisory Committees, Access to Information, states "Members of each Advisory Committee shall be provided access to records and information in the [USPTO], except for personnel or other privileged information concerning patent applications required to be kept in confidence by section 122."

USPTO to have advanced policies, procedures, expertise, and infrastructure to counter such cyber warfare. For these reasons, the PPAC strongly urges the USPTO to continue its efforts to establish remote processing at several locations in the mid and western United States. Moreover, the PPAC recommends the Office continue the rollout of PE2E Search, to include its availability to the general public, and to continue to work on the implementation of Patent Center.

VII. INTERNATIONAL

COVID-19 has created unforeseen challenges for patent applicants and patent offices alike. In order to address applicants' needs during 2020, the USPTO took a leadership role with fellow intellectual property offices (IP5)[7] and World Intellectual Property Organization (WIPO) to help minimize the effect of disruptions caused by the pandemic on acquisition and maintenance of intellectual property. To this end, the USPTO actively pursued and issued several bilateral and multilateral joint statements with counterpart intellectual property Offices reaffirming the importance of innovation and intellectual property protection particularly during the current COVID-19 crisis. As a member of the IP5 Program Management Group (PMG), the USPTO participated in drafting guidelines for organizing and conducting virtual meeting to ensure efficient and productive discussions in a virtual format. Such meetings are essential to continuing cooperation among the IP5 members during these extraordinary times when international travel and face-to-face meetings are constrained. The IP5 heads of offices endorsed the IP5 guidelines for working virtually, reaffirming the benefits of maintaining efficient and effective communication and cooperation during the pandemic. Similarly, working through its U.S. Attaché in Geneva, the USPTO and WIPO established meeting mechanisms and formats to allow important and time sensitive WIPO work to continue.

From July 1, 2018 to June 30, 2020, the IP5 conducted the operational phase of the third PCT Collaborative Search and Examination (CS&E) pilot project to test a collaborative approach to international searches under the PCT to assess users' interest in the new PCT product, and the expected efficiency gains for the participating Offices. The pilot is now entering the evaluation phase, which will run through June 30, 2022, and during which the IP5 will examine the effectiveness of the CS&E process.

The USPTO also worked collaboratively with the JPO and KIPO on the Expanded Collaborative Search Pilot (CSP), which is designed to uncover the most relevant prior art during examination by combining the search expertise of examiners at these three offices. Although the current phase of the expanded CSP program is scheduled to end in October of 2020, the USPTO, JPO, and KIPO intend to further extend the program effective November 1, 2020 and will continue for an additional two years.

Parallel Patent Grant (PPG) is a novel patent work sharing initiative of the USPTO and is the result of a January 28, 2020 Memorandum of Understanding between the USPTO and the Mexican Institute for Industrial Property (IMPI). The program allows a U.S. patent and its corresponding search results to serve as the basis for expedited grant of a foreign counterpart

[7] The IP5 is a forum of the world's five largest intellectual property offices, the: USPTO, European Patent Office (EPO), Japan Patent Office (JPO), Korean Intellectual Property Office (KIPO), and Chinese National Intellectual Property Administration (CNIPA). The IP5 launched in 2007 to exchange views and identify opportunities for cooperation with regard to common challenges and inefficiencies in the international patent system.

patent application by a partner Office. IMPI and USPTO intend to launch phase 1 of the program soon, circumstances permitting.

The protection of industrial design rights globally drives research and development of emerging technologies and products and furthers sales and economic growth for innovative U.S. companies. Recognizing the important economic benefit of strong industrial design protection, the Industrial Design Forum (ID5) was initiated in 2015 bringing together the five largest industrial design Offices in the world (CNIPA, EUIPO[8], JPO, KIPO and USTPO), which represent approximately 90% of the world's annual industrial design application filings. Along with WIPO participating as an observer, ID5 serves as an incubator for industrial design policy development and identification of best practices and procedures. In December 2015, the USPTO hosted the inaugural ID5 Annual Meeting at USPTO Headquarters in Alexandria, Virginia. In 2020, the USPTO will again host and oversee the first virtual ID5 Annual Meeting on October 29 and 30.

One of the significant achievements of ID5 in 2020 in which the USPTO took a leadership role was the adoption of the WIPO Digital Access Service (DAS) by the ID5, making digital priority document exchanges a convenient and lower cost solution to applications around the world. And the timing could not have been better. Office closures and processing delays of certified copies due to the global pandemic have made the WIPO DAS system more welcome and critical for design applicants.

The USPTO's IP Attaché Program, located within the OPIA, continues to effectively advocate for the improvement of IP systems internationally and to support U.S. individuals and businesses with IP interests around the globe. In the first three quarters of FY 2020, the IP Attachés helped more than 3,000 U.S. stakeholders, conducted more than 50 public awareness programs (with more than 4,500 participants), conducted more than 1,500 meetings with foreign government officials, and reported 39 significant IP successes. Throughout the first three quarters of FY 2020, the IP Attachés also engaged in significant outreach to the corporate community, academia, and other U.S. stakeholders, to raise awareness about the IP Attaché Program and its services, and to learn which issues were of the greatest interest and concern to those groups. U.S. industry has expressed support for the IP Attaché program and has requested elevation in diplomatic rank for the IP Attachés to improve their effectiveness in their interactions with foreign government officials.

RECOMMENDATIONS

The DOC Strategic Plan (Ref. 3) includes strategies focused on increasing the "effectiveness of the U.S. IP system domestically and abroad" and identifies as a performance indicator the "number of people, including foreign government officials and U.S. stakeholders, trained on best practices to protect and enforce intellectual property." As described in the preceding summary, as well as in greater detail later in this Report, the USPTO has continued to advance its policies and leadership globally. The PPAC encourages the USPTO to maintain its leadership role among the global IP offices while continuing to develop appropriate virtual meeting opportunities that reduce the time and money spent on global travel. The PPAC commends the USPTO on the establishment of the CS&E, the CSP, PPH and the PPG, and its collaborative

[8] The EUIPO issues registrations for trademarks and industrial designs (equivalent to U.S. design patents) that have effect throughout the European Union. The EPO is the regional office responsible for the grant of European patents.

work with the other IP offices to achieve such improvements for applicants and the participating IP offices. The PPAC supports the continuation of each of these programs and others like them in the future.

The PPAC is proud of the leadership role the USPTO has taken and continues to take in the ID5 and the important initiatives it is spearheading to help provide more reliable, efficient and cost-effective design rights globally for U.S. applicants. And the PPAC encourages the USPTO to continue to press for a suitable elevation and parity of rank to qualified IP Attachés to help them better advocate for U.S. IP interests around the world.

VIII. PATENT TRIAL AND APPEAL BOARD

The PTAB was established by the Leahy-Smith America Invents Act (AIA). In its USPTO Strategic Plan (Ref. 4), the USPTO announced an objective specific to the PTAB, namely, Objective 4: Enhance Operations of the PTAB. As detailed in that plan, the USPTO is undertaking a variety of initiatives to meet this Objective, including resolving *ex parte* appeals and AIA trials in a timely manner and streamlining procedures to ensure predictability for the stakeholder community.

In FY 2020, the PTAB remained active and productive in working to meet Objective 4, to implement the initiatives detailed in the USPTO Strategic Plan, and improve the consistency, predictability, and transparency of its proceedings, notwithstanding the COVID-19 pandemic that led to the closing of the USPTO's offices to the public in mid-March of this year. The PTAB was able to make a swift and complete transition to full telework and remote hearings, ensuring the continued handling of a steady volume of *ex parte* appeals and AIA trials.

The PTAB continued to reduce the pendency of *ex parte* appeals across all technology areas. Pendency is calculated as the average number of months from the PTAB receipt date to final decision. In order to reduce its *ex parte* appeal pendency and meet its goals, the PTAB implemented several initiatives, including the Quarterly Appeals Closeout program, technology rebalancing, and just-in-time docketing. As a result of these initiatives, the PTAB worked through its oldest inventory of *ex parte* appeals to achieve an average *ex parte* appeal pendency of 13.5 months for the time period of June 1, 2020 through August 31, 2020, as compared to 15 months over the same time period in FY 2019, already surpassing its end of FY 2020 goal of 14.5 months. The PPAC lauds the PTAB for these accomplishments.

The PTAB continued to meet all statutory deadlines in AIA trials without extensions. Also, the PTAB undertook several new projects, improved procedures, and addressed stakeholder feedback on AIA trials. These projects included consolidating all updates to the Consolidated Trial Practice Guide, November 2019 edition (Consolidated Trial Practice Guide, Ref. 11) (https://www.uspto.gov/sites/default/files/documents/tpgnov.pdf?MURL); publishing a Notice of Proposed Rulemaking on rules of practice to allocate the burdens in relation to motions to amend; continuing with the motion to amend pilot program; publishing a Notice of Proposed Rulemaking to codify the Supreme Court's decision in *SAS v. Iancu*, 138 S. Ct. 1348 (2018) and eliminate the presumption favoring petitioner's testimonial evidence in deciding whether to institute an AIA trial; commencing a Fast Track Appeal pilot program; and, commencing a Legal Experience and Advancement Program.

The PTAB made significant progress in IT improvements and upgrades. Most significantly, the PTAB is converting from multiple, non-integrated IT systems to a single, integrated IT system,

known as PTAB Center. This conversion will provide all members of the PTAB with a single, unified interface for managing cases and decisions across all PTAB's jurisdictions. It also will provide external stakeholders an improved simple, single user interface to make filings in all types of proceedings and to minimize administrative filing errors.

RECOMMENDATIONS

Consistent with the recommendations made by the PPAC under the heading of Patent Quality and Pendency, to enhance the durability of patents the PPAC reiterates here the importance of having a unified management of, and equal access to, data between PTAB and Patents. The PPAC supports having the PTAB Center to facilitate overall data management, to achieve average *ex parte* appeal pendency of 12 months or less, and to facilitate quality reviews of pending applications and issued patents. Also, the PPAC recommends that the USPTO take steps to bridge any data and informational gaps between Patents and the PTAB to help ensure continued production of high-quality work product by both divisions and the issuance of high quality, durable patents by the USPTO.

IX. LEGISLATIVE

Congress continues to be active on patent issues during the second session of the 116th congress, including introducing legislation affecting various aspects of substantive patent law. Congress has also been active in its monitoring of USPTO fee revenues and operations. This year, legislative proposals have been introduced that seek to increase diversity in the patent system, reduce pharmaceutical drug pricing, address the COVID-19 pandemic through changes to the patent system, and permanently authorize the USPTO's successful TEAPP telework program.

The Supreme Court of the United States recently granted cert on three petitions (collectively *Arthrex*) seeking review of a decision by the Federal Circuit. The Federal Circuit held that administrative patent judges of the PTAB must be appointed by the president and confirmed by the Senate. The Federal Circuit further ruled that federal laws that restrict when officials can be removed from office do not apply to APJs and remanded the dispute for a new hearing with a new panel of APJs. The Federal Circuit also indicated that its ruling and remand remedy would apply to cases where the litigants argued that the judges' appointment violated the Constitution. The issues to be addressed before SCOTUS are whether the APJs must be appointed by the president and confirmed by the Senate, and if so, whether the remedy that the Federal Circuit imposed was appropriate. Depending on how this issue is decided by SCOTUS, there is the potential for legislative reform concerning the status of the PTAB and its APJs.

RECOMMENDATIONS

The PPAC recommends that the USPTO continue to engage decision makers and other stakeholders to help ensure that any proposed legislative or administrative changes are appropriately crafted and narrowly targeted without adversely affecting the overall patent system. To that end, the USPTO should consider the effect of such changes in terms of balance and fairness to all stakeholders, the efficient operation of the examination process, the quality of patents issued, and the overall costs and burdens to patent owners and other participants in the patent system, particularly in post-grant proceedings. The PPAC also recommends that the USPTO stay abreast of potential suggested legislative changes regarding patent subject matter

eligibility (35 U.S.C. § 101), the conduct of PTAB post-grant review proceedings, and legislation related to addressing the COVID-19 pandemic to the extent it affects the patent system.

The PPAC continues to support raising the current mid-level rank of USPTO IP Attachés by one level (from First Secretary to that of Counselor) which would give USPTO IP Attachés parity and greater access to senior host government officials, to the Ambassadors at their respective embassies, and to senior industry representatives, and supports consideration of other reasonable changes to allow the IP Attachés to more effectively accomplish their mission.

The PPAC also supports the USPTO's ability to access funds previously collected from USPTO users and credited to the USPTO's Treasury account. The PPAC urges Congress to release those funds for the USPTO's sole use to modernize its computer infrastructure and security systems, to allow examiners more time to consider cited prior art to ensure higher quality patents are issued that are durable, and to implement programs that ensure diversity in its workforce and among the inventor community.

Furthermore, the PPAC supports permanently authorizing the TEAPP telework program, so that the USPTO can continue to reap the benefit this program brings, including the approximately $100 million in cost avoidance, including in real estate costs, reduced office space usage, as well as the recruitment and retention benefits associated with the program.

X. FINANCE

As a fee-funded agency, the USPTO was challenged by the economic downturn associated with the global COVID-19 pandemic and the associated financial uncertainty. Although patent fee collections stayed close to plan for FY 2020, during the final quarter, fee collections fell below plan prior to the surge of prepayments prior to the October 2 fee changes. To prepare for the contingency of reduced collections the USPTO cut $15.5 million from FY 2020 planned spending. Additional contingency plans for FY 2020 were prepared but not implemented. The PPAC commends the work of the Office of the Chief Financial Officer (OCFO) in carefully monitoring collections and expenditures, adjusting spending plans accordingly, and preparing for a range of contingencies.

With the uncertain timing of economic recovery, it is crucial that the USPTO have access to all previously collected user fees. Although USPTO spending is limited by congressional appropriation, the agency's money comes from user fees rather than federal taxation and borrowing. After the onset of the COVID-19 pandemic and accompanying economic contraction, the PPAC wrote a letter to Congress (Ref. 6), joined by the TPAC, requesting that $1.023 billion of previously collected user fees deposited in the USPTO's treasury account be released to the USPTO. The PPAC believe the funds in the USPTO's treasury account uniquely belongs to the USPTO and should be forthwith released for the sole purpose of supporting and modernizing USPTO operations.

In FY 2020, patent fee collections were 1.7% below while patent spending was 3.3% below the estimates included in the FY 2021 President's Budget. The operating reserve grew to $395 million from $383 million, exceeding the recommended minimum level of $300 million.

In FY 2020, the USPTO's appropriation authority was determined by Continuing Resolutions of September 27, 2019 and November 21, 2019 and the FY 2020 Consolidated Appropriations Act which was enacted on December 20, 2019. The bill provided $3.45 billion for the USPTO, of

which $3.11 billion was allocated to patents.

The biennial fee review process that began in FY 2017 (2017 Biennial Fee Review) progressed to completion in FY 2020. Following the publication of a Notice of Proposed Rulemaking (NPRM) in FY 2019, the USPTO collected and considered public input. The USPTO published a final rule on August 3, 2020. The final fee rule is substantially similar to the one proposed in the NPRM. It includes a 5% across the board increase and certain other targeted increases but omits in this rule a fee on patent practitioners that had been included in the NPRM. The fee adjustment went into effect in early FY 2021 on October 2, 2020. The fee adjustment was a key step in assuring sufficient funding for USPTO operations, ongoing investments in key capabilities and a robust operating reserve.

The President's Budget for FY 2021 proposes spending of $3.455 billion on the patents portion of USPTO operations. The Commerce, Justice, and Science (CJS) subcommittee of the House and Senate appropriations committees marked up the FY 2021 budget on July 8, 2020. The CJS subcommittee of the Senate appropriation committee did not markup the FY 2021 budget in FY 2020. The final appropriation for FY 2021 has not yet been enacted. The FY 2022 budgeting process is underway. The PPAC received the USPTO's proposal for the President's Budget for FY 2022 in August 2020.

Another significant development in FY 2020 was the appointment of Jay Hoffman to be the Chief Financial Officer effective on January 6, 2020. Mr. Hoffman has 22 years of federal experience, was previously the Chief Financial Officer of the Consumer Products Safety Commission (CPSC) and held roles in the Departments of Treasury and Energy.

RECOMMENDATIONS

The economic consequences of the current pandemic only heighten the importance of excellent financial management as called for by Objective 3 of the USPTO Strategic Plan. (Ref. 4) The USPTO's mission in fostering reliable and certain patent rights remains critical for supporting innovation during and after the pandemic. Maintaining stable funding through the economic contraction is key to that mission.

The PPAC recommends that Congress release $1.023 billion of previously collected user funds that are on deposit in the USPTO Treasury account. This money will help assure the continuation of quality timely examination and investments in modernization of the long-neglected IT infrastructure and USPTO operations during any temporary reduction of user fee collections.

The PPAC recommends continued prudent management of expenditures that takes into account a range of contingencies. In an uncertain economic climate, user fee collections may remain inherently unpredictable for some time. Careful prioritization will be important to protect the USPTO's mission.

As the economy recovers, the PPAC recommends that the USPTO eventually increase its operating reserve to a level that is sufficient to fund three months of operation. This will help protect USPTO operations from both future variability in fee collections and any lapses in appropriation authority.

