The PTAB Faces Operational, Information Technology, and Data Risks

FINAL REPORT NO. OIG-21-025-I

MAY 10, 2021

U.S. Department of Commerce
Office of Inspector General
Office of Audit and Evaluation

UNITED STATES DEPARTMENT OF COMMERCE
Office of Inspector General
Washington, D.C. 20230

May 10, 2021

MEMORANDUM FOR: Andrew Hirshfeld
Performing the functions and duties of the Under Secretary of Commerce for Intellectual Property and Director of the United States Patent and Trademark Office

FROM: Frederick J. Meny, Jr.
Assistant Inspector General for Audit and Evaluation

SUBJECT: *The PTAB Faces Operational, Information Technology, and Data Risks*
Final Report No. OIG-21-025-I

Attached for your review is the final report on the evaluation of the United States Patent and Trademark Office's (USPTO's) Patent Trial and Appeal Board (PTAB) operations. The objectives were to (1) assess PTAB's processes; (2) identify risk areas within PTAB; and (3) identify any internal and external challenges PTAB faces, and the significance and impacts of these challenges.

We contracted with The MITRE Corporation (MITRE)—an independent firm—to perform this evaluation. Our office oversaw the progress of this evaluation to ensure that MITRE performed the evaluation in accordance with the Council of the Inspectors General on Integrity and Efficiency's *Quality Standards for Inspection and Evaluation* (December 2020) and contract terms. However, MITRE is solely responsible for the attached report and conclusions expressed in it.

In its evaluation of PTAB, MITRE identified the following:

1. PTAB End-to-End (E2E) IT system does not fully meet the users' needs.
2. PTAB lacks effective data management.
3. The *Arthrex* decision threatens retention and recruitment.
4. PTAB lacks sustainable staffing projection capabilities.

MITRE recommended in the report that the Undersecretary of Commerce and Director of the U.S. Patent and Trademark Office take the following actions:

1. Direct the PTAB Chief Judge and the Chief Information Officer (CIO) to appoint and empower a PTAB E2E/PTAB Center product owner who will be involved in every stage of planning, development, and testing of the system.
2. Direct the PTAB Chief Judge to determine the viability of implementing a comprehensive data quality and governance program following best practices for data governance.

3. Work with Congress to address the Appointments Clause defect identified in the *Arthrex* decision.
4. Direct the PTAB Chief Judge and the CIO to assess the affordability of procuring or developing a more sustainable and scalable predictive case management system to project staffing needs.

On April 6, 2021, we received USPTO's response to MITRE's draft report. In response to MITRE's draft report, USPTO concurred with all of the recommendations and described actions it has taken, or will take, to address them. USPTO's formal response is included within the final report as appendix E.

Pursuant to Department Administrative Order 213-5, please submit to us an action plan that addresses the recommendations in this report within 60 calendar days. This final report will be posted on OIG's website pursuant to sections 4 and 8M of the Inspector General Act of 1978, as amended (5 U.S.C. App., §§ 4 & 8M).

We appreciate the cooperation and courtesies extended to MITRE by your staff during this evaluation. If you have any questions or concerns about this report, please contact me at (202) 482-1931 or Amni Samson, Director for Audit and Evaluation, at (571) 272-5561.

Attachment

cc: Coke Morgan Stewart, Performing the functions and duties of the Deputy Under Secretary of Commerce for Intellectual Property and Deputy Director of the USPTO
Jay Hoffman, Chief Financial Officer, USPTO
Sean Mildrew, Deputy Chief Financial Officer and Audit Resolution Officer, USPTO
Jamie Holcombe, Chief Information Officer, USPTO
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Patent Trial and Appeals Board (PTAB) Evaluation Report

The PTAB Faces Operational, Information Technology, and Data Risks

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Professor Ouellette's contribution to this publication was as a paid consultant and was not part of her Stanford University duties or responsibilities.

Professor John “Jay” Thomas’ contribution to this publication as a paid consultant and was not part of his Georgetown University duties or responsibilities.