Consistent with Objective 3 of the Mission Support Goal in the USPTO Strategic Plan, the PPAC recommends that in future appropriation lapses, the USPTO should be able to spend the funds

that it collects from users during such a time period. Fortunately, FY 2020 passed without any lapse in appropriation authority, but the risk remains of further occurrences in the future. Since the USPTO's collected funds cannot, by statute, be allocated to any other purpose, there is no benefit in restricting the agency's access to them during an appropriation lapse. The USPTO should ideally be exempted from the appropriation process entirely. The appropriations process does not meaningfully affect the USPTO's expenditures over time in any event since the USPTO can only spend the funds that it collects from users.

The PPAC further recommends that the USPTO consider the necessity and extent of any further fee increases by balancing the needs of the Office for adequate funding with the economic challenges faced by the user community. The biennial fee review commenced in FY 2017 has only recently culminated in the fee increase implemented on October 2, 2020. Another fee review began in FY 2019 and has not yet resulted in a proposed fee adjustment. It is important that fees continue to be aligned to the Office's cost of providing services, but the timing and magnitude of any new fee adjustment should consider economic conditions and the likely effect on user participation in the patent system.

I. PATENT QUALITY AND PENDENCY

The COVID-19 pandemic and associated economic downturn slowed the growth of serialized filings relative to FY 2019 to a 0.7% increase in filings compared to 4.9% increase for FY 2019. However, provisional filings increased by 2.9% compared to 0.6% in FY 2019. RCE filings have decreased 10.6% in FY 2020. The root cause of this decline is unclear, but it reflects less rework in the system. Design filings have increased by 4.1% compared to a 0.8% increase in FY 2019. The attrition rate is 3.8%. Overall productivity for FY 2020 is up 0.5%, which is reflected in continued improvement on pendency measures.

Objective 1.3 of the 2018-2022 Strategic Plan to "Strengthen Intellectual Property Protection." The plan notes "[w]e will continue to achieve the highest quality of patent and trademark examination to maintain industry confidence in their validity and durability" and sets the strategic goal to "optimize patent and trademark quality and timeliness." In the USPTO Strategic Plan, the Office translates this strategic goal into four objectives, three of which are relevant to this subcommittee:

Objective 1: Optimize patent application pendency
Objective 2: Issue highly reliable patents
Objective 3: Foster innovation through business effectiveness

Through initiatives that will be highlighted further in this report, the USPTO continues to make significant progress toward these objectives.

A. OBJECTIVE 1: OPTIMIZE PATENT APPLICATION PENDENCY

The USPTO goal is 90% compliance with the AIPA guarantees by 2025. The AIPA guarantees each application a prompt examination by the USPTO. The guarantees are fourteen (14) months from the filing date of an application to the mailing date of a first office action, four (4) months to respond to an amendment, four (4) months to act on an appellate decision, four (4) months to issue a patent after payment of the issue fee, and thirty-six (36) months from the filing date of an application to the issue date of a patent. The goal of 90% compliance means these guarantees are met in 90% of applications. The AIPA goal replaces the average pendency targets reported in prior reports. The PPAC thanks the USPTO for setting the new AIPA goal and recognizes that this will be a multi-year transition. Accordingly, the data for both the AIPA guarantees as well as the average pendency are reported herein. As of September 30, 2020, the average first action pendency, which is the average number of months from the patent application filing date to the mailing of a first office action, is 14.8 months (FY 2019, 14.7 months), and total pendency, which is the average number of months from the patent application filing date to the date the application has reached final disposition, is 23.3 months (FY 2019, 23.8 months). Overall AIPA compliance of mailed actions is 83% and overall AIPA compliance with remaining inventory is 88%. Both measures reflect progress toward the AIPA guarantees. The PPAC congratulates the USPTO, particularly the examiners, for the continued progress on these goals.

This progress has been achieved through a number of initiatives, including internal efforts to align production capacity with incoming workload, applicant options to accelerate examination including petitions to make special and Track One examination, programs that share

international work product such as the Global Dossier and the PPH, and internal workflow improvements. Each of these initiatives enables the USPTO to make continued progress toward its pendency goals.

Applicants have visibility into options to accelerate examination and into the PPH but are unlikely to be aware of the "back office" initiatives or internal workflow improvements that have enhanced productivity and reduced pendency. The time for front-end processing continues to be optimized by the Office of Patent Examination Support Service (OPESS). This reduces the time from receipt of the patent application to the start of examination. As reported in the IT Section of this Report, the implementation of the next generation search, PE2E Search, is improving the effectiveness and the efficiency of search to enable the examiners to meet performance metrics.

Pendency, like patent quality, is a two-way street. Both the applicant and the USPTO play a critical role. A significant factor to the pendency of an application and the quality of any patent that issues therefrom is the quality of the application filed by applicants. A well-drafted and complete application, including the information disclosure statement (IDS), is more efficiently and effectively examined than a poorly drafted application. In this regard, the PPAC commends the USPTO for stakeholder resources, such as the Stakeholder Training on Examination Practice and Procedure (STEPP), Patent Quality Chat, and computer-based training modules on examiner training materials. These are important initiatives and reflect the cooperation between applicants and the USPTO to procure timely, predictable and reliable patent rights. The PPAC encourages the USPTO to continue to work with applicants, especially those with limited resources and/or that belong to the underrepresented groups, in this regard and to conduct further studies on application readiness.

A significant component of USPTO workload is attributable to continuation practice. The number of continuations filed has tripled in the last decade, roughly 30,000 continuation filings in FY 2009 to more than 100,000 continuation filings in FY 2019. Continuation filings now account for nearly a quarter of all serialized filings. The majority (~65%) of continuations are filed off a single parent application, usually an allowed case, but percentage of multiple parent continuations has increased approximately 10% since FY 2019. This represents a substantial volume of work within the Patent Examining Corps. Whether continuation practice contributes positively or negatively to the patent system has been the subject of public debate. See, for example, Righi, Cesare and Simcoe, Timothy S., Patenting Inventions or Inventing Patents? Strategic Use of Continuations at The USPTO (June 15, 2020) (Available at SSRN: https://ssrn.com/abstract=3627775). Questions on continuation practice have also arisen during oversight hearings before the Senate Judiciary Committee, see testimony of Commerce Undersecretary for Intellectual Property, Andrei Iancu, 116th Cong. (March 13, 2019) . Understanding this trend, the root causes and the impact of continuation practice on the USPTO and on the patent system more broadly is therefore important to study further.

B. OBJECTIVE 2: ISSUE HIGHLY RELIABLE PATENTS

A highly reliable patent is a patent that is durable. Inventors, patent owners and investors reasonably expect the patent right to survive scrutiny if challenged in post-grant review (PGR), *inter partes* review (IPR), district court or other forum. A finding of unpatentability or invalidity on prior art and facts before the examiner should be exceptional, and "new art" should also not be the norm. The USPTO should – and does with PE2E Search – have world-leading access to

prior art and search capability. A high-quality search starts with the appropriate classification, which routes the application to the right examiner. The PPAC applauds the USPTO for the enhancements to classification and search in FY 2020. As noted in the IT and AI sections of this report, the PPAC continues to support investment in tools to improve search.

The USPTO issues hundreds of thousands of patents each year, and only a few thousand are challenged each year in post-grant proceedings. IPRs have been the most frequently used of the post-grant proceedings since the passage of the AIA. In an IPR, a petitioner is required to show a "reasonable likelihood" that the petitioner would prevail with respect to at least one of the claims challenged in the IPR petition. If the petitioner makes that showing and meets other discretionary considerations for institution, an AIA trial takes place. Only 34% of AIA petitions result in a final written decision. Of those, the PTAB finds all claims unpatentable in 62% of the proceedings and all claims patentable in 20% of concluded proceedings. *See also* PTAB June 2020 study of outcomes in AIA cases in FY2019 by patent and by claim (indicating that 25% of all claims challenged in petitions are found unpatentable in final written decisions).

While a fraction of issued patents are challenged in post-grant proceedings, those challenges represent an important opportunity to improve examination and the overall patent system. The PPAC encourages the USPTO to continue to consider patent quality from examination through final disposition at the PTAB. Currently, there is limited ability to share data between Patents and the PTAB. More robust feedback or a learning loop between the divisions can inform all stakeholders of prosecution hurdles to navigate through or where improvements in the patent processes need to be implemented and result in durable patent rights.

Subject matter eligibility continues to be a significant source of uncertainty in the law and a threat to the goal of highly reliable patents, as reflected in the divided Court of Appeals for the Federal Circuit (Federal Circuit) in *Am. Axle & Mfg. v. Neapco Holdings LLC*, 2020 U.S. App. LEXIS 24216. The 2019 PEG (Reg. 7) and the October Guidance Update (Ref. 8) continue to provide a consistent and predictable application of the jurisprudence during examination. In art units most impacted by Section 101, the likelihood of receiving a first office action with a rejection for patent-ineligible subject matter has decreased by 25% through April 2020; and uncertainty in patent examination decreased by 44 (See https://www.uspto.gov/sites/default/files/documents/OCE-DH_AdjustingtoAlice.pdf for a full description of the impact of the 2019 PEG on examination). PPAC congratulates the USPTO, and particularly the Patent Examining Corps, for its continued efforts to improve predictability, at least before the USPTO, in this currently disputed area of law.

Improvement is not limited to 35 U.S.C. §101. The results of the EQS confirm that applicants are also experiencing higher quality examination. The EQS surveys 3,000 applicants on the correctness, clarity, and consistency of any rejections during prosecution. EQS also solicits the applicant's perspective on the quality of the prior art found by the examiner and the overall examination quality. The percentage of filers that rate the overall examination quality as "good" or "excellent" remains favorable, with most recent survey data reporting 57%, up from 47% in FY 2015, and the percentage of filers that rate the overall quality at "poor" or "very poor" continue to trend downward with 5% rating overall quality as poor/very poor, down from 11% in FY 2015. The percentage of filers that reported that they agreed to a large extent that appropriate prior art was cited was 60% and notably only 5% of filers did not agree that the appropriate prior art was cited. The areas that continue to lag in the EQS are the extent to which filers perceive the examiners substantively addressed applicants' responses to office actions, with 19% agreeing

to a small extent and the extent examiners are following appropriate restriction practice with 27% agreeing to a small extent. PPAC urges the Office to continue to provide a clear explanation in any action in response to an applicant per MPEP 706.07 and clear explanations of any restriction requirement per MPEP 803.

The USPTO continues to assess the correctness of office actions under a framework of statutory compliance (see https://www.uspto.gov/patent/initiatives/quality-metrics-1.) Using the Master Review Form (MRF), the Office of Patent Quality Assurance (OPQA) assesses whether all applicable rejections are based on sufficient facts to support the conclusion of unpatentability and whether an applicable rejection is omitted, i.e., whether a rejection should have been made in an application. Significantly, the review also focuses on whether the examiner's rationale is clearly articulated to advance prosecution. A detailed review about the statutory compliance evaluation was provided in the PPAC 2018 Annual Report.

The statutory compliance results for FY 2020 are shown in the following table. For comparison, the FY 2018 and FY 2019 results are also shown.

Statute (35 U.S.C. §)	FY 2018 Compliance Rate (%)	FY 2019 Compliance Rate (%)	FY 2020 Compliance Rate (%)
101	97	98	98%
102	95	94	94%
103	92	90	89%
112	93	91	91%

In addition to analyzing the overall compliance data on a section-by-section basis of the statute, the USPTO reviews the overall compliance data with respect to each type of office action. The table below shows the overall compliance rates for each type of office action for FY 2018 through FY 2020.

Office Action Type	FY 2018 Compliance Rate (%)	FY 2019 Compliance Rate (%)	FY 2020 Compliance Rate (%)
Non-final	76	71	69%
Final	78	73	72%
Allowance	92	91	90%
All Office Action Types	82	79	77%

When viewed from this perspective, only 77% of office actions reviewed by OPQA are statutorily compliant. That means that 23% of all of office actions reviewed by OPQA were non-compliant in at least one respect. Notably, allowed applications fared better with 90% compliance rate. PPAC recognizes that a 100% compliance rate is not an attainable goal, given the difficulty in conducting examination and inherent variability of the process, and appreciates the efforts of OPQA and Patents to focus on continuous improvement of these important metrics. The USPTO has several initiatives focused specifically on search. PE2E Search is the next generation search system that patent examiners use to conduct prior art search. It began being rolled out to Patents in FY 2020. PE2E Search brings new capability and a broader prior art data set, incorporating additional foreign data. The full implementation of PE2E Search and expanding its capabilities using AI should remain a top priority within USPTO. In addition to

enhanced tools, the USPTO conducted two programs targeted at improving search, the OPQA Search Feedback pilot (Search Feedback) and the Search Immersion and Peer Search Collaboration pilot (Search Immersion). Search Feedback entailed OPQA conducting an independent search to provide feedback on the search strategy used by the examiner. The feedback loop was a success, with 75% of the examiners expressing interest in having search feedback incorporated as part of OPQA reviews. Search Feedback led to Search Immersion, where 10% of applications selected for OPQA review are subject to an independent search as part of the review process and MRF. Similarly, the Peer Search Collaboration pilot pairs examiners to each independently search an application and thereafter share results and search strategies. This pilot, which was initiated in FY 2019, has resulted in a statistically significant increase in prior art citations. The compliance rates for Section 102 and 103 for these applications did not show any difference statistically, due to the small sample size. The PPAC recognizes the resource challenges of the Peer Search Collaboration pilot – double the resources are needed to conduct search. However, not all applications present equally challenging subject matter to search. Accordingly, the PPAC supports the USPTO conducting further initiatives to improve classification and search and to leverage the benefits observed from peer searching.

As noted, the OPQA reviews are conducted using the MRF. The MRF reflects the inquiries from which to determine the correctness of substantive patentability requirements. Accordingly, it is important that the MRF be sufficiently clear and objective to produce reproducible results, i.e., minimize reviewer-to-reviewer variability, and be updated regularly to reflect current law. The PPAC notes that MRF was updated in FY 2020 and applauds OPQA's transparency and outreach to gather stakeholder feedback.

Processes and tools are only part of the objective to issue highly reliable patents. The most important contributor to patent quality is Patents. Patents is made up of professionals who understand the solemnity of the question presented in each application – does the application and the invention disclosed therein comply with the statute and therefore support the grant of a patent right? The correctness of this decision is critical and foundational to a highly reliable patent. In view of this, the USPTO provides extensive training and materials to Patents, much of which is available to stakeholders (see https://www.uspto.gov/patent/patent-quality/public-patent-examination-learning-center, https://www.uspto.gov/learning-and-resources/examiner-training-materials and https://www.uspto.gov/patent/laws-and-regulations/examination-policy/examination-guidance-and-training-materials). A notable addition to this training in FY 2020 is the collaboration between Patents and the PTAB. Increased collaboration between Patents and the PTAB will enable continuous quality improvement throughout the patent system with the aim of producing patent assets that can survive a post-grant proceeding at the PTAB. This collaboration has led to joint Patent Quality Chats and Boardside Chats with stakeholders and technology center training with PTAB and examiners. Examiners are now invited to attend oral hearings at the PTAB, virtually or live, which provide examiners additional perspective and insight to the post-grant review of the original examination. All of these are positive steps to foster the common goal of issuing a high quality, durable patent right. The PPAC applauds this collaboration to establish feedback or learning loops, and appreciates that the PTAB maintains the independence, objectivity, and impartiality to provide a fair hearing in any particular application.

C. OBJECTIVE 3: FOSTER INNOVATION THROUGH BUSINESS EFFECTIVENESS

Many of the USPTO internal initiatives have been discussed in relation to Objectives 1 and 2. However, one initiative that improves USPTO effectiveness deserves additional comment. During FY 2020, the review and productivity measures for Patents were revised to better align time frames and the level of production appropriate for examination. Simply stated, applications are allocated additional time for examination based on application-specific attributes. Aligning performance management systems to enable more effective examination is important to deliver high quality patents. The performance metrics for examiners reflect the critical attributes of quality and timeliness (productivity) in examination and are linked to financial incentives for productivity and docket management, both of which contribute to reduced pendency and quality. The PPAC congratulates the USPTO and Patents for making the important updates to patent examination time, the patent application assignment (routing) process, and the patent examiner performance evaluation, which improve the examination process and better align it with the goals of providing timely, predictable and durable intellectual property rights. In addition, the PPAC continues to support the aforementioned incentives as important and cost-effective steps to improve pendency and notes the findings from the USPTO that without the incentive awards, hundreds of additional examiners would be needed to achieve the same production.

COVID-19 Pandemic

The accomplishments of the USPTO in view of the challenges confronting the Office due to the COVID-19 pandemic are remarkable. By every measure, quality and productivity of the Office during this period has been maintained or even improved. Perhaps most significantly, the USPTO was able maintain productivity by converting to mandatory telework without significant incident. This was a remarkable accomplishment by all involved – USPTO leadership, IT and Patents. It was also essential for the USPTO to meet its quality and pendency goals. However, much more importantly than the metrics, USPTO business continuity protected innovation and maintained the confidence of the public, inventors and investors that the United States remained open for innovation. This confidence is important component of any post-pandemic economic recovery.

Beyond business continuity of operations, the USPTO has been a leader in the COVID-19 response domestically and abroad. The USPTO established a COVID-19 Response Resource Center. The USPTO provided for prioritized examination for COVID-19 related inventions and provided a path to early publication. It established a marketplace platform for patent owners and inventors to voluntarily explore licensing opportunities, so that COVID-19 related inventions can be brought forward as efficiently as possible.

The USPTO waived requirements for handwritten signatures and extended deadlines and waived some petition and patent-related fees. The USPTO also led internationally with joint statements from the USPTO and the EPO, the USPTO and the JPO, and in partnership with WIPO and the IP5 on initiatives to help applicants maintain important access to services. In summary, the USPTO demonstrated again that it is the leader of the strongest patent systems in the world. The PPAC commends the USPTO for their leadership and action during these difficult times.

The PPAC applauds the commitment of USPTO to improving pendency and quality of patents and recommends that the USPTO continue to engage stakeholders and make accessible data on

pendency and quality. Specifically, the PPAC recommends expanding the Patents Data Visualization Center to reflect progress on the AIPA goal with interim targets for each fiscal year and to incorporate EQS and other key quality metrics.

II. INNOVATION EXPANSION

A. INTRODUCTION

America's long-standing economic prosperity and global leadership in innovation depend on a strong and vibrant innovation ecosystem. To maximize the potential of the nation, it is critically important that all Americans, inclusive of every demographic, have a level playing field to innovate, seek patent protection for their inventions, and reap the rewards from innovation through entrepreneurship and commercialization. This includes women, minorities, and veterans, as well as other underrepresented groups. The need to provide a level playing field for innovation and entrepreneurship to all Americans must be met with urgency. Indeed, U.S. Secretary of Commerce and Chairperson of the newly created National Council for Expanding American Innovation (NCEAI), Wilbur L. Ross, issued an immediate call to action to the members of the NCEAI:

> Our success as a nation is tied to our collective embrace of invention, of creating new products, new companies, new industries, and new jobs for hundreds of millions of Americans…But today, we have foreign competitors intent of displacing the United States as the global engine of innovation, ingenuity and industry. They are doing so by both legitimate and illegitimate means…President Trump, Director Iancu, the team at Commerce, the American people, and all of you understand what is at stake… Simply stated, too small a segment of the American population is engaged in the innovation economy, and in the creation of inventions, the development of new and novel products, and the formation of entrepreneurial companies… We will have difficulty being successful as a nation if we do not have more people engaged in the creative economy. It is your charge to change this dynamic and do so quickly.
>
> *– Secretary of Commerce Wilbur L. Ross, NCEAI meeting of September 14, 2020*

In its USPTO Strategic Plan (App. 5) the USPTO reported that only a limited amount of publicly available data on the participation of women, minorities, and veterans exists. While the bulk of existing studies focuses on women, very little literature exists on minorities or veterans as inventor-patentees. The studies on women inventor-patentees indicate women are underrepresented as inventors named on U.S. patents. The USPTO has several initiatives directed to increasing the participation of underrepresented groups in the patent system. In follow up to the Report to Congress, the USPTO has identified six existing or planned programs and services that it plans to enhance and expand to make the patent system more accessible to underrepresented groups.

In FY 2020, the PPAC introduced the Innovation Expansion Subcommittee, a new subcommittee focused on the USPTO's efforts and initiatives directed at increasing inclusiveness and diversity in innovation and inventorship in the U.S. As reported herein, while the COVID-19 pandemic may have delayed the timelines for some of the USPTO's initiatives, the USPTO demonstrated its commitment to innovation expansion throughout the COVID-19 pandemic by preparing an updated report on the representation of women in the innovation ecosystem, moving forward with the creation of a council for innovation inclusiveness, launching a new dedicated webpage specifically for inventors and entrepreneurs to access useful information and resources, releasing an IP toolkit, transitioning scheduled in-person events into virtual events, and hosting and participating in numerous educational and informational events for increasing participation of

underrepresented groups in the patent system. These efforts are in furtherance of Objective 1 of Goal III under the USPTO Strategic Plan, which is directed to providing domestic education on intellectual property at all levels, including to small-and medium-sized enterprises, universities, and other sectors of the public such as state and local communities. In addition, these efforts are consistent with Objective 3 of Goal I of the USPTO Strategic Plan which is directed to patent outreach efforts across the Office and the evaluation of the impact of these efforts on the patent ecosystem, with a special emphasis on enhancing the assistance provided to independent inventors and small businesses.

B. SUCCESS ACT OF 2018: USPTO SUCCESS ACT REPORT (OCTOBER 2019)

The 2018 SUCCESS Act (Ref. 1) required the Director of the USPTO, in consultation with the U.S. Small Business Administration (SBA), to conduct a study to identify publicly available data on the number of patents annually applied for and obtained by women, minorities, and veterans and the benefits of increasing the number of patents applied for and obtained by women, minorities, and veterans and the small businesses they own. The USPTO was also required to provide legislative recommendations on how to encourage and increase the participation by these groups as inventor-patentees and entrepreneurs.

During the course of this study, the USPTO published its Progress and Potential Report, (Ref. 9). This report described the methodology and findings of a study of U.S. women inventors named on U.S. patents granted from 1976 through 2016. Because inventors are not requested or required to provide their gender, the USPTO utilized a publicly available web-based resource that applied a computer algorithm to derive gender information from inventor names. The key findings from the Progress and Potential Report included the following:

- The number of patents with at least one woman inventor increased from about 7% in the 1980s to 21% by 2016.
- Despite this increase the percentage of all patent inventors who are women, or the annual women inventor rate (WIR), reached 12% in 2016.
- Notable differences in the number of men and women patent inventors persist despite greater participation by women in science and engineering occupations and entrepreneurship.
- WIRs are higher in technology-intensive states, but also in states where more women participate in the overall workforce.
- Women inventors are increasingly concentrated in specific technologies and all types of patenting organizations, suggesting that women are specializing where women predecessors have patented rather than entering fields or firms traditionally dominated by men.
- Women are increasingly likely to patent on large, gender-mixed inventor teams, highlighting the growing importance of understating the relationship between gender and innovative collaboration.

As required under the 2018 SUCCESS Act, the USPTO prepared its USPTO SUCCESS Act Report (Ref. 2) which published in October of 2019, summarizing the results discussed above

and reporting additional findings from the broader study conducted by the USPTO in consultation with the SBA. Over the course of the study, the USPTO reviewed available literature and input from the public, sought comments through a Federal Register Notice and held three public hearings. The literature review drew principally on peer-reviewed academic studies, as well as government reports and other academic literature analyzing, to the extent available, the participation of women, minorities, and veterans in the U.S. patent system. Nearly 200 studies were initially identified through the literature search criteria, with about 50 studies cited in the Report to Congress.

According to the Report to Congress, a limited amount of publicly available data exists regarding the participation rates of women, minorities, and veterans in the patent system. However, the limited information that does exist (including public comments received by the USPTO in response to the Federal Register Notice), indicates that women and minorities are underrepresented as inventors named on U.S. granted patents. The bulk of the existing literature focused on women, with a very small number of studies focused on minorities, and only some qualitative historical information on U.S. veteran inventor-patentees. As noted in the Progress and Potential Report, women comprised 12% of all inventors named on U.S. patents granted in 2016. No similar numbers are available for minorities or veterans. The Report to Congress concluded that additional information will be required to determine the participation rates of women, minorities, and veterans in the patent system.

In the Report to Congress, USPTO identified several ways in which it plans to enhance and expand upon its existing programs and services for inventors and entrepreneurs:

1. **Collaborative intellectual property (IP) program:** While corporations are the largest patent filers, available evidence shows these organizations have some of the lowest participation rates for women inventor-patentees. As noted below, in FY 2020, the USPTO released an IP toolkit for inventors to help demystify the patent process and encourage greater participation.
2. **Award program:** To recognize significant efforts by individuals and/or organizations in accelerating diversity among entrepreneurs, the USPTO plans to develop an award.
3. **Creation of a council for innovation inclusiveness:** The USPTO planned to and has in fact established a council of leaders and high-level officials in various sectors to help develop a national strategy for promoting and increasing the participation of underrepresented groups as inventor-patentees, entrepreneurs, and innovation leaders. See discussion below.
4. **Expansion of USPTO educational outreach programs for youth and teachers:** The USPTO will continue to expand its programs and partnerships to promote entrepreneurship and innovation in science, technology, engineering, and math (STEM) fields through resources, activities, or other mechanisms for engagement with youth such as after-school programs, partnerships with libraries or other community-based organizations.
5. **Workforce development:** The USPTO plans to work with other relevant agencies to help develop workforce training materials with information on how to obtain a patent,

and the importance of invention and IP protections, for inclusion in the administration's workforce development training initiative.

6. **Increase professional development IP training for educators**: The USPTO will work with appropriate federal agencies to partner in developing training materials to help elementary, middle, and high school teachers incorporate the concepts of invention and IP creation and protection into classroom instruction.

As required by the 2018 SUCCESS Act, USPTO also made several legislative recommendations, including the following:

1. **Enhance USPTO authority to gather information**. Currently the USPTO collects the full name, residence, and mailing address of each inventor-patentee; it does not collect demographic information. To help address the lack of information on the participation of women, minorities, and veterans as inventor-patentees, Congress could authorize a streamlined mechanism for the USPTO to undertake a voluntary, confidential, biennial survey of individuals named in patent applications that have been filed with the USPTO.
2. **Enhance authority for federal interagency data sharing and cooperation.** To address the lack of information on the participation of women, minorities, and veterans as inventor-patentees, Congress could encourage the sharing of federal data and support enhanced cooperation among the USPTO and other federal agencies.
3. **Expand the purposes and scope of relevant federal grant programs.** To encourage more participation by women, minorities, and veterans, Congress could expand the authorized uses of grants and funds in appropriate federal programs to include activities that promote invention and entrepreneurship, as well as the protection of inventions and innovations using intellectual property among underrepresented groups.

Subsequent to the USPTO SUCCESS Act Report, the USPTO published the Progress and Potential Update, (Ref. 10). This update broadened the USPTO's understanding of women's participation as inventor-patentees in two ways. First, it updated the findings from the Progress and Potential Report using three years of new data, covering January 2017 through December 2019. Second, it provides an analysis of entry by women into the patent system. In particular, it looks at the number and share of new women inventor-patentees and the degree to which those women remain active by patenting again within the next five years. The updated findings indicate that there has been continued improvement in the participation of women inventor-patentees, and more women are entering and staying active in the patent system. Additional findings noted in the 2020 Update include the following:

- The share of women among all new inventor-patentees increased from 5% in 1980 to 17.3% by the end of 2019. More women are entering and continuing to be active in the patent system than ever before.
- Patenting by women in the U.S. grew between 2016 and 2019. Patents with at least one woman inventor accounted for about 21.9% of patents through 2019, up from 20.7% in 2016

- The WIR grew from 12.1% in 2016 to 12.8% by 2019. However, the 2020 update noted that a WIR of 12.8% is substantially lower than other benchmarks of women's education and employment as scientists and engineers.
- In 2014, 46% of women patented again within 5 year of their first patent (By 2019) versus 53% of men. In 1980, the gap was 28% for women versus 38% for men. The gender gap in the number of inventor-patentees that stay active by patenting again is decreasing.

C. PROGRESS MADE IN FY 2020 ON KEY INITIATIVES

1. National Council for Expanding American Innovation (NCEAI)

In working through the many challenges posed by the COVID-19 pandemic in FY 2020, the USPTO demonstrated its commitment to its innovation expansion initiatives. The USPTO accomplished a significant milestone in FY 2020 when it established the NCEAI. Chaired by U.S. Secretary of Commerce Wilbur Ross, the NCEAI brings together a cross-section of the U.S. innovation ecosystem, including leaders and high-level officials from industry, private and public corporations, small business, academia, nonprofit organizations, venture capitalists, and the U.S. government, as well as independent inventors, to develop a national strategy on innovation and intellectual property. A list of the current members of the NCEAI can be found at https://www.uspto.gov/initiatives/expanding-innovation/national-council-expanding-innovation/members-national-council.

The objectives for the NCEAI include developing (i) a national strategy to foster innovation, competitiveness and economic growth by promoting and increasing the participation of underrepresented groups as inventor-patentees, entrepreneurs, and innovation thought-leaders, and (ii) a long-term comprehensive plan of action for continuing to build the U.S. innovation ecosystem in areas that are key to the next technological revolution.

The inaugural meeting of the NCEAI was held via videoconference on September 14, 2020. NCEAI chairman Secretary Ross kicked off the meeting with opening remarks. The council members rounded out the rest of the public session by sharing their own opening remarks in turn. The full text of the NCEAI members' remarks can be found at https://www.uspto.gov/initiatives/expanding-innovation/national-council-expanding-innovation/remarks-members-national.

2. Dedicated Website Hub for Expanding Innovation

In March of 2020, the USPTO launched the Expanding Innovation Hub (Hub). The Hub is an online platform available on the USPTO website that provides resources for inventors and practitioners to encourage greater participation in the patent system. The Hub is intended to broaden the innovation ecosphere, to inspire novel inventions, to accelerate growth, and to drive America's global competitive edge. In particular, the USPTO intends the Hub to inspire more women, minorities, veterans, and geographically and socioeconomically diverse applicants to join the innovation economy. The Hub provides inventors with a central location to find information about many of the relevant USPTO programs and resources described in the following section.

America's economic prosperity and technological leadership depend on a strong and inclusive innovation ecosystem. That is why it is so important to make sure all Americans have the opportunity to develop and protect their inventions, build thriving businesses, and succeed. It is therefore critical that industry, academia, and government work together to broaden our innovation ecosphere demographically, geographically, and economically.

3. Public Outreach, Programs, and Resources

The USPTO recognizes that the importance of public engagement in expanding the innovation ecosystem. The newly launched Hub is a significant improvement and addition to the USPTO website that should make the patent system more accessible and more approachable to groups who have been underrepresented in the innovation ecosystem for a long time. On the Hub, inventors and entrepreneurs can access a wide range of information. For example, the Hub provides information ranging from educational programs and mentorship groups to the USPTO's Pro Bono Program, Law School Clinic Program, and Pro Se Assistance Program. The USPTO's new Demystifying the Patent System Toolkit, designed to help innovators understand the process of obtaining a patent is available on the Hub. Additional resources on the Hub include the Mentoring Toolkit, intended to assist organizations in establishing an infrastructure to connect experienced innovators with the next generation in their organization; and Community Group Resources, designed to help organizations establish an infrastructure to connect groups of employees with shared characteristics, interests, and goals.

The USPTO also supports dozens of STEM-related programs that provide education about IP to young women and men. These include programs in partnership with the National Inventors Hall of Fame (NIHF), such as Camp Invention, which is offered in school districts in every state, and the Collegiate Inventors Competition, which takes place each year at the USPTO; the National Summer Teacher Institute, which brings invention and IP into the nation's classrooms; collaborations with historically black colleges and universities; and the Girl Scout IP patch, which is available to Girl Scout troops across the nation.

In addition, the USPTO collaborates with a variety of organizations in novel outreach programs. For example, the USPTO partners with the NIHF, which offers unique STEM and invention education programs to over 160,000 students annually. Participants range in age from preschool to high school, across the nation. More than 50,000 underserved students nationwide receive scholarships to attend NIHF's invention education programs. More than 40% of NIHF's Camp Invention participants are girls. Further, the USPTO hosted over 200 students at USPTO headquarters in FY 2020 for a "Girl-Powered Invention and Entrepreneurship Day."

During FY 2020, the USPTO hosted or participated in many other events related to its innovation expansion initiative. For example:

- In November 2019, the USPTO participated in the Rural and Independent Innovators Conference in Dodge City, Kansas, with the Rocky Mountain Regional USPTO Director presenting on intellectual property basics.
- In February 2020, the USPTO invited students, inventors, entrepreneurs, innovators, public institutions, tech firms and small businesses to celebrations of Black History Month at Tuskegee University and at Alabama A&M University. The theme of the celebrations was "Building a legacy of impact through invention."

- In March 2020, the USPTO held a two-day Women's Entrepreneurship Symposium (WES) to connect women entrepreneurs, and all others interested, with education, information, and resources to help start, build, and grow a business using their IP. These symposiums were held in cities across the nation and feature successful women inventors and entrepreneurs.

As social-distancing and limitations on travel were implemented across much of the U.S. to limit the spread of COVID-19, the USPTO adapted its programs and events to virtual formats to allow for remote participation. For example:

- In April 2020, the USPTO participated in the Intellectual Property Owners Association's Gender Diversity in Innovation Toolkit Virtual Roadshow. This event, which focused on about different ways to achieve diversity in innovation, was held entirely by teleconference.
- In August 2020, the USPTO hosted Invention-Con 2020 by livestream. The theme was "Your IP: A power tool for building success." The conference provided attendees an opportunity to learn from accomplished innovators, inventors, entrepreneurs and business owners about using IP to achieve success.

The USPTO Regional Offices, located in Dallas, Denver, Detroit, and San Jose, play an important role in these and other outreach efforts, allowing innovators outside the Washington, D.C. metropolitan area, particularly individual inventors and small businesses, significantly greater access to USPTO resources.

III. ARTIFICIAL INTELLIGENCE

A. OVERVIEW

The proliferation of Artificial Intelligence (AI) technologies has impacted governments, businesses, and organizations across the globe, and the USPTO is no exception. The percentage of U.S. organizations and inventors that patent in AI increased from under 5% in 1980 to over 20% in 2018 – a remarkable example of growth illustrating that AI is increasingly important to U.S. invention.[9] AI has taken center stage at the USPTO in several ways, including the articulation of critical aspects of the USPTO's policy on AI and the application of AI tools to its operations. The AI Subcommittee was created in January 2020 to address these developments (as defined and described more fully below). As a part of the PPAC's statutory mandate under 35 U.S.C. § 5(g) to review and advise the Director concerning patent policies, goals, performance, budget, and user fees, the AI Subcommittee is responsible for reviewing and advising the Director concerning AI topics, with a focus at this time on two areas, AI tools and AI policy questions.