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Executive Summary

The Patent Trial and Appeal Board (PTAB) is an administrative body within the U.S. Patent and Trademark Office (USPTO) that adjudicates patent issues in a court-like setting. The PTAB came into existence on September 16, 2012, following passage of the Leahy-Smith America Invents Act (AIA) of 2011, and performs two primary functions. First, the PTAB hears appeals brought by applicants concerning the patent examiners' decisions to not approve their applications. It has adjudicated over 57,000 appeals since October 2015. Second, the PTAB addresses patentability challenges of previously granted patents brought by members of the public. The PTAB has received over 11,000 petitions to institute such trials, the majority of which are inter partes review (IPR) proceedings.

Why We Did This Review

In an October 2019 report, OIG identified that "USPTO will face various *challenges to ensure that PTAB operations are efficient and fair*, including managing resources to ensure deadlines are met and guidance and precedent are applied consistently."[1] And an earlier 2017 Congressional Research Service (CRS) study found, "Many members of the patent community view [most PTAB proceedings] as being *biased against patent owners* and believe that they have *significantly eroded the confidence of innovative indus*try in the U.S. patent system [emphasis added]."[2] In this report we evaluate those risks, identify additional external *and* internal risks, and recommend mitigation strategies to address the highest priority risks.

What We Found

The following are the top four risk areas identified by our team, in priority order:

1. **The PTAB End-to-End (E2E) IT System Does Not Fully Meet the Users' Needs** (see Section 3.1). PTAB staff report numerous shortcomings with PTAB E2E[3] and resort to workarounds and manual processes to perform several basic tasks. This deficiency in delivering IT to meet the users' needs has resulted in impeded workload, individually developed solutions, and a frustrated user community.

2. **The PTAB Lacks Effective Data Management** (see Section 3.2).
   Issues with PTAB E2E weaken data quality; users maintain versions of data locally, detached from the primary source of data. Alternative data sources lead to reduced confidence in the data and reporting based upon potentially incomplete or inaccurate data.

3. **The *Arthrex* Decision Threatens Retention and Recruitment** (see Section 3.3).
   The decision of the U.S. Court of Appeals for the Federal Circuit in *Arthrex, Inc. v. Smith & Nephew, Inc.* rendered Administrative Patent Judges (APJs) "inferior officers" in order to

[1] Commerce OIG, "Top Management and Performance Challenges Facing the Department of Commerce," 2019, 16, https://www.oversight.gov/sites/default/files/oig-reports/OIG-20-001_0.pdf.

[2] Congressional Research Service, "Inter Partes Review of Patents: Innovation Issues," 2017, 2, www.crs.gov.

[3] PTAB E2E was renamed "PTAB Center" in January 2020. However, that change had not yet reached any of the individuals we interviewed in February and March 2020, so they referred to the system as "PTAB E2E." In addition, all of the system documents that USPTO provided to us were from 2019 or earlier, so they also referred to the system as "PTAB E2E." We will use "PTAB E2E" throughout this document.

address a Constitutional challenge to the PTAB. This decision has damaged the morale of APJs and may also affect recruiting and retention.

4. **The PTAB Lacks Sustainable Staffing Projection Capabilities** (see Section 3.4). USPTO's Operations Management Model (OMM) is a manual and labor-intensive staffing projection tool. It takes little advantage of automated data input, uses no artificial intelligence or predictive tools, and relies solely on internal data, some of which is subjective. These constraints limit USPTO's ability to assess staffing requirements in real time and respond effectively to changes in workload.

What We Recommend

We recommend the Undersecretary of Commerce and Director of the U.S. Patent and Trademark Office:

R1: Direct the PTAB Chief Judge and the Chief Information Officer (CIO) to appoint and empower a PTAB E2E/PTAB Center product owner who will be involved in every stage of planning, development, and testing of the system (Section 3.1).

R2: Direct the PTAB Chief Judge to determine the viability of implementing a comprehensive data quality and governance program following best practices for data governance (Section 3.2).

R3: Work with Congress to address the Appointments Clause defect identified in the *Arthrex* decision (Section 3.3).