The USPTO Strategic Plan establishes AI as an important component supporting Goal I: Optimize Patent Quality and Timeliness through an initiative to "optimize development and delivery of information technology tools, including artificial intelligence and machine learning, for internal users of patent systems to ensure that they have the tools they need for a thorough search and examination." The USPTO and its leadership have dedicated significant resources to the application of AI tools to improve its operations in two primary areas:

- Auto-classification of patents: leveraging AI to automatically classify patent documents according to the Cooperative Patent Classification (CPC) system, supplementing or replacing the current practice of manual classification by contractors, and to ensure classification quality;
- Enhanced patent search: leveraging AI to assist examiners in the retrieval and the efficient review of relevant prior art during the course of examination.

In 2019, the USPTO received its first-ever patent application that identified an AI machine as the sole inventor. Advocates contended that inventorship should not be limited to natural persons, and the USPTO articulated its policy regarding the eligibility of a machine to qualify as an inventor under U.S. patent law.

B. BACKGROUND

1. What is AI?

This section of the Report will provide some context about the AI field, its explosive growth, its importance to the nation, and examples of how it impacts patent law and the operations of the USPTO. John McCarthy, who co-founded the field in the 1950's, defined AI as "getting a computer to do things which, when done by people, are said to involve intelligence." [10] A recent

[9] USPTO, Office of the Chief Economist, "Inventing AI: Tracing the Diffusion of Artificial Intelligence with U.S. Patents" at 9, October 2020. (Ref. 12) (https://www.uspto.gov/sites/default/files/documents/OCE-DH-AI.pdf)

[10] Shukla Shubhendu S. & Jaiswal Vijay, "Applicability of Artificial Intelligence in Different Fields of Life," 1 Int'l J. Scientific Engineering and Research 1 (2013).

description of the field echoes McCarthy's: "In the broadest sense, AI refers to machines that can learn, reason, and act for themselves. They can make their own decisions when faced with new situations, in the same way that humans and animals can."[11]

2. Federal Responses to the Proliferation of AI Technologies.

At present AI technologies are proliferating rapidly around the globe. A recent private sector report estimates the AI market for hardware, software, and services will grow nearly tenfold from 2019 to 2027, from $27 billion to $267 billion.[12] In the public sector, government agencies at every level "increasingly make automated decisions based on vast collections of digitized information about individuals and mathematical algorithms that both catalogue their past behavior and assess their risk of engaging in future conduct. Big data, predictive analytics, and automated decision-making are used in every major type of state system, including law enforcement, national security, public assistance, health care, education, and child welfare."[13] Overseas, the chief technology officer of a major technology company went so far as to claim earlier this year that "the proliferation of AI technologies *will have a bigger impact on the global economy and society than the internet*."[14]

The federal government has responded in multiple ways to the global proliferation of AI technologies. The DOC Strategic Plan (Ref. 3) noted that AI technologies contribute to innovation that drives economic growth, creates jobs, raises wages, and helps Americans lead better lives. According to the DOC Strategic Plan, the DOC's mission to ensure that the United States remains the global leader in innovation and technological advancement is fulfilled in part by working closely with industry to create the necessary conditions for innovation, including the creation of standards in areas such as AI.

Importantly, on February 11, 2019, President Trump signed the Executive Order on Maintaining American Leadership in AI (Ref. 13), which emphasized the importance of AI to the economy, national security, and quality of life. The Executive Order states:

> Artificial Intelligence (AI) promises to drive growth of the United States economy, enhance our economic and national security, and improve our quality of life. The United States is the world leader in AI research and development (R&D) and deployment. Continued American leadership in AI is of paramount importance to maintaining the economic and national security of the United States and to shaping the global

10 U.S.C. § 238, note (g).

[11] Karen Hao, "What is AI?," MIT Technology Rev., Nov. 10, 2018. In 2019 Congress defined AI to include:
(1) Any artificial system that performs tasks under varying and unpredictable circumstances without significant human oversight, or that can learn from experience and improve performance when exposed to data sets.
(2) An artificial system developed in computer software, physical hardware, or another context that solves tasks requiring human-like perception, cognition, planning, learning, communication, or physical action.
(3) An artificial system designed to think or act like a human, including cognitive architectures and neural networks.
(4) A set of techniques, including machine learning that is designed to approximate a cognitive task.
(5) An artificial system designed to act rationally, including an intelligent software agent or embodied robot that achieves goals using perception, planning, reasoning, learning, communicating, decision-making, and acting.

[12] Fortune Business Insights, "Artificial Intelligence Market Size, Share and COVID-19 Impact Analysis," July 28, 2020, htpps://www.fortunebusinessinsights.com/industry-reports/artificial-intelligence-market-100114.

[13] Dorothy Roberts, "Digitizing the Carceral State," 132 Harv. L. Rev. 1695, 1695 (2019) (book review).

[14] James Riley, "Our Future Is in Artificial Intelligence," InnovationAus, 20 July 2020, www.innovationaus.com (quoting Kevin Bloch) (emphasis added).

> evolution of AI in a manner consistent with our Nation's values, policies, and priorities. The Federal Government plays an important role in facilitating AI R&D, promoting the trust of the American people in the development and deployment of AI-related technologies, training a workforce capable of using AI in their occupations, and protecting the American AI technology base from attempted acquisition by strategic competitors and adversarial nations.[15]

Consistent with the Executive Order, the creation of the AI Subcommittee is an acknowledgement of the importance of AI within the innovation community in light of the proliferation of AI technologies, the novel legal issues they raise, and the opportunities they present to the USPTO with respect to its own operations.

C. DEVELOPING AI POLICIES AT THE USPTO

In recognition of the increasing importance of AI across a diverse spectrum of technologies and businesses, the USPTO has actively engaged with the innovation community and AI experts, chiefly through three initiatives. First the USPTO held an AI IP policy conference in January of 2019 featuring IP specialists from around the world that included panel discussions on patents, trade secrets, copyrights, trademarks, IP enforcement, global perspectives, and the economics of IP protection of AI.

Second, in August 2019, the USPTO issued a Request for Comments (RFC) via a Federal Registrar Notice. The RFC sought comments on patenting inventions that utilize AI and inventions that are developed by AI (AI inventions). The RFC observed that the USPTO has been examining AI inventions for decades and has issued guidance in many areas that necessarily relate to AI inventions, and explained that going forward, the USPTO sought to "engage with the innovation community and experts in AI to determine whether further guidance is needed to promote the predictability and reliability of patenting such inventions and to ensure that appropriate patent protection incentives are in place to encourage further innovation in and around this critical area." The RFC invited the public to reply to the following questions, among others:

- Do current patent laws and regulations regarding inventorship need to be revised to take into account inventions where an entity or entities other than a natural person contributed to the conception of an AI invention or any other invention?
- Are there any patent eligibility considerations unique to AI inventions?
- Does AI impact the level of a person of ordinary skill in the art?
- Do the disclosure rules (enablement, specification, etc.) need to be altered for AI-related patent applications?

Third, because the remarkable recent developments in AI have also impacted the fields of copyright, trademark, database protection, and trade secret law, the USPTO issued a second RFC in October 2019, similarly asking the public for comments regarding AI technologies in those fields.

The USPTO published the proceedings of the AI Policy conference as well as the comments it

[15] https://www.whitehouse.gov/presidential-actions/executive-order-maintaining-american-leadership-artificial-intelligence/?utm_source=link

received from members of the public responding to each RFC. In October 2020, the USPTO issued a report, Public Views on Artificial Intelligence and Intellectual Property Policy, (Ref. 14) (https://www.uspto.gov/sites/default/files/documents/USPTO_AI-Report_2020-10-07.pdf) summarizing the comments responding to each RFC.

In addition to these initiatives, the USPTO works regularly with the DOC and the White House Office of Science and Technology to address the policy challenges arising from the proliferation of AI technologies. The USPTO's work on AI Policy has been largely unaffected by the pandemic.

D. AI TOOLS

The USPTO has itself been implementing AI technology built internally or supported by sourcing from third parties to improve patent examination in two areas: auto-classification of patent documents and enhanced prior art searches.

1. Auto-classification

The USPTO currently leverages third-party contractors to manually classify patent applications by technology category according to the CPC. Additionally, the USPTO relies upon classification to support a variety of business processes including patent search and assignment of applications to examiners. The auto-classification initiative leverages AI to automatically classify the patent documents in CPC, thus reducing or eliminating the need to perform manual classification and improving classification quality. The USPTO is currently assessing results and refining functionality with input from examiners and classification experts. To date, the data and feedback have validated the capability of AI to auto-classify patent documents with comparable accuracy to human classifiers. The USPTO will continue to work with examiners and classification experts to collect feedback to improve AI models.

Auto-classification provides several benefits with respect to improving the quality of patents and operational efficiency:

- Correct classification: auto-classification can provide data-driven decision making for CPC symbol assignment.
- Complete classification: auto-classification considers all text of a patent document with all CPC symbols.
- Consistent classification: auto-classification reduces subjectivity in classification assignment from multiple classifiers.
- Operational efficiency gains: not only does auto-classification perform more quickly than manual classifiers, it will continue to "learn" and improve over time, which will allow the USPTO to scale with increased volume of patent documents.
- Cost reduction: the cost of implementing auto-classification is far outweighed by the cost of manual classifiers.

2. Enhanced Patent Search

Patents End-to-End (PE2E) is a new way of processing patent applications with a single software platform to manage examination activities and integrate with existing systems. USPTO

examiners will manage their workflows in the PE2E system, and they will be able to access new features and tools entirely within the same system and user interface. One such tool is Enhanced Search, which leverages AI to help examiners retrieve relevant prior art.

Enhanced Search provides several benefits with respect to improving the quality of patents and operational efficiency:

- Advanced prior art discovery: increases retrieval of relevant prior art while reducing retrieval of irrelevant prior art.
- More comprehensive searches: in addition to finding relevant prior art, Enhanced Search also suggests other relevant search areas for prior art. AI "suggestions" will lead to more comprehensive searches across all technology areas.
- Potential operational efficiency gains: Enhanced Search will allow examiners to identify relevant prior art more quickly, reduce false positives and perform more thorough searches. Enhanced Search models will continue to "learn" and improve over time. The USPTO released a Beta test in March 2020 to approximately 500 users for assessment.
- Patent quality improvement: although the focus of Enhanced Search is not necessarily to reduce the allotted time for examination, the tool will improve the quality of each patent by facilitating more thorough and comprehensive prior art searches.

In some ways, virtual training has been more productive for feedback collection than in-person training. Virtual training sessions allow the product manager trainers access to examiner-trainees' screens to observe how the trainees use the tool in real-time. Because the trainers can see for themselves how each examiner actually uses the tool, there is less need to collect and filter trainee feedback, which has accelerated the development and improvement of tool features and user preferences.

E. OPERATIONAL ISSUES

The PPAC appreciates the initiative of the USPTO to explore the use of AI for auto-classification and enhanced patent search. The PPAC also appreciates the cooperation of the USPTO in discussing its general timelines and strategies for transitioning from the exploration stage to the implementation stage. The PPAC looks forward to discussing these timelines and strategies in greater detail as the USPTO makes further progress in this area.

F. CONCERNS AND RECOMMENDATIONS

The rapid and pervasive proliferation of AI technologies poses policy challenges to the USPTO as it pursues its mission to promote the progress of science and useful arts, and to the DOC as it pursues its mission to create the conditions of economic growth and opportunity. The PPAC recommends that the USPTO and the DOC continue to work actively with the White House Office of Science and Technology Council to address these policy challenges.

To assist the PPAC in its statutory mandate and consistent with 35 U.S.C. §5(f)[16], the PPAC urges the USPTO to provide additional information on the costs, rationale, and estimated return on investment (ROI) of its key AI initiatives. The PPAC will consider and apply this information in FY 2021 to advise the Office on its policies and goals that support the DOC and the USPTO's 2018-2022 Strategic Plans. This cooperation between the PPAC and the Office will result in a more robust understanding of the USPTO's AI-related strategies that can help Americans and American innovators lead better lives.

[16] 35 U.S.C. §5 (f), titled, Patent and Trademark Office Public Advisory Committees, Access to Information, states "Members of each Advisory Committee shall be provided access to records and information in the [USPTO], except for personnel or other privileged information concerning patent applications required to be kept in confidence by section 122."

IV. INFORMATION TECHNOLOGY

A. OVERVIEW

The USPTO has been an exemplary agency within the Federal Government for being able to cope with the COVID-19 pandemic. The USPTO had already implemented remote work for most of the examining corps; this is obviously an IT Group function. In fact, most of the functions that the USPTO carries out are done via the Internet, which is an IT Group responsibility. Prior to the pandemic, the USPTO was already having telephonic or remote video conferences with examiners, judges, practitioners and inventors via the Internet. Fee collection and filing of applications was already being done remotely via the Internet. The ability to carry on work with no perceptible change in throughput bolsters confidence in the USPTO, and particularly the IT Group. A well-timed move to the cloud helped the USPTO adjust to more employees teleworking during the pandemic. The USPTO began its cloud migration in January 2020, and it has given the Office the capacity to move from 9,000-13,000 teleworking employees without any significant interruptions. During the pandemic to date, employees used about 1,200 virtual sessions every day, with each videoconference hosting anywhere from 14 to 40 employees. The Office has also seen an uptick in productivity during the pandemic – owing to the stability and resiliency of the IT systems that were stabilized and secured over the last 18 months.

While the IT Group made it possible for the USPTO to function without significant disruption or interruption, changes and improvements to the functioning of the IT systems continued without hesitation. In part, this is due to the AGILE philosophy now in effect and being used by the IT Group. Briefly, AGILE is customer driven, and makes small changes with fast response. Moreover, the AGILE philosophy takes pride in doing work with efficiency, as well as not doing tasks that bring no value in return. The USPTO is being well served by the IT team and its adoption of what is known as the AGILE manifesto, comprised of four key values and 12 principles that software developers should use to guide their work.

Changes and improvements to the IT system include:

1. System Security

Two-factor authentication, an extra layer of security for USPTO account IDs is in place, compliant with NIST requirements. Moreover, the IT Group continually engages in penetration tests, from both hacker and red team approaches. The security of the system is a primary duty of the IT Group – all systems are operated to meet and exceed NIST requirements; where vulnerabilities are found that cannot be resolved immediately, an entry into the Plan of Actions and Milestones (POAM) is created to ensure remediation in a timely manner.

2. Resiliency

Up until two years ago, all computer systems for the USPTO were housed in Alexandria. At one point, a massive power failure at the USPTO caused damage to the electrical system and damage to the computing hardware, as well as lost productivity. In 2018, a software outage of the PALM system caused examiners to lose over a week's worth of examination time. Since these two events, the USPTO has worked diligently to ensure for continuous, non-interrupted operations.

The electrical system was redesigned, and an alternate site was successfully tested over the July 4th holiday weekend in 2020 for continuity of operations outside of the Alexandria site. The USPTO installed new hardware and new software, no longer relying upon unsupported versions, some as old as two decades. The USPTO has updated the power system, replaced the hardware, and upgraded the software, to reduce the likelihood of damage or instabilities due to issues in the power grid and any "single point of failure" for unsupported applications. The USPTO is taking future steps to increase resiliency, namely, the establishment of remote processing sites (private cloud) in both the Eastern and the Western regions of the U.S. It is anticipated that these locations will be functional within the next 18 months.

3. Cloud Storage

The USPTO's data is in multiple physical locations for full backup, recovery, and continuous operations. Besides its primary storage on site with a Managed Storage Provider, some data will be housed in various cloud sites. Cloud storage is relatively inexpensive, secure, and provides the resiliency required for continuous, non-interruptible operations.

4. Search Tool

The new IT product development groups continue to refine and deploy improved search tools. Patents now has about 1000+ patent examiners using the latest iteration of its search tool, PE2E Search, which replaces the previous EAST and WEST systems of prior years. The examiner's union has been consulted and is working together in this effort. The new search tool has the capability to bring to the examiner much more precision in searching prior art, such as by using Highlight Text on Image (HToI) to precisely identify where a passage is found in a source document, and by including full image and full English translated text of 39 million patents and publications from the EU, Japan, China and Korea, as well as 75 million more foreign full image and full English translated text of all IP5 and PCT Minimum countries. In addition, the new search tool allows more flexible options for the examiner to use, such as customizable interfaces and multicolor highlighting. Full implementation by Patents has begun and is planned to conclude in FY 2021. The result is that patent quality should improve. Moreover, the new search engine does not place additional burden on the processing system.

A second advantage of the new search tool is that a variant of it will be made available to the public, with an estimated release date toward the end of 2021. For the practitioner who takes the time to learn to use the new search tool, the applicant can expect more predictable results, in that prior art will be more readily available to consider when filing an application. This improved search engine, however, will require the USPTO to develop and train the practitioners on how to use this search tool. Planning must take place outside the IT development groups for the provision of such training. The release of this new search tool to the public will most likely improve patent quality.