R4: Direct the PTAB Chief Judge and the Chief Information Officer (CIO) to assess the affordability of procuring or developing a more sustainable and scalable predictive case management system to project staffing needs (Section 3.4).

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1 Introduction

The Department of Commerce ("Department") Office of the Inspector General (OIG) seeks to improve the efficiency and effectiveness of the Department's programs and operations in order to prevent and detect fraud, waste, and abuse. The OIG's Office of Audit and Evaluation conducts evaluations of the Department's programs and operations, including the Patent Trial and Appeals Board (PTAB). OIG has identified challenges facing PTAB such as efficient and fair processes and resource management.

1.1 Background

The PTAB is an administrative body within U.S. Patent and Trademark Office (USPTO) that adjudicates patent issues in a court-like setting. A 2017 Congressional Research Service (CRS) study found that the PTAB: (1) is less costly than litigation in federal district courts; (2) can improve patent quality; and (3) can confirm the validity of patents. However, this same study also found that "Many members of the patent community view [most PTAB proceedings] as being biased against patent owners and believe that they have significantly eroded the confidence of innovative industry in the U.S. patent system."[4] Additionally, CRS found that most patents involved in PTAB proceedings are subject to litigation in the federal courts, increasing the expense and complexity of patent enforcement. Further, the PTAB has been subject to repeated legal and constitutional challenges during its short history (see Section B.5 in Appendix B).

Certain audiences have a negative perception of the PTAB. One criticism has been that the PTAB invalidates 80 percent of the challenged patent claims it reviews.[5] However, that statistic is based on the first 67 PTAB decisions,[6] and only considers the claims in petitions that reached a final written decision (FWD).[7] While the "80 percent" assertion has been amended, reinterpreted, or refuted in subsequent studies, it remains a persistent criticism (see Section B.4 in Appendix B).

Such criticism highlights the external risks to the PTAB, which may negatively impact its sustained ability to perform its role as a fair and unbiased platform for administratively adjudicating patent validity challenges. In this report we evaluate those risks, identify additional

[4] Congressional Research Service, "Inter Partes Review of Patents: Innovation Issues," 2.

[5] This statistic appears to originate from a June 19, 2014 article looking at PTAB decisions through May 2014 which found that in "the PTAB's first 67 final written decisions…of the 1,093 claims addressed…only 231 claims survived, resulting in a survival rate of about 21 percent." Public discourse seems to have combined this statistic to support a former Federal Circuit Chief Judge's assertion that portrayed "administrative patent judges 'acting as death squads, killing property rights.'" Morton and Prange, "Is the PTAB a Death Sentence for Patent Rights?"; Dutra, "Rader Regrets CLS Bank Impasse, Comments on Latest Patent Reform Bill."

[6] As of April 2020, the PTAB has issued over 3,600 FWDs.

[7] Current data shows that the PTAB found 777 claims unpatentable in the first 67 FWDs (through May 15, 2014, the apparent date cutoff of the Morton and Prange study). From September 15, 2012 (the date of the first trial petition) through May 15, 2014, there were a total of 9,240 claims in the challenged patents. Therefore, the PTAB actually invalidated 8 percent (777 divided by 9,240) of the claims in the challenged patents.

external *and* internal risks, and recommend mitigation strategies to address those we consider the highest priority.

1.2 Objective

In September 2019, the OIG engaged The MITRE Corporation to evaluate USPTO's PTAB operations. OIG tasked us with the following objectives:

(1) provide an overview of the structure and history of PTAB;

(2) identify and prioritize the risk areas within PTAB, the methods to overcome these risk areas, and the timelines for risk mitigation;

(3) identify any internal and external challenges PTAB faces, and the significance and impacts of these challenges; and

(4) identify any actions PTAB or USPTO should take to mitigate these challenges.

Appendix A contains the details of the scope of this evaluation and our methodology.

2 Summary of the History and Structure of the Patent Trials and Appeals Board (PTAB)

We were tasked to describe the history, structure, and work of the PTAB. This includes some of the criticism and legal challenges it has addressed in the recent past. For a more detailed description, including a discussion of the criticisms leveled against the PTAB and the legal challenges it has faced, see Appendix B.