5. Patent Center

The Patent Center is an application currently in beta testing and is intended to replace Private and Public PAIR (Patent Application Information Retrieval) and EFS-Web (Electronic Filing System – Web). Through this new application, the applicant or practitioner has essentially "one stop shopping" in terms of checking application status, reviewing documents, checking on PTAs

(Patent Term Adjustments), accessing the fee storefront, submitting applications and filings, and filing petitions. While this is, in and of itself, an improvement over prior ways of dealing with the Office online, the end user will also notice two marked improvements: speed and stability. The IT Group has rid the Office of the older IFW (Information File Wrapper) architecture and its inherent inefficiencies. Moreover, the system has reduced incidences of retrieval of incorrect and misleading data; and, the Patent Center application does not suffer from the instabilities induced with advancing technologies from which the previous PAIR system suffered.

6. DOCX

The move to uniform .docx filing by applicants and practitioners has been delayed into FY 2021. Currently, the USPTO has an outside contractor digitize submitted .pdfs in order to conduct Optical Character Recognition (OCR), which has an error rate estimated at 1 in 10,000 characters. The submission of data in .docx format will achieve three major advantages:

1. Increase patent quality by decreasing the error rate of submitted documents; .docx filing is estimated to be 100 times more accurate than OCR;
2. Increase throughput / performance (time) because there is no need for the digitization/OCR by an outside contractor; and
3. Eliminate digitization and OCR fees to the outside contractor.

While the USPTO already accepts .docx filings in EFS-Web and Patent Center, there has been substantive resistance by the user community to this change in formats for office submissions, resulting in a delay of stakeholder adoption.

Lastly, it must be noted that great strides are being made in terms of IT functionality. The IT Group, using Agile philosophy, is executing their plan ably using both internal IT personnel and outside contractors. The IT Group has executed contracts with well-known outside vendors, and the results have been favorable. The decision was made to stabilize and remediate any security vulnerabilities with the present systems, followed by improvements. Part and parcel of software and operations improvements are upgrades in hardware. Mainframe technology that was 20 years old and for which spare parts were only available from other countries are now a thing of the past at the USPTO. The IT Group realized this vulnerability and has successfully migrated away from mainframe technology. The PPAC congratulates the USPTO's IT Group. The IT Group has performed well prior to and during the pandemic and has situated the USPTO well for future expansion and servicing of its clients.

B. RECOMMENDATIONS

The PPAC commends the IT Group and its staff on the way it has handled the COVID-19 issues, while at the same time continuing its plan of stabilizing and improving the entire system. In terms of recommendations, the PPAC recommends that, in particular, the IT Group continue its work in the area of resiliency to remove any potential vulnerabilities. Otherwise, just staying the course in terms of the PE2E Search and .docx rollout, as well as providing the everyday IT functions that it always has, are appropriate.

V. INTERNATIONAL

Goal III of the USPTO Strategic Plan (Ref. 4) is to "Provide Domestic and Global Leadership to Improve Intellectual Property Policy." According to the DOC Strategic Plan, "[u]nder this strategic goal, the USPTO advocates U.S. government IP policy domestically and internationally and partners with international counterparts in pursuit of strong IP policies, enforcement, and protection worldwide." The Strategic Plan recognizes that "[t]o keep competitive in an increasingly globalized economy, large and small American businesses need as much certainty as possible in the creation, enforcement, and protection of their IP, both domestically and abroad." Over the past year, the PPAC has worked collaboratively with the Office of Policy and International Affairs (OPIA) and the Office of International Patent Cooperation (OIPC) to support their joint effort to provide leadership to improve intellectual property policy globally.

As was recommended by the PPAC in the 2019 Annual Report and discussed below, the USPTO continued the Collaborative Search and Examination Pilot (CS&E) and focused on an analysis of the results to help determine how best to improve the quality and reliability of patents issued by the USPTO. The PPAC also recommended that the U.S. government provide a suitable elevation of rank to qualified IP Attachés to help them better advocate for U.S. IP interests around the world. While this was not achieved in 2020, the IP Attaché program continues to effectively advocate for the improvement of IP systems internationally and to support U.S. individuals and businesses with IP interests abroad.

In this section of Report, the PPAC comments on several of the global initiatives the USPTO was able to help move forward despite the challenges created by the global COVID-19 pandemic.

A. COVID-19 IMPACT AND RESPONSE

COVID-19 has created unforeseen challenges for patent applicants and patent Offices alike. To address applicants' needs during 2020, the USPTO took a leadership role to individually and collectively with fellow intellectual property offices and WIPO help to minimize the effect of disruptions from COVID-19 on acquisition and maintenance of intellectual property during the pandemic.

1. Joint Statements of Support with Other IP Offices

The USPTO actively pursued and issued several bilateral and multilateral joint statements with counterpart intellectual property offices including the EPO, JPO and the IP5, to provide support to stakeholders and to the innovation community during the COVID-19 pandemic. These joint statements reaffirmed the importance of innovation and intellectual property protection particularly during the current COVID-19 crisis.

2. IP5 and WIPO - Development of Virtual Meeting Protocol

The IP5 Program Management Group (PMG) drafted guidelines for organizing and conducting virtual meeting to ensure efficient and productive discussions in a virtual format, which are essential to continuing cooperation among intellectual property offices during these extraordinary times when international travel and face-to-face meetings are constrained. The IP5 heads of offices endorsed the IP5 guidelines for working virtually, reaffirming the benefits of

maintaining efficient and effective communication and cooperation during the pandemic.

Similarly, working through its U.S. Attaché in Geneva, the USPTO and the WIPO established meeting mechanisms and formats to allow important and time sensitive WIPO work to continue. Future meetings will comprise a hybrid format involving representatives both in Geneva and virtually, depending upon the status of negotiations in the relevant body.

The PPAC encourages the USPTO to maintain its leadership role among the global IP offices while continuing to develop appropriate virtual meeting opportunities that reduce the time and money spent on global travel.

B. WORK SHARING AND TOOLS FOR EXPEDITING PROSECUTION GLOBALLY

1. PCT Collaborative Search and Examination Pilot Project

From July 1, 2018 to June 30, 2020, the IP5 conducted the operational phase of the third PCT CS&E pilot project to test a collaborative approach to international searches under the PCT. Key objectives were to assess users' interest in the new PCT product, and the expected efficiency gains for the participating offices. All five IP5 offices (CNIPA, EPO, JPO, KIPO, and USPTO) took part in this third pilot, whose main features were:

- Applicant-driven: applicants selected the applications to be processed;
- The workload was distributed in a balanced fashion among the IP5. Each office contributed to the establishment of every CS&E work product, and over two years, each processed up to 100 international applications in its role as "main ISA" and approximately 400 international applications in its role as "peer ISA"; and
- The IP5 operated under a common set of quality and operational standards when processing the PCT applications.

At the end of the operational phase, EPO, KIPO, and USPTO each processed the maximum 100 applications as the main International Searching Authority (ISA), and CNIPA and JPO processed 91 and 73 applications, respectively, as the main ISA.

The pilot is now entering the evaluation phase, during which the IP5 will examine the effectiveness of the CS&E process. This will entail: (1) review of the impact of the peer contributions on the final PCT work product of the main ISA, and the effect of the process on national/regional phase prosecution; (2) a survey of pilot participants, and consultations with interested user groups to obtain further feedback and analysis; and (3) an assessment of what additional fees will be needed for the CS&E process to be financially feasible for the participating offices. The evaluation phase will run through June 30, 2022.

2. Collaborative Search (CSP) Pilot

The Expanded Collaborative Search Pilot (CSP) is designed to uncover the most relevant prior art during examination by combining the search expertise of examiners at the USPTO and JPO or KIPO before issuing an office action. The current expanded version of the CSP program built upon the successes of the initial phase and continues to improve compact prosecution and enhance patent quality. The first two phases of the program have shown a contribution of relevant prior art to the prosecution history by all three offices resulting in a significant reduction

in prosecution time, very few RCE applications needed to complete prosecution, and over a 90% allowance rate.

Although the current phase of the expanded CSP program is scheduled to end in October 2020, the USPTO, JPO, and KIPO intend to further extend the program. The extension will be effective November 1, 2020 and will continue for an additional two years. Applicants wishing to take advantage of the benefits of the expanded CSP program will need to have unexamined corresponding counterpart applications in the USPTO and in either or both KIPO or JPO. A no-cost bilateral petition will need to be filed in the USPTO and approved by the desired partner patent office(s) in accordance with their rules. Grant of the petition will result in the acceleration of examination in all patent offices, which will simultaneously search and examine the application and will exchange and evaluate their results prior to issuing a communication to the applicant.

3. Patent Prosecution Highway (PPH)

The benefits of international cooperation and work sharing are well demonstrated by the success of the PPH program. The PPH enables a patent applicant who receives a positive indication on patent claims from one patent office to request accelerated prosecution of corresponding claims in other patent offices, which allows the applicant to obtain patents globally in an expedited manner. Because the office of earlier examination shares the results of its search and examination with the offices of later examination, patent examiners in the offices of later examination can reuse the search and examination results to reduce duplication of effort and increase patent application processing efficiency.

Both PPH applicants and PPH participating offices benefit from reduced pendency times and greater allowance rates. For example, in the most recent five month period for which data is available (ending in February 2020), the first action allowance rate for PPH applications in the USPTO was 28% compared with 16% for standard applications, and the overall allowance rate was 85% for PPH applications versus 77% for standard applications. The number of examiner office actions per allowance and the number of examiner office actions per disposal have also been consistently lower for PPH applications filed in the USPTO.

Utilization of the PPH continues to increase. In fiscal year 2019, 6,767 patent applications with PPH requests were filed in the USPTO, with 34,427 PPH petitions filed worldwide in calendar year 2019. In total, approximately 62,000 patent applications have been filed with PPH requests throughout the world since inception of the program. The USPTO's participation in the PPH began in 2006 with a single pilot program with the JPO but has rapidly grown to partnerships with thirty-six intellectual property offices through multilateral and bilateral agreements. Although the intellectual property offices that participate in the PPH already account for approximately 95% of all patent application filings worldwide, the participating offices actively encourage other intellectual property offices to join the PPH program, with the goal of providing universal availability to applicants. At the same time, the participating offices continually measure the effectiveness of the program and seek improvements to streamline its operation.

4. Parallel Patent Grant (PPG)

PPG is a novel patent work sharing initiative of the USPTO. It is the result of a January 28, 2020 Memorandum of Understanding between the USPTO and the Mexican Institute for Industrial Property (IMPI). The program allows a U.S. patent, and its corresponding search results, to serve as the basis for expedited grant of a foreign counterpart patent application by a partner office. IMPI and USPTO intend to launch phase 1 of the program soon, circumstances permitting.

The PPAC commends the USPTO on the establishment of the CS&E, the CSP, PPH and the PPG, and its collaborative work with the other patent offices to achieve such improvements for applicants and the participating offices. The PPAC supports the continuation of each of these programs and others like them in the future.

C. USPTO LEADERSHIP ROLE IN ID5 IN FY 2020

USPTO to Host Next ID5 Annual Meeting

The protection of industrial design rights globally drives research and development of emerging technologies and products and furthers sales and economic growth for innovative U.S. companies. Recognizing the important economic benefit of strong industrial design protection, the Industrial Design Forum (ID5) was initiated in 2015 bringing together the five largest industrial design Offices in the world (CNIPA, EUIPO, JPO, KIPO and USPTO). These five offices represent approximately 90% of the world's annual industrial design application filings. Along with WIPO participating as an observer, ID5 serves as an incubator for industrial design policy development and identification of best practices and procedures. In December 2015, the USPTO successfully hosted the inaugural ID5 Annual Meeting at USPTO Headquarters. In 2020, the USPTO is again the host and will oversee the first virtual ID5 Annual Meeting in October.

One objective of the ID5 partnership is to better understand the diverse practices and laws of each of the five partner offices to create opportunities for increased outcome certainty in all member jurisdictions. The USPTO strategically prioritizes ID5 work based on the goals of: (i) ensuring effective industrial design protection for designs in all technologies, especially emerging and state-of-the-art technologies, (ii) improving consistency in design registration/examination policies and practices, and (iii) sharing information on design office practices and statistics. The work of ID5 is a key tool for the world's leading IP offices in implementing best practices that U.S. design applicants rely on to effectively and efficiently protect their designs around the globe.

One of the significant achievements of ID5 in 2020 in which the UPSTO took a leadership role was the adoption of the WIPO Digital Access Service (DAS) by all five member offices for industrial designs, making digital priority document exchanges a convenient and lower cost solution to applications around the world. This initiative was begun in 2016 by the USPTO and CNIPA. Although electronic priority document exchange for utility patent applications existed at the time, industrial design applicants were still required to file certified copies, often in paper directly with national offices in order to perfect their priority claims. This process was burdensome and expensive for applicants and offices alike.

After considering several options, the ID5 agreed to implement the WIPO DAS system for the digital priority document exchange for priority claims made directly with ID5, as well as those made in filings through the Hague system. In 2020, with the inclusion of EUIPO, all ID5 offices have now successfully accomplished the goal of implementing WIPO DAS for industrial designs. And the timing could not have been better. Office closures and processing delays of certified copies due to the global pandemic have made the WIPO DAS system more welcome and critical for design applicants.

The PPAC applauds the leadership role the USPTO has taken and continues to take in the ID5 and the important initiatives it is spearheading to help provide more reliable, efficient and cost-effective design rights globally for US applicants.

D. IP ATTACHÉ UPDATE

The USPTO's IP Attaché Program, located within the OPIA, continues to effectively advocate for the improvement of IP systems internationally and to support U.S. individuals and businesses with IP interests abroad. In consultation with OPIA's subject matter experts, the IP Attachés regularly engage with foreign governments and the private sector on a variety of issues. Their advocacy includes: (*i*) IP policy discussions with foreign government officials; (*ii*) providing training on IP law, enforcement, and administration; and (*iii*) conducting public awareness and outreach programs. Additionally, the IP Attachés assist U.S. stakeholders looking to enter foreign markets and conduct business abroad and educate them on how to protect and enforce their IP outside the United States. They also provide information about foreign laws and regulations and the operation of foreign courts, agencies, and governments.

The IP Attachés serve in embassies, consulates, and missions throughout the world, covering China, multilateral issues in Geneva, and regions including Southeast Asia, South Asia, Central Eurasia, Europe, Latin America, the Middle East and North Africa. Specifically, IP Attachés (and accompanying IP specialists) are currently located at 13 regional offices: in Brazil, China (Beijing, Shanghai, and Guangzhou), European Union (Belgium), India, Kuwait, Mexico, Peru, Switzerland (Geneva - WIPO and WTO), Thailand, and Ukraine. A new IP Attaché position is being added in South Africa. In FY 2020, the IP Attachés helped more than 3,000 U.S. stakeholders, conducted more than 50 public awareness programs (with more than 4,500 participants), delivered tens of training programs, conducted more than 1,500 meetings with foreign government officials, and reported more than 40 significant IP successes.

Some examples of the IP Attachés' work this past year include social media campaigns to raise public awareness during the COVID-19 crisis, and training on patents, trademarks, copyrights, and trade secrets in countries, including Egypt, Saudi Arabia, Mexico, Peru, Bolivia, El Salvador, Ukraine, China, and Thailand. The IP Attaché for Europe spearheaded the organization of two ambitious and proactive International Visitor Leadership Programs (IVLPs) for officials of the EU institutions and from EU Member States' national administrations, including specialized IP and enforcement agencies. In response to the coronavirus, the IP Attachés in China focused on sourcing and shipping Chinese-made personal protective equipment and medical devices for use in the U.S., and remaining vigilant against counterfeit or substandard medical products being imported into the U.S. The IP Attaché in Kuwait worked with local authorities to shut down a major broadcasting operation carrying pirated satellite signals.

In FY 2020, the IP Attachés also engaged in significant outreach to the corporate community, academia, and other U.S. stakeholders, to raise awareness about the IP Attaché Program and its services, and to learn which issues were of the greatest interest and concern to those groups. The IP Attachés conducted outreach in Louisiana, North Dakota, and South Dakota during this time.

As was noted in the PPAC 2019 Annual Report, U.S. industry has expressed support for the IP Attaché program and has requested elevation in diplomatic rank for the IP Attachés to improve their effectiveness in their interactions with foreign government officials. The PPAC recommends that the USPTO continue to press for a suitable elevation of rank to qualified IP Attachés to help them better advocate for U.S. IP interests around the world.

VI. PATENT TRIAL AND APPEAL BOARD (PTAB)

A. OVERVIEW

The PTAB was established by the Leahy-Smith America Invents Act (AIA). In the USPTO Strategic Plan (Ref. 4), the USPTO announced an objective specific to the PTAB, namely, Objective 4: Enhance Operations of the PTAB. As detailed in the USPTO Strategic Plan, the USPTO is undertaking a variety of initiatives to meet this Objective, including resolving *ex parte* appeals and trials in a timely manner and streamlining procedures and standards to ensure predictability for the stakeholder community.