2.1 History and Structure of the PTAB

The administrative agency now known as U.S. Patent and Trademark Office (USPTO) has incorporated some form of an internal adjudicative tribunal since the 19th century.[8] At the time of the enactment of the Leahy-Smith America Invents Act (AIA) in 2011, the early tribunal had evolved into a Board of Patent Appeals and Interferences (BPAI) composed of around 80 administrative patent judges (APJs). In keeping with the provisions of the AIA, the PTAB came into existence on September 16, 2012.

The PTAB has frequently developed and refined its procedural rules over the years including: the assignment of APJs to panels; the designation of precedential and informative PTAB decisions; and updates to the PTAB's Trial Practice Guide. The PTAB consists of four statutorily identified members—the Director and Deputy Director of USPTO with the commissioner for patents and commissioner for trademarks—and an unspecified number of APJs. The PTAB currently comprises approximately 264 APJs and 125 Board operations staff. Pertaining to APJs, the Patent Act requires APJs to be "persons of competent legal knowledge and scientific ability."[9] In practice, each APJ is a lawyer with a technical background and previous experience with the patent system.[10]

2.2 Work of the PTAB

The majority of PTAB cases consists of appeals filed by patent applicants.[11] The PTAB has historically had a backlog of appeals cases pending. When the PTAB was formed in 2012, the appeals backlog was at 26,570. From October 2012 through June 2020, the PTAB received 84,023 appeals, and either decided or dismissed 100,714 appeals. In that same period, the PTAB "affirmed" or "affirmed-in-part" nearly 70 percent of patent examiners' determinations to deny the patent application.

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[8] Pub. L. No. 24-237, § 7, 5 Stat. 117 (1836).

[9] 35 U.S.C. § 6(a).

[10] Michael Goodman, "What's So Special About Patent Law?," *Fordham Intellectual Property, Media and Entertainment Law Journal* 26, no. Summer 2016 (2016): 1–37, https://ir.lawnet.fordham.edu/cgi/viewcontent.cgi?article=1632&context=iplj; Christopher J. Walker and Melissa F. Wasserman, "The New World of Agency Adjudication," *California Law Review* 107, no. 1 (2019): 141–98, https://doi.org/10.15779/Z38Q23R09S; David P Ruschke and Christopher M Kaiser, "Introduction to the Patent Trial and Appeal Board," *Landslide* 11, no. 2 (2018): 1–6, https://www.americanbar.org/groups/intellectual_property_law/publications/landslide/2018-19/november-december/introduction-patent-trial-appeal-board/.

[11] PTAB appeals also include a small number from ex parte reexamination requests, which can be initially filed by any party, although only the patent owner may appeal to the PTAB from an adverse decision.

The PTAB also conducts administrative adversarial proceedings, mostly inter partes reviews (IPRs).[12] In an IPR, a member of the public may challenge an issued patent as failing to meet the requirement of novelty and "nonobviousness" based on prior patents or printed publications (but not based on other prior art[13] such as public use of an invention).[14] From 2012 through May 2020, the PTAB received 11,360 AIA petitions, made institution decisions on 9,078 of those petitions,[15] and instituted 5,934 AIA trials.

[12] Pub. L. No. 112-29, 125 Stat. 284 (2011).

[13] Prior art includes a variety of evidence that the public was already benefiting from the invention before the effective filing date of the application, including earlier publications, patents, and other inventions that have been sold or used.

[14] 35 U.S.C. § 311.

[15] Of the 2,282 remaining petitions, 1,494 were settled by the parties before the PTAB reached an institution decision. Of the remaining 788 petitions, 598 had not been decided by March 2020, when we received this data; 140 were dismissed; and 50 were terminated due to one party requesting adverse judgment against itself (per 37 C.F.R. § 42.73).

3 Findings and Recommendations

In this section we present the relevant findings from our evaluation. We outline top risks—including the likelihood and potential impacts of each risk—and recommendations to mitigate each risk.

3.1 The PTAB End-to-End (E2E) IT System Does Not Fully Meet the Users' Needs

Best practices in software development center around the principles of agile software development, which include satisfying the customer through early and continuous delivery of valuable software, welcoming changing requirements, delivering working software frequently, businesspeople and developers working together daily over the duration of a project, and prioritizing working software as the primary measure of progress.[16] The "product owner" is a key role during system development and should be "*the person* [emphasis added] who is responsible for the business process that the system is supporting."[17] The product owner should preferably be "one person, not a committee;"[18] an actual end-user serving to bridge the "gap" between the end-users and developers of PTAB E2E/PTAB Center through involvement in every stage of planning, development, and testing of the system.

According to the PTAB End-to-End (E2E) System Design Document (updated in April 2019), seven individuals filled the product owner role for PTAB E2E: five management information specialists from the PTAB's IT Systems and Services Branch (ITSSB), the PTAB ITSSB Chief, and a contractor. While the single PTAB representative possesses authority as a branch chief, and is classified within the business organization, the individual does not bear responsibility for the business processes that PTAB E2E is designed to support.

In January 2020, the OCIO began rolling out its "New Ways of Working" initiative. This initiative includes implementation of the Scaled Agile Framework (SAFe).[19] In SAFe, the product owner is a member of the agile team who serves as the proxy for the end-user[20] and is responsible for prioritizing product features and requirements. They are also responsible for accepting developed software as suitable for use. In interviews, we heard conflicting information from the Chief Information Officer (CIO) and the Chief Judge on exactly *who* is the current product owner for PTAB E2E.

The PTAB E2E Development and Process Workflows document (July 2019) describes some collaboration between OCIO and the PTAB. However, PTAB users' *expectations for the system* and the *capability actually delivered* by OCIO diverge. Of the 38 PTAB staff interviewed (all PTAB E2E users), 16 interviewees specifically mentioned shortcomings with PTAB E2E. For example, some reported spending "8-12 hours wasted [each month] on IT problems [including network

[16] AgileManifesto.org, "Principles behind the Agile Manifesto," 2001, https://agilemanifesto.org/principles.html.

[17] Kent McDonald, "How Do You Select a Product Owner?," Agile Alliance, 2020, https://www.agilealliance.org/how-do-you-select-a-product-owner/.

[18] Scrum.org, "What Is a Product Owner?," 2020, https://www.scrum.org/resources/what-is-a-product-owner.

[19] https://www.scaledagileframework.com/

[20] For software products developed for an outside market (i.e., most commercial software), there are no internal end-users, so proxies are necessary. For internally developed software, like PTAB E2E, a true user is typically preferred.

and infrastructure issues],” observing “PTAB E2E [is] not user friendly…[it was] rolled out with minimal judge input,” and “Judges are frustrated with PTAB E2E;” or that “[OCIO has] not paid attention to what [users are] asking for [in PTAB E2E].”

The deficient communication and collaboration between the users of PTAB E2E (APJs and support staff) and its developers (OCIO) are antithetical to the values and principles of best practices in software development[21] and SAFe. If the users and developers of PTAB E2E are not communicating effectively, then the users’ requirements will not be well-understood by the developer; in turn, developers will more likely deliver software that does not meet the users’ needs. This deficiency will likely result in:

(1) the IT system continuing to impede workflow rather than enhancing it;

(2) the quality of data and reporting continuing to decline and impacting the management of the PTAB;

(3) user satisfaction continuing to decline, and challenges engaging judges in systems that they do not feel adequately relate to their work;

(4) users continuing to develop workarounds, further reducing data quality and availability, and putting data security at risk; and

(5) users continuing to develop their own solutions and reports, and the accuracy of those reports being questioned because the underlying data cannot be trusted.

To address this finding, we recommend the Undersecretary of Commerce and Director of the U.S. Patent and Trademark Office:

R1: Direct the PTAB Chief Judge and the Chief Information Officer (CIO) to appoint and empower a PTAB E2E/PTAB Center product owner who will be involved in every stage of planning, development, and testing of the system.