In FY 2020, the PTAB remained active and productive in working to meet Objective 4, to implement the initiatives detailed in the USPTO Strategic Plan, and improve the consistency, predictability, and transparency of its proceedings, notwithstanding the COVID-19 pandemic that hit in March 2020. The PTAB was able to make a swift and complete transition to full telework and remote hearings, ensuring the continued handling of a steady volume of *ex parte* appeals and AIA trials. As such, the PTAB continued to reduce appeals pendency and meet all AIA trial deadlines without extensions. The PTAB continued designating precedential and information decisions under the revised Standard Operating Procedure 2 (SOP2) via the Precedential Opinion Panel (POP) and the ratification process. The PTAB undertook several new projects to address stakeholder feedback and improve procedures. These projects included consolidating all updates to the Trial Practice Guide in the latest edition; publishing a Notice of Proposed Rulemaking on allocation of burdens in relation to motions to amend; continuing with the motion to amend pilot program; publishing a Notice of Proposed Rulemaking to codify the U.S. Supreme Court's decision in *SAS v. Iancu*, 138 S.Ct. 1348 (2018) and eliminate the presumption favoring petitioner's testimonial evidence in deciding whether to institute an AIA trial; commencing a Fast Track Appeal pilot program; and, commencing a Legal Experience and Advancement Program. Finally, the PTAB provided extensive training in several areas to external customers via Boardside Chats and participation, upon invitation, at speaking events. The PTAB likewise conducted internal continuing-education-type training and wellness programming related to the pandemic for its staff.

The PTAB continued to make improvements to its operations. For example, the PTAB made significant progress in IT improvements and upgrades, while adopting the USPTO's new "Agile" New Ways of Working. To that end, the PTAB continues to move forward in transitioning to a single IT system called "PTAB Center." Also, the PTAB is harnessing and mining the data capability of a single IT system to enhance its data reporting and management functions. Additionally, the PTAB created processes to permit all telephonic hearings for *ex parte* appeals and all videoconference hearings for AIA trials, at a volume never done before. In doing so, the PTAB educated its judges, as well as court reporters and parties, on how to use the technology in advance of the proceedings. The PTAB successfully conducted all scheduled hearings using this virtual capability since the pandemic began. Finally, the PTAB is revamping its website to enhance the types of information presented and the locations of this information based on user views of the webpages.

B. *EX PARTE* APPEALS

i. Statistics

The PTAB continued to work through its oldest appeals to achieve an average *ex parte* appeal pendency of 13.5 months for the time period of June 1, 2020 through August 31, 2020, as compared to 15.0 months over the same time period in FY 2019, already surpassing its end of FY 2020 goal of 14.5 months. Pendency is calculated as average months from the PTAB receipt date to final decision. The PTAB appeals statistics can be found on the PTAB website. The PPAC lauds the PTAB for this accomplishment.

ii. Ongoing programs

In order to meet *ex parte* appeals pendency goals, the PTAB implemented a number of initiatives, including the Quarterly Appeals Closeout program, technology rebalancing, and just-in-time docketing.

1. Quarterly Appeals Closeout program

The PTAB implemented the Quarterly Appeals Closeout program in FY 2018 to help maintain or reduce maximum pendency. Each quarter, a maximum pendency target is set, and judges work to decide all appeals older than the target. At the end of the second quarter of FY 2018, the maximum pendency was approximately 27 months. Maximum pendency is calculated by counting the number of months the oldest undecided appeal has been on the PTAB's docket. The PTAB has steadily reduced the maximum pendency over time. Indeed, by the end of the third quarter in FY 2020, the maximum pendency was approximately 22 months, which is an 18.5% decrease since the end of the second quarter of FY 2018.

2. Technology rebalancing

Technology rebalancing, evaluated quarterly, works to balance average pendency by technology. Judges self-identify into technology clusters and are assigned appeals from those identified technology areas, as needed, for balancing pendency. In the third quarter of FY 2020, the average age of appeals from the date they were received at the PTAB until final decision was 11.8 months for biotech, 13.7 months for chemical, 17.2 months for electrical, 12.4 months for mechanical, and 13.5 months for business methods. Thus, for the last quarter of FY 2020, judge resources were shifted from deciding business method appeals, where pendency was projected to decline rapidly, to deciding electrical appeals, where pendency was the highest.

3. Just-in-time Docketing

Just-in-time docketing works to help balance appeal pendency by reducing the number of appeals on the docket of a judge at a given time. Specifically, the PTAB reduced the number of appeals for judges automatically paneled on *ex parte* appeals from 20 to 12 per judge; also, the PTAB set the maximum number of appeals for judges not automatically paneled on appeals (i.e., judges who also handle AIA proceedings) at six per judge. Docketing in this way reduces the possibility that *ex parte* appeals will accumulate on a judge's docket if a judge becomes unavailable unexpectedly.

C. AIA TRIALS

Broadly speaking, looking at concluded cases since the time that the PTAB began conducting AIA proceedings through the end of July 31, 2020, roughly one-third of all petitions have received a final written decision from the PTAB, roughly one-third of all petitions have resulted in a settlement between the parties before receiving a final written decision from the PTAB, and roughly one-third of all petitions have not been instituted by the PTAB.

Of those roughly one-third that reached a final written decision, the PTAB found all instituted claims patentable in 20% of cases; mixed results (some instituted claims patentable and some instituted claims unpatentable) in 18% of cases; and all instituted claims unpatentable in 62% of cases. Thus, 38% of final written decisions resulted in all or some instituted claims being found patentable, with estoppel attaching to those results.

Notably, the PTAB conducted a study that presented outcomes in AIA cases for FY 2019 "by patent" and "by claim." FY 2019 data by patent indicated that the PTAB addressed 37% of all challenged patents in a final written decision and 29% of all challenged patents resulted in at least one claim found unpatentable in a final written decision. FY 2019 data by claim indicated that the PTAB instituted AIA trials in relation to 55% of all challenged claims and found 25% of all challenged claims unpatentable in final written decisions. The PTAB AIA trial statistics can be found on the PTAB website at the Statistics page.

D. NEW PROCEDURES AND IMPROVEMENTS

i. Consolidated Trial Practice Guide

In November 2019, the USPTO published its latest edition of the Trial Practice Guide. This latest edition, now titled the Consolidated Trial Practice Guide (Ref. 11) incorporates all previous updates, including those released in August 2018 and July 2019, into the original August 2012 Practice Guide as a single document. This latest edition also includes additional revisions for greater consistency across all sections of the newly consolidated guide.

ii. Rulemaking

1. Notice of Proposed Rulemaking on allocation of burdens for motion to amend

In October 2019, the USPTO provided a notice of proposed rulemaking concerning the PTAB rules of practice to allocate the burdens of persuasion in relation to motions to amend in AIA trial proceedings before the Board (Burdens NPRM). The Burdens NPRM proposed that a petitioner bears the burden to show the unpatentability of substitute claims proposed in a motion to amend; a patent owner bears the burden to show that a motion to amend complies with certain statutory and regulatory requirements; and the PTAB may, in the interests of justice, exercise its discretion to grant or deny a motion to amend for any reason supported by the evidence of record, regardless of the burdens assigned to any party. The USPTO invited the public to provide comments on the proposed rule on or before December 23, 2019. The USPTO received 18 comments expressing varying viewpoints and is carefully considering all comments. The Burdens NPRM is also available at the Federal Register.gov website.

2. Notice of Proposed Rulemaking to the PTAB Rules of Practice for Instituting on All Challenged Patent Claims and All Grounds and Eliminating the Presumption at Institution Favoring Petitioner as to Testimonial Evidence

In May 2020, the USPTO provided a notice of proposed rulemaking concerning the PTAB rules of practice for instituting on all challenged patent claims and all grounds in accordance with *SAS v. Iancu* and eliminating the presumption at institution favoring petitioner's testimonial evidence (Rules of Practice NPRM). The USPTO invited the public to provide comments on the proposed rule on or before June 26, 2020. The USPTO received 40 comments expressing varying viewpoints and is carefully considering all comments. The Rules of Practice NPRM is also available at the Federal Register.gov website.

iii. Programs

1. Motion to Amend (MTA) Pilot program

In March 2019, the USPTO published a notice of a pilot program for motion to amend practice in trial proceedings under the AIA. The pilot program applies to all AIA trials instituted on or after March 15, 2019 and provides patent owners with two options not previously available. Under the first option, a patent owner may choose to receive preliminary guidance from the PTAB on its motion to amend. Under the second option, a patent owner may choose to file a revised motion to amend after receiving petitioner's opposition to the original motion to amend and/or after receiving the PTAB's preliminary guidance (if requested). If a patent owner does not elect either of those options, the motion to amend practice is essentially unchanged from current practice. As of August 25, 2020, patent owners filed 85 MTAs, 73 requests for preliminary guidance, and 31 revised MTAs, and the PTAB issued preliminary guidance 46 times. Thus, so far, over 85% of eligible patent owners filing MTAs have taken advantage of options under the pilot. Information about the MTA pilot program is also available on the PTAB website.

2. Fast-Track Appeals Pilot Program

In July 2020, the USPTO commenced a Fast-Track Appeals Pilot Program to enable appellants to secure expedited review of their *ex parte* appeal by paying a petition fee of $400. The PTAB has a goal to issue decisions under the pilot within 6 months of petition grant. All pending appeals not already treated as special under MPEP 708.01 qualify for the program. The Fast-Track Appeals Pilot Program limits granted petitions to 125 per quarter and 500 total petitions. The limits were chosen to enable robust participation without compromising the PTAB pendency goals. Updates on progress toward Fast-Track Appeals Pilot Program limits are available on the PTAB website at the Fast Track page.

3. Legal Experience and Advancement Program

In May 2020, the USPTO announced the Legal Experience and Advancement Program (LEAP) to foster the development of the next generation of patent practitioners. LEAP creates opportunities for these patent practitioners to gain the proper skills and experience in oral arguments before the PTAB. LEAP targets attorneys and agents new to the practice of law or new to practice before the PTAB. Qualifying patent agents or attorneys must have three or fewer

substantive oral arguments in any federal tribunal, including the PTAB, and seven or fewer years of experience as a licensed attorney or agent. The PTAB will grant additional argument time to the party with a LEAP practitioner, typically up to 15 minutes depending on the length of the proceeding and the PTAB's hearing schedule. Additionally, a LEAP practitioner may seek assistance from more experienced counsel during an argument to address a question or clarify the record. The PTAB provides webinar trainings and oral argument practicums regularly for LEAP practitioners to ensure they are familiar with the flow of hearings and effective oral advocacy techniques. More information about LEAP is also available on the PTAB website at the LEAP page.

E. DESIGNATED DECISIONS

The PTAB continued to use the POP and ratification processes, both set forth in SOP2, to enhance the number of available precedential and informative decisions on a variety of legal and procedural aspects of appeals and trials. In fact, the PTAB issued more precedent in the past two years since the SOP2 became effective than in the prior nine years combined. All designated decisions can also be found on the PTAB website at the Decision page.

Specifically, in FY 2020, the PTAB issued two precedential decisions via POP. On December 20, 2019, the POP issued *Hulu, LLC v. Sound View Innovations, LLC*, IPR2018-01039, Paper 29. In that case, the POP ordered review to address what is required for a petitioner to establish that an asserted reference qualifies as "printed publication" at the institution stage. The POP concluded that, at institution, a petitioner must identify with particularity sufficient evidence to establish a reasonable likelihood that an asserted reference was publicly accessible before the critical date of the challenged patent. Applying this standard, the POP concluded that, based on the totality of the evidence then currently in the record, petitioner submitted sufficient evidence. The POP further clarified that there was no presumption in favor of institution or in favor of finding that a reference is a printed publication.

On July 6, 2020, the POP issued *Hunting Titan, Inc. v. DynaEnergetics GmbH & Co. KG*, IPR2018-00600, Paper 67. The POP ordered review to address two issues. As the first issue, the POP considered under what circumstances, and at what time during an *inter partes* review, the PTAB may raise a ground of unpatentability that a petitioner did not advance or sufficiently develop against substitute claims proposed in a motion to amend. As the second issue, the POP addressed whether the PTAB must provide the parties with notice and an opportunity to respond to the ground of unpatentability before the PTAB makes a final determination, if it raises such a ground of unpatentability.

In *Hunting Titan*, the POP concluded that the Federal Circuit's opinion in *Nike, Inc. v. Adidas AG*, 955 F.3d 45 (Fed. Cir. 2020), resolved that the PTAB may, in certain rare circumstances, raise a ground of unpatentability that a petitioner did not advance, or sufficiently develop, against substitute claims proposed in opposing a motion to amend. Such circumstances, the POP explained, are limited to situations in which the adversarial process fails to provide PTAB with potential arguments of patentability with respect to the proposed substitute claims. Those situations may include where a petitioner ceases to participate in a proceeding or chooses not to oppose a motion to amend. Regardless, there may be situations where certain evidence of unpatentability has not been raised by the petitioner but is readily identifiable and persuasive such that the Board should take it up in the interest of supporting the integrity of the patent

system, notwithstanding the adversarial nature of the proceedings. The POP further concluded that due process requires that a patent owner receive notice of how the prior art allegedly discloses the newly-added limitations of each proposed substitute claim, as well as a theory of unpatentability asserted against those claims; and that a patent owner has the opportunity to respond.

In addition to the two POP decisions, the PTAB designated six additional decisions as precedential via the ratification process in FY 2020. These cases addressed topics such as the different burdens for establishing that a reference is a printed publication in *ex parte* appeals versus AIA trials; secondary considerations when considering obviousness; and, institution factors considered by the Board under 35 U.S.C. § 314(a) and § 325(d) when determining whether to grant or deny an AIA trial. Also, the PTAB designated 17 decisions as informative through the ratification process, including four decisions addressing printed publications; four decisions addressing institution, two decisions under § 314(a), one under § 324(a), and one under § 325(d); two decisions addressing rationale to combine in an obviousness analysis; two decisions addressing design choice in an obviousness analysis; two decisions addressing secondary considerations; one decision addressing subject matter eligibility; one decision addressing use of confidential information during an oral hearing; and one decision discussing patent owner's options after settlement without reaching a decision on the motion to amend.

F. OPERATIONAL EFFORTS

i. IT improvements and upgrades

The PTAB has made significant progress in IT improvements and upgrades, while adopting the USPTO's new "Agile" New Ways of Working. The PTAB is converting from multiple, non-integrated IT systems to a single, integrated IT system, known as PTAB Center. This conversion will provide all members of the PTAB with a single, unified interface for managing cases and decisions across all the PTAB's jurisdictions. It also will provide external customers an improved simple, single user interface to make filings in all types of proceedings and to minimize administrative filing errors. Further, PTAB Center will improve analytics and dashboard capabilities and provide management with a comprehensive and more reliable data source for enhanced management of PTAB operations, workload, and work assignments, as well as more comprehensive reporting of statistics to PTAB stakeholders. The PTAB continues to receive internal and external feedback about PTAB Center and will adjust and evolve based on agency and customer needs.

ii. Hearings operations

In response to the COVID-19 pandemic, the PTAB quickly expanded its existing remote hearing process to allow for all participants, both internal and external to the USPTO, to appear via telephone for *ex parte* and reexamination hearings, and via video or telephone for AIA trials. Prior to the pandemic, the PTAB conducted hearings with many fewer remote participants, and these hearings used a PTAB hearing room. To transition to all-remote hearings, the PTAB quickly assembled input from various internal stakeholders and leveraged agency video teleconferencing resources to troubleshoot technical hurdles, such as bandwidth constraints and remote court reporting. The PTAB successfully created a virtual hearing room by testing each judge's equipment, coordinating with all parties, and creating public telephonic access for public/media attendance. The PTAB also developed resources for internal and external

stakeholders including procedural guidelines, remote hearing training, and hearing order templates, which provided critical information that fostered a consistent hearing experience for stakeholders. Since the implementation of all-remote the PTAB hearings on March 16, 2020, through August 31, 2020, the PTAB has successfully conducted 373 all-remote *ex parte* appeals hearings, 223 all-remote AIA hearings, and processed over 123 requests for public/media audio access to hearings.

iii. PTAB website

The PTAB aims to operate as transparently as possible and use its website to provide information to the public about new developments, such as new rules, guidance, and precedent. The PTAB revamped its website to enhance the presentation of information. The PTAB worked with USPTO Office of the Chief Communications Officer to change the organization of presented information based on actual user views of the webpages within the website. Additionally, the PTAB simplified the terminology into plain English, making it easier for the public to locate the desired information.

iv. External and internal training

The PTAB continued its extensive stakeholder outreach efforts, despite grappling with the pandemic restrictions on travel and meetings. The PTAB conducted virtually four "Boardside Chat" webinars and several stakeholder meetings with IP organizations (e.g., the Intellectual Property Owners Association) and virtually participated as speakers for many events hosted by other groups (e.g., the American Intellectual Property Law Association and the PTAB Bar Association). The PTAB also organized internal continuing education programs for Board members and more than 50 internal wellness programs to maintain a strong morale and facilitate check-ins with employees during the pandemic. For instance, PTAB held weekly "how to cope" panel discussions to enable employees to unite, share experiences, and learn from each other, for instance, on homeschooling techniques, fitness tips, and good work-at-home habits.

G. RECOMMENDATIONS

Consistent with the recommendations made by the PPAC under the heading Patent Quality and Pendency, to enhance the durability of patents, the PPAC reiterates the importance of having a unified management of, and equal access to, data between PTAB and Patents. The PPAC supports having the Patent Center to achieve average *ex parte* appeal pendency of 12 months or less, and to facilitate quality *ex parte* appeal and AIA decision making. Also, the PPAC recommends that the USPTO take steps to bridge any data and informational gaps between Patents and the PTAB to help ensure the continued production of high-quality work product by both business units and the issuance of durable patents by the USPTO.

VII. LEGISLATIVE

A. INTRODUCTION

Congress continues to be active on patent issues during the second session of the 116th Congress, including introducing legislation affecting various aspects of substantive patent law. Congress has also been active in its monitoring of USPTO fee revenues and operations. This year, legislative proposals have been introduced that seek to increase diversity in the patent system, reduce pharmaceutical drug pricing, address the COVID-19 pandemic through changes to the patent system, and permanently authorize the USPTO's successful TEAPP telework program.

B. CONGRESSIONAL HEARINGS

In October 2019, Commissioner Hirshfeld testified before the Senate Judiciary Subcommittee on Intellectual Property on patent quality and discussed USPTO's programs and initiatives aimed at ensuring the timely issuance of high-quality patents. Issues discussed at the hearing included patent pendency, new examination guidance on subject matter eligibility, updates to patent examination time, application routing and examiner performance appraisals, collaboration between patent examiners and PTAB, and increased training for examiners.

The previous month, the Senate Judiciary Subcommittee on Intellectual Property held a hearing on the STRONGER Act of 2019, where witnesses included proponents and opponents of this legislation. The panelists in support of the STRONGER Act noted that it struck the proper balance in restoring reliability and predictability to the patent system, including codifying the changes made by Director Iancu and restoring injunctive relief. Those opposed to the STRONGER Act recommended waiting to see how the changes implemented to PTAB proceedings affect the patent system. All panelists supported the USPTO having access to all its fees and an end to fee diversion.

In November 2019, the House Judiciary Subcommittee on the Courts, Intellectual Property and the Internet held a hearing on the Federal Circuit's decision in *Arthrex v. Smith & Nephew*, which held that the appointment of Administrative Patent Judges (APJs) was unconstitutional and remedied this problem by making the APJs "at will" employees that would be under more control of the Director. Witnesses proposed various solutions ranging from presidential appointments of all or some supervisory judges to amending the statute to clarify the Director's authority to review decisions. Recently, the Supreme Court of the United States granted cert on three petitions[17] (collectively *Arthrex*) seeking review of a decision by the Federal Circuit. The Federal Circuit held that APJs of the PTAB must be appointed by the president and confirmed by the Senate. The Federal Circuit further ruled that federal laws that restrict when officials can be removed from Office do not apply to APJs and remanded the dispute for a new hearing with a new panel of APJs. The Federal Circuit also indicated that its ruling and remand remedy would apply to cases where the litigants argued that the judges' appointment violated the Constitution. The issues to be addressed before SCOTUS are whether the APJs must be appointed by the president and confirmed by the Senate, and if so, whether the remedy that the Federal Circuit imposed was appropriate.

[17] *United States v. Arthrex Inc* (19-1434), consolidated with *Smith & Nephew Inc. v. Arthrex Inc.* (19-1452), and *Arthrex Inc. v. Smith & Nephew Inc.* (19-1458).

In January 2020, the House Small Business Committee held a hearing on diversity in the patent system where witnesses discussed the USPTO's SUCCESS Act Report (Ref. 2) on diversity in patent applicants and what could be done to increase participation by underrepresented groups. Witnesses highlighted the USPTO's work with the U.S. Small Business Administration as well as the USPTO's publicly available resources available for entrepreneurs and small business owners.

C. PENDING LEGISLATION

The following is a non-exclusive summary of some of the substantive patent law-related legislation, as well as USPTO-related operational legislation, introduced during the second session of the 116th Congress:

S. 4138/H.R. 7448. The Telework for U.S. Innovation Act. This legislation would permanently authorize the USPTO's TEAPP telework program, which allows qualified examiners to work from remote locations throughout the country and allows the USPTO to avoid approximately $100 million in real estate, travel and other expenses.

S. 2814/H.R. 7259. Patents for Humanity Program Improvement Act. This legislation would allow Patents for Humanity Award winners to transfer their certificates to a third party.

S. 4394 /H.R. 4075. The Inventor Diversity for Economic Advancement (IDEA) Act of 2020. This legislation would amend Title 35 to require the USPTO to ask patent applicants for their demographic information and would require the USPTO to submit an annual report to Congress based on that demographic information.

H.R. 7956/S. 4473. Critical Medical Infrastructure Right-to-Repair Act. This legislation would amend Title 35 Section 271 to allow equipment owners or lessees to fabricate design patented parts on a non-commercial basis and as needed for repair or maintenance in response to COVID-19 by carving such acts out as non-infringing acts.

S. 4253. Second Look at Drug Patents Act of 2020. This bill would amend the process of listing patents in the FDA's Orange Book to require notification to the USPTO and require the USPTO to post those patents publicly and invite parties to file IPRs.

H.R. 7296. Make Medications Affordable by Preventing Pandemic Price Gouging Act of 2020. This bill would require a nonexclusive license for any COVID-19 drug developed in whole or in part with Federal support.

H.R. 7113/S.3847. COVID-19 Emergency Manufacturing Act of 2020. This legislation would allow the Secretary of Health and Human Services to issue licenses for inventions related to the manufacture of an applicable COVID–19 product or applicable drug, biological product, or device.

S. 3630. Facilitating Innovation to Fight Coronavirus Act. This bill would prohibit a COVID-19 related patent's term from starting until after the "disease terminates" and then provide an additional 10 years for the patent term.

H.R. 8037. Advancing America's Interest Act. This bill would amend section 337 of the Tariff Act of 1930 with respect to the requirements for establishing a "domestic industry" and with respect to the evaluation of the "public interest."

H.R. 8406. The Heroes Act. This bill provides for emergency appropriations for the FY21, including providing $95,000,000 for the USPTO.

The USPTO regularly consults PPAC on proposed legislative and administrative changes, including those aimed at patent quality issues, as well as other adjustments to the patent laws. The PPAC will continue to monitor and consult with the USPTO on any such changes.

D. OTHER ISSUE

State Sovereign Immunity Study

In response to SCOTUS's decision in *Allen v. Cooper*, which held that state entities were immune from liability for copyright infringement, Sens. Thom Tillis and Patrick Leahy requested that the USPTO "study the extent to which patent or trademark owners are experiencing infringement by state entities without adequate remedies under state law." As part of this study, the USPTO is seeking feedback and relevant evidence from external stakeholders, including states, IP owners, and others. The study is due no later than April 30, 2021.

VIII. FINANCE

A. INTRODUCTION

User fees are the sole source of funding for the USPTO. None of the money spent by the USPTO on its operations comes from taxes or government borrowing. The USPTO is funded solely by user fees rather than by the taxpayer. By statute, the fees collected by the USPTO cannot be spent on other purposes. However, the USPTO can only spend its collected funds in accordance with an appropriation from Congress. If the USPTO collects more money than it is authorized to spend, the surplus is deposited in the Patent and Trademark Fee Reserve Fund (PTFRF). Appropriation bills typically provide for a reprogramming process that allows the USPTO to access the PTFRF after submitting a reprogramming notification to the House and Senate Appropriations committees. The PPAC recommends that the USPTO be removed from the appropriation process so that it can be insulated from any future interruption in appropriation by maintaining access to its user fees that cannot be used for any other purpose.

The USPTO reserves a portion of its collections to fund an operating reserve.[18] The operating reserve allows the USPTO to continue operation if there is a lapse in congressional appropriation authority. The operating reserve also helps insulate the USPTO from variability in user fee collections that can result from economic downturns like the present one.

B. BUDGET STATUS

In FY 2020, the USPTO's appropriation authority was determined by Continuing Resolutions of September 27, 2019 and November 21, 2019 until the enactment of the FY 2020 Consolidated Appropriations Act on December 20, 2019. The bill provided $3.45 billion for the USPTO, of which $3.11 billion was allocated to patents. Unlike FY 2019, FY 2020 did not see any lapse in congressional appropriation. The USPTO spent $3.151 billion allocated to the patent business line. This spending level included a reduction of $15.5 million to prepare for possible reductions in user fee funding. As of the fiscal year end, the USPTO collected $3.343 billion in patent fees and earned $32.7 million in other income allocated to patents. Overall, the agency collected $251.9 million over its appropriated level; $215.5 million of which is allocated to patents. The USPTO will submit a reprogramming notification to the House and Senate Appropriations committees to gain access to those fee collections in FY 2021.

The FY 2021 President's Budget, released on February 10, 2020, includes proposed funding levels for the USPTO based on USPTO recommendations. The President's Budget proposed spending of $3.455 billion on patents and assumed patent fee collections and other income totaling of $3.285 billion. The Commerce, Justice, and Science ("CJS") Subcommittees of the House and Senate Appropriations Committees held appropriation hearings on March 4, 2020 and March 5, 2020, respectively but these hearings largely focused on other agencies. The House CJS Subcommittee marked up the FY 2021 budget on July 8, 2020. The Senate CJS Subcommittee did not mark up the FY 2021 budget in FY 2020. A Continuing Resolution (CR) was passed on September 30, 2020 and lasts through December 11, 2020, but the final appropriation for FY 2021 has not yet been enacted. The fluid economic situation may

[18] Fees collected in excess of the USPTO's annual appropriated level are first deposited in the Patent and Trademark Fee Reserve Fund, and later transferred to the office's Salaries and Expenses account (following a reprogramming notification), where they become part of the operating reserve.

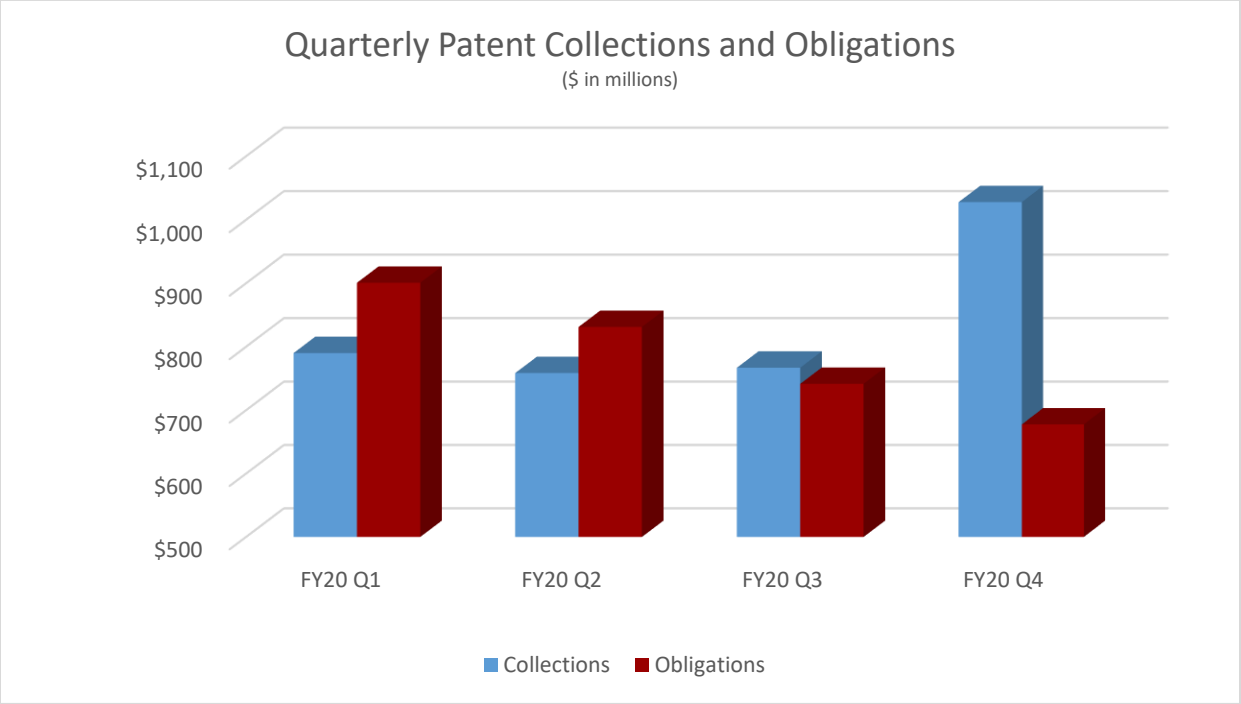
necessitate adjustments to be both spending plans and projected collections for FY 2021.

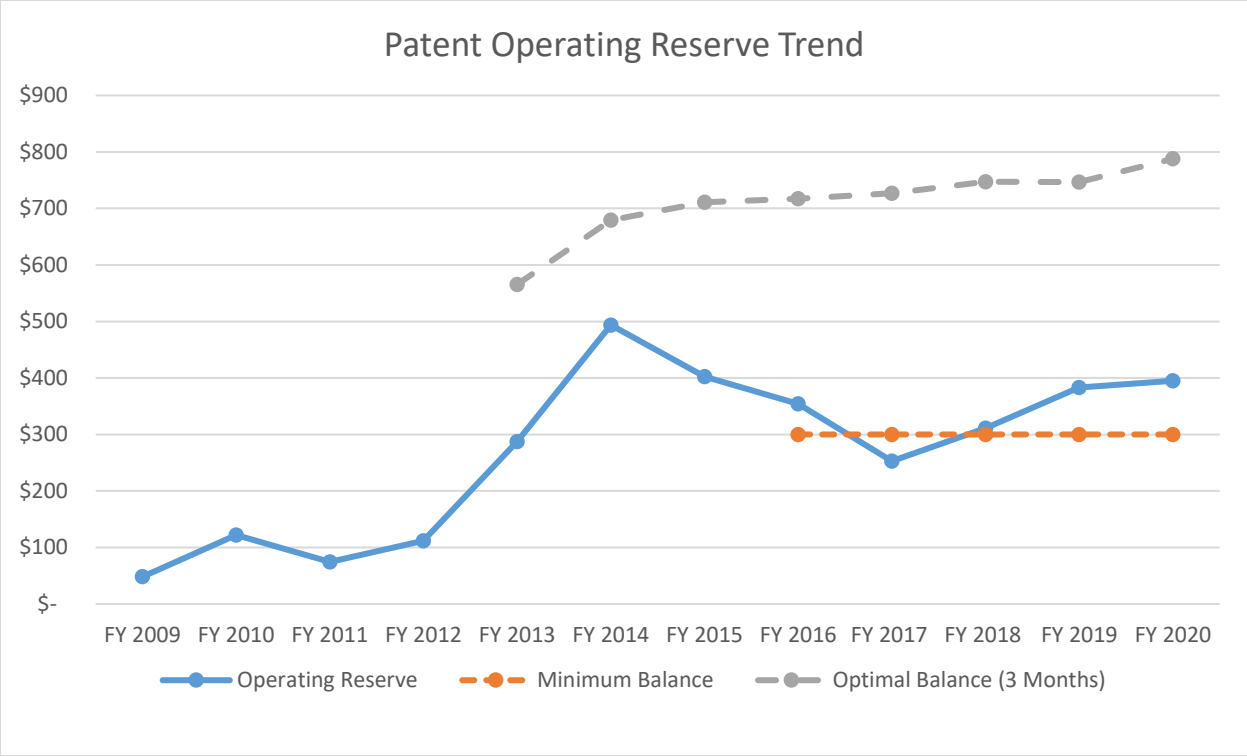
The FY 2021 President's Budget appropriately emphasizes accurate and consistent search and examination results while continuing progress on pendency. It anticipates the hiring of 750 examiners in FY 2021 for a net increase of 353. A key focus is the continued development and deployment of new IT systems to support the USPTO's mission while retiring antiquated and unreliable legacy systems.

The FY 2022 Budget is under development. The USPTO shared its recommendations with the PPAC in late August. It is anticipated that the FY 2022 Budget will be made public the first week of February 2021.

C. FY 2020 IN REVIEW AND HISTORICAL TRENDS

Despite the unanticipated disruption to the economy brought by the COVID-19 pandemic, in FY 2020, collections and spending were reasonably consistent with their budgeted and projected levels. The USPTO collected $3.343 billion from patent fees compared to $3.400 billion anticipated by the FY 2021 President's Budget. The USPTO's Patent spending was $3.151 billion compared to the $3.256 billion planned in the FY 2021 President's Budget.





Patent fee collections increased modestly (9.5%) over FY 2019, with most of the increase due to the surge of prepayments prior to the October 2 fee changes. Patent spending increased by 5.45% compared to FY 2019. To prepare for possible drops in collections, the USPTO cut its spending plans by $15.5 million by deferring anticipated examiner and support business unit hiring. The operating reserve grew by 3.1% to $395 million, excluding fee collections in the PTFRF. This balance is above the desired minimum balance of $300 million, sufficient to fund approximately 1 month of operations, but still far below the optimal balance of $788 million, sufficient to fund approximately 3 months of operations. The PPAC recommends that the operating reserve be increased over time to its optimal level.

D. FEE ADJUSTMENTS

The USPTO conducts biennial reviews of its fees as required by statute. The review that commenced in FY 2017 has culminated in a fee adjustment that went into effect on October 2, 2020 as provided by a final rulemaking published by the USPTO on July 31, 2020. The new fee adjustments include targeted increases in issue and maintenance fees, PTAB trial practice fees, the expedited examination fee for design patent applications, and the surcharge for late maintenance fee payments made within six months of the due date. The new fee structure also includes a 5% increase in non-targeted fees across the board. The USPTO responded to concerns from stakeholders by omitting in this rule a previously proposed annual fee for patent practitioners and delayed another fee to discourage non-provisional patent filings in document formats other than DOCX until January 1, 2022.

A subsequent biennial fee review began in FY 2019, but there has, yet, been no proposal for a further fee adjustment. The PPAC recommends that the magnitude and timing of any future fee increase balances the needs of the USPTO to fulfill its mission of reliable and certain patents

against the financial impact of the user community.

E. PREVIOUSLY COLLECTED FEES NOT AVAILABLE

From FY 1990 through FY 2011 and prior to the USPTO obtaining full access to collections and fee setting authority through the AIA, all the fees and surcharges that were collected from customers were not always appropriated to the USPTO. Previously collected and currently unavailable fee collections on deposit in the USPTO accounts at the Department of Treasury (Treasury) are $1,024 million ($814 million from previously collected fees for patent services provided to customers). The USPTO has confirmed with the Treasury that the funds are on deposit in the USPTO Treasury account, but the USPTO requires Congressional approval to access the funds. Access to these funds would result in the USPTO reaching optimal reserve levels, for Patents defined as three months of operating requirements, for both the patent and trademark business lines, thus mitigating the risk of current and future economic uncertainty. Access to these funds would also, among other things, increase the USPTO's ability to improve its infrastructure and services. Additional details on the unavailable amounts can be found in the Financial Section of the 2019 Performance and Accountability Report. The PPAC recommends that Congress make these previously collected user fees available to the USPTO.

GLOSSARY OF ABBREVIATED TERMS

ABBREVIATION	DEFINITION
AI	Artificial Intelligence
AIA	Leahy-Smith America Invents Act
AIPA	American Inventors Protection Act
APG	Agency Priority Goal
APJ	Administrative Patent Judges
CARES	Coronavirus Aid, Relief, and Economic Security Act
CJS	Commerce, Justice, and Science Subcommittee
CNIPA	China National Intellectual Property Administration
CPC	Cooperative Patent Classification
CPSC	Consumer Products Safety Commission
CR	Continuing Resolution
CS&E	Collaborative Search and Examination Pilot
CSP	Collaborative Search Pilot
DABUS	Device for Autonomous Bootstrapping of Unified Sentience
DAS	Digital Access Service
DOC	Department of Commerce
EPO	European Patent Office
EQS	External Quality Survey
EUIPO	European Union Intellectual Property Office
HToI	Highlight Text on Image
ID5	Industrial Design Forum
IDEA	Inventor Diversity for Economic Advancement
IDS	Information Disclosure Statement
IMPI	Mexican Institute for Industrial Property
IP5	The name given to a forum of the five largest intellectual property offices in the world (CNIPA, EPO, JPO, KIPO and USTPO)
IP5 PMG	IP5 Program Management Group
IPR	*Inter Partes* Review
IT	Information Technology
JPO	Japan Patent Office
KIPO	Korean Intellectual Property Office
LEAP	Legal Experience and Advancement Program
ML	Machine Learning
MRF	Master Review Form
MTA	Motion to Amend

NCEAI	National Council for Expanding American Innovation
NIHF	National Inventors Hall of Fame
NPRM	Notice of Proposed Rulemaking
OCFO	Office of the Chief Financial Officer
OCR	Optical Character Recognition
OIPC	Office of International Patent Cooperation
OPESS	Office of Patent Examination Support Service
OPIA	Office of Policy and International Affairs
OPQA	Office of Patent Quality Assurance
PAIR	Patent Application and Information Retrieval
PCT	Patent Cooperation Treaty
PE2E	Patents End-to-End
PEG	Patent Examination Guidance
PGR	Post-Grant Review
POAM	Plan of Actions and Milestones
POP	Precedential Opinion Panel
PPAC	Patent Public Advisory Committee
PPG	Parallel Patent Grant
PPH	Patent Prosecution Highway
PTAB	Patent Trial and Appeal Board
PTFRF	Patent and Trademark Fee Reserve Fund
RCE	Request for Continued Examination
Ref.	References to hyperlinks
ROI	Return on Investment
SBA	Small Business Administration
SOP2	Standard Operating Procedure 2
STEPP	Stakeholder Training on Examination Practice and Procedure
SUCCESS	Underrepresented Classes Chasing Engineering and Science Success
TEAPP	Telework Enhancement Act Pilot Program
USPTO	United States Patent and Trademark Office
WES	Women's Entrepreneurship Symposium
WIPO	World Intellectual Property Organization

REFERENCES TO HYPERLINKS

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Congress's 2018 Study of Underrepresented Classes Chasing Engineering and Science Success (SUCCESS) Act
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2. USPTO SUCCESS Act Report
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3. DOC Strategic Plan
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PDF file: https://www.commerce.gov/sites/default/files/2020-08/us_department_of_commerce_2018-2022_strategic_plan.pdf

4. USPTO Strategic Plan
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PDF file: https://www.uspto.gov/sites/default/files/documents/USPTO_2018-2022_Strategic_Plan.pdf

5. 2019 Performance and Accountability Report
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PDF file: https://www.uspto.gov/sites/default/files/documents/USPTOFY19PAR.pdf

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PPAC April 9, 2020 letter to Senate Judiciary Subcommittee on Intellectual Property and the House Judiciary Subcommittee on Courts, Intellectual Property, and the Internet
PDF file: https://www.uspto.gov/sites/default/files/documents/PPAC-TPAC_Letterr-to-Congress_re_Appropriation-of-PTO-Funds_041220.pdf

7. 2019 PEG
2019 Revised Patent Subject Matter Eligibility Guidance (2019 PEG)
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8. October Guidance Update
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11. Consolidated Trial Practice Guide (November 2019)
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12. Inventing AI: Tracing the Diffusion of Artificial Intelligence with U.S. Patents
PDF file: https://www.uspto.gov/sites/default/files/documents/OCE-DH-AI.pdf

13. Executive Order on Maintaining American Leadership in Artificial Intelligence
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14. Public Views on Artificial Intelligence and Intellectual Property Policy
PDF file: https://www.uspto.gov/sites/default/files/documents/USPTO_AI-Report_2020-10-07.pdf

JULIE MAR-SPINOLA, CHAIR

Ms. Mar-Spinola is the Chief IP Officer and VP of Legal Operations for Finjan Holdings LLC. She oversees the Company's revenue-based and legal operations, including the Company's IP and cyber technology innovations, enforcement programs, best practices, public policy initiatives, and mentorships. She has dedicated nearly her entire career to intellectual property law, emphasizing patents, technology, policy, and mentorship in these areas for the next generations of IP professionals. Before Finjan, Ms. Mar-Spinola successfully served as outside counsel, GC, or VP of Legal to several Silicon Valley companies. She was mentored by some of the most prolific tech visionaries and entrepreneurs in the Valley. She is a founder of the renowned women's organization, ChIPs, a global 501(c)(3) non-profit corporation dedicated to advancing women at the confluence of law, technology, and regulatory policy, and Chairwoman from 2005 to 2015. Ms. Mar-Spinola serves as a court-appointed mediator for the US District Court for the Northern District of California, specializing in complex patent disputes. She also serves on Santa Clara University School of Law's High Tech Advisory Board. In 2015 Ms. Mar-Spinola was appointed by then US Secretary of Commerce Penny Pritzker to serve on the Patent Public Advisory Committee (PPAC), which reviews and advises the Director of the USPTO on the policies, goals, performance, budget, and user fees of the Agency's operations. In 2019 the US Under Secretary of Commerce and USPTO Director Andrei Iancu appointed her to serve as the Chair of PPAC for the 2020 - 2021 term. Ms. Mar-Spinola received a Bachelor's degree in Chemistry from San Jose State University and a JD from Santa Clara University, School of Law. She is a member of the California State Bar, the Federal Circuit Bar, the US Supreme Court Bar, and a licensed Patent Attorney. Ms. Mar-Spinola is currently serving her second term as a PPAC member.

JENNIFER CAMACHO, VICE CHAIR AND INNOVATION EXPANSION SUBCOMMITTEE CHAIR

Ms. Camacho is a founder and Principal Member of Taitle LLC, representing stakeholders in the life sciences industry, including venture-backed and publicly-traded companies. Previously, Ms. Camacho was the Chief Legal Officer for Torque Therapeutics, Inc., a cancer immunotherapeutics company, until its merger with Repertoire Immune Medicines, Inc. in 2019. At Torque, she was responsible for all aspects of the company's legal affairs and intellectual property. Before joining Torque, she was the Chief Legal Officer for Gen9, Inc. from 2014 until its acquisition by Ginkgo Bioworks, Inc. in 2017. Ms. Camacho was formerly a partner in the international law firms of Proskauer Rose, LLP and Greenberg Traurig, LLP where she represented clients in the life sciences industry, including biotechnology and synthetic biology companies, pharmaceutical and medtech companies, investment banks, venture capital firms, and other industry stakeholders. Ms. Camacho has been recognized for her work in the fields of intellectual property and life sciences law and has multiple awards and honors, including the Tech Luminary and Innovation All-Star Award from Boston Business Journal and Mass High Tech. She received her bachelor's degree in Cell and Structural Biology from the University of Illinois, and her law degree from Boston College Law School. Ms. Camacho is currently serving her second term as a PPAC member.

MARK GOODSON, IT SUBCOMMITTEE CHAIR

Mr. Goodson is the founder and principal engineer of Goodson Engineering in Denton, Texas, where he leads a team of professional engineers with specialties in electrical, mechanical, and fire protection engineering. Mr. Goodson is a consultant for public sector agencies, as well as commercial and industrial concerns. He is experienced in electrical death and injury analysis, CO death analysis, and mechanical and electrical fire causation. He has authored more than 40 professional articles. He was the first engineer to serve on the Texas Electrical Board. Mr. Goodson served as a Court Special Master in Dallas from 1989-1991. He is the engineer appointed by the State of Texas in 2013 to serve on the Texas Fire Marshal's Science Advisory Workgroup (SAW), where fire-related criminal convictions are being reviewed for accuracy of scientific evidence. In 2014, Mr. Goodson was appointed to the US Dept. of Commerce NIST panel on forensic sciences (NIST – OSAC). In 2015, UL named him as the electrical engineer serving on the National Institute of Justice research team on fire forensics. Within the NFPA. Mr. Goodson serves on panels for Fire Investigation Units. He has testified in excess of 500 instances as an expert witness. Mr. Goodson holds a BSEE from Texas A&M, and studied forensic medicine at UT Southwestern. He is a licensed engineer in 14 states. Mr. Goodson is an independent inventor, has been issued 22 patents and has 3 more pending. Mr. Goodson is serving his second term as a PPAC member.

DAN LANG, FINANCE SUBCOMMITTEE CHAIR

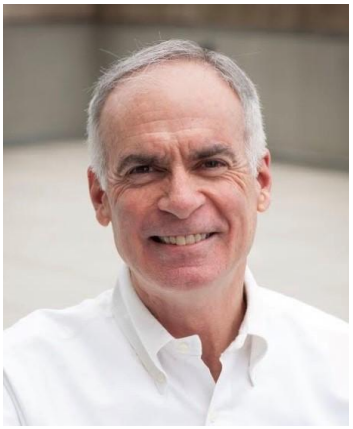
Mr. Lang is vice president, intellectual property, and deputy general counsel at Cisco Systems located in San Jose, California. He leads a team responsible for Cisco's intellectual property program, including portfolio development, patent licensing and acquisition, and policy. He has overall responsibility for leading a telecommunications industry portfolio of over 12,000 U.S. patents. Mr. Lang is also registered to practice before the USPTO. Mr. Lang is serving his second term as a PPAC member.

JEFF SEARS, PTAB SUBCOMMITTEE CHAIR AND INTERNATIONAL SUBCOMMITTEE CO-CHAIR

Mr. Sears serves as Associate General Counsel and Chief Patent Counsel for Columbia University. His practice encompasses all aspects of patent law, including prosecution, strategic counseling, licensing and post-licensing compliance, litigation, and legislative, regulatory, and policy matters. He manages the university's global patent portfolio and works closely with faculty inventors, technology transfer officers, and executive leadership on commercialization activities. Also, Mr. Sears is an Adjunct Professor at Columbia's School of Engineering and Applied Science, where he co-teaches Intellectual Property for Entrepreneurs and Managers. He has been recognized for his work in intellectual property law and management and has multiple awards and honors, including having been named to the IAM Strategy 300 by IAM Media and Corporate IP Stars by Managing Intellectual Property Magazine. Mr. Sears holds an S.B. in physics from MIT, an M.A. and Ph.D. in physics from SUNY Stony Brook, and a J.D. from NYU. He is admitted to practice law in New York and before the U.S. Patent and Trademark Office. Mr. Sears is serving his second term as a PPAC member.

STEVEN CALTRIDER, QUALITY AND PENDENCY SUBCOMMITTEE CHAIR

Mr. Caltrider is Vice President and General Patent Counsel for Eli Lilly and Company and holds over 30 years of experience in an industry driven by research and innovation. He has extensive litigation experience in the leading intellectual property (IP) forums (more than 30 countries), including U.S. Federal District Court, the U.S. Courts of Appeals for the Federal Circuit; courts in Canada, the United Kingdom, Germany, Japan and the Netherlands; as well as the USPTO, EPO, and JPO. Mr. Caltrider is also experienced in managing global teams of attorneys and staff on a wide range of IP matters, from patent procurement to technology acquisitions and data security. His current responsibilities include patent (global litigation and procurement), trade secret, copyright, and trademarks. Mr. Caltrider received a bachelor's degree in chemical engineering from Purdue University and a law degree, summa cum laude, from Indiana University Robert H. McKinney School of Law. Mr. Caltrider is serving his first term as a PPAC member.



BERNARD CASSIDY, AI SUBCOMMITTEE CO-CHAIR

Mr. Cassidy retired from the active practice of law after serving as General Counsel at Juno Therapeutics Inc., a startup cancer immunotherapy company, which he advised through the IPO process until its acquisition in 2018. Since then he has been a Visiting Researcher at Harvard Law School (Spring 2020) and taught Biomedical Law and Policy as an Adjunct Professor at the Seattle University School of Law (Spring 2019). He is a nationally recognized expert on patent licensing and patent policy, having testified twice on these topics before Congress. Prior to his work at Juno Therapeutics, Mr. Cassidy served as Executive Vice President, General Counsel, and Secretary of Tessera Technologies Inc. and President of Tessera Intellectual Property Corporation. Mr. Cassidy was also Senior Vice President, General Counsel, and Secretary of Tumbleweed Communications Corp. He practiced law at Skadden, Arps, Slate, Meagher & Flom and at Wilson, Sonsini, Goodrich & Rosati after serving as a Law Clerk to the Honorable John T. Noonan, Jr., of the U.S. Court of Appeals for the Ninth Circuit. He received his J.D. from Harvard Law School, where he was an editor of the Harvard Law Review and a Research Assistant to Professor Arthur R. Miller. Mr. Cassidy is serving his first term as a PPAC member.

JEREMIAH CHAN, AI SUBCOMMITTEE CO-CHAIR

Mr. Chan is Associate General Counsel and Director, Head of Patents at Facebook, where he leads a team that is responsible for the strategic development of Facebook's global patent portfolio. Mr. Chan and his team work on intellectual property transactions, dispute resolution and other risk mitigation initiatives. They also focus on industry-wide efforts to promote diversity, equity and inclusion in innovation. Prior to joining Facebook, Mr. Chan led an international team at Google that was responsible for portfolio strategy, operations and data science; and before Google, served as Head of Intellectual Property for JDSU, where he managed a department that was responsible for portfolio strategy, litigation, licensing and technology transactions. Mr. Chan started his career in private practice with the law firm of Fish & Neave, where he specialized in litigation, opinion work, and client counseling. He graduated from UC Berkeley with highest honors and received his JD from Cornell Law School. Mr. Chan serves as an advisory board member for the High Tech Law Institute at Santa Clara University School of Law and as chairman of the board for the Bay Area Anti-Trafficking Coalition, a nonprofit organization that combats human trafficking in the San Francisco bay area and beyond. Mr. Chan is serving his first term as PPAC member.

TRACY-GENE DURKIN, INTERNATIONAL SUBCOMMITTEE CO-CHAIR

Ms. Durkin is the practice leader of the Mechanical & Design Practice Group and a member of the Trademark & Brand Protection Practice at the law firm of Sterne, Kessler, Goldstein & Fox P.L.L.C. in Washington, D.C. She has extensive experience in design patent law and the enforcement of intellectual property rights. In 2018, Financial Times named her as one of the "Top Ten Legal Innovators in North America," noting her as "a leading authority on design patents. Ms. Durkin began her career as a patent examiner at the USPTO. Now, with more than thirty years of experience in private practice obtaining and enforcing intellectual property rights, she is sought out by leading consumer product companies and by colleagues around the world for her deep understanding of utility and design patents, trademarks, and copyrights. Ms. Durkin has represented companies before Federal District Courts, the United States Court of Appeals for the Federal Circuit, the International Trade Commission, the USPTO Patent Trial and Appeal Board, and Trademark Trial and Appeal Board. She has served as an expert witness in patent disputes in District Court litigation, and before the International Trade Commission. A leader in the legal community, Ms. Durkin is a past president of the Women's Bar Association of the District of Columbia and of The Women's Bar Association Foundation, two organizations in which she continues active participation. She is currently on the board of the Legal Aid Society of the District of Columbia. Ms. Durkin is serving her first term as a PPAC member.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