3.2 The PTAB Lacks Effective Data Management

Best practices in data management require that the management, collection, use, and storage of an organization’s data—concepts collectively termed “data stewardship”—form an essential part of the business model, and should not be confined to an IT solution.[22] Robust data stewardship focuses on data quality, reduces duplicate data, and ensures data is readily accessible to the organization.[23] The Federal Data Strategy 2020 Action Plan recommends several practices relevant to the PTAB “to improve the government’s approach to data

[21] Kent Beck et al., “Manifesto for Agile Software Development,” 2001, https://agilemanifesto.org/; AgileManifesto.org, “Principles behind the Agile Manifesto.”

[22] Silvia Valcheva, “Data Management Best Practices and Strategies,” Intellspot.com, 2020, http://intellspot.com/data-management-best-practices/.

[23] Ari Soffer, “7 Best Practices for Effective Data Management in 2019,” Leadspace.com, 2019, https://www.leadspace.com/best-practices-for-effective-data-management/.

stewardship and the leveraging of data to create value:"[24] (1) prioritize data governance; (2) protect data integrity; (3) manage with a long view; and (4) leverage data standards.

The PTAB relies on its data to perform its primary mission of deciding trials and appeals. That includes ensuring access to current and authoritative information relevant to the case under review. Additionally, in light of the other high-risk areas described in this report—especially those related to *Arthrex* (Section 3.3) and staffing projections (Section 3.4)—PTAB data related to managing workflow becomes even more critical.

The PTAB E2E Development and Process Workflows document (July 2019) depicts several offline or alternative stores of data and manual processes. The detachment of the data from its central repository (e.g., copied to a spreadsheet on a user's hard drive), absent any formal data management protocols, makes the data out of sync with the primary source. By the current practices, confidence in the PTAB data will steadily decline, making it less likely that users will rely on it for reporting or decision support. If the PTAB continues its current data management practices, the use of PTAB data may hold consequences ranging from simple data errors to decisions based on poor data.

To address this finding, we recommend the Undersecretary of Commerce and Director of the U.S. Patent and Trademark Office:

> **R2**: Direct the PTAB Chief Judge to determine the viability of implementing a comprehensive data quality and governance program following best practices for data governance.

3.3 The *Arthrex* Decision Threatens Retention and Recruitment

In *Arthrex, Inc. v. Smith & Nephew, Inc.*[25] the U.S. Court of Appeals for the Federal Circuit agreed that PTAB APJs qualify as "principal officers" who, under the Constitution's Appointments Clause,[26] must be nominated by the President with the advice and consent of the Senate. None of the PTAB's APJs have been appointed in this fashion.[27] The Federal Circuit sought to apply a remedy sufficient to disqualify APJs as principal officers by severing the Patent Act's federal employee protections so that they do not apply to APJs.[28] Under the *Arthrex* ruling, APJs now serve at the pleasure of USPTO Director and may be terminated at-will (see Section B.5.5 in Appendix B for more details).[29]

This ruling potentially holds a number of implications for the PTAB. Numerous patent owners who did not raise an Appointments Clause challenge before the PTAB have done so on appeal to the Federal Circuit. As a result, the Federal Circuit has issued over 100 orders vacating IPR

[24] President's Management Agenda Team, "Federal Data Strategy 2020 Action Plan," 2020, 8–9, https://strategy.data.gov/assets/docs/2020-federal-data-strategy-action-plan.pdf.

[25] 941 F.3d 1320 (Fed. Cir. 2019).

[26] U.S. Constitution, art. 2, sec. 2, cl. 2.

[27] Under current practice, the Secretary of Commerce appoints APJs in consultation with the Director of USPTO.

[28] These provisions are codified at 35 U.S.C. § 3(c).

[29] "At-will means that an employer can terminate an employee at any time for any reason, except an illegal one, or for no reason without incurring legal liability," National Conference of State Legislatures, "At-Will Employment - Overview," April 15, 2008, para. I.A., https://www.ncsl.org/research/labor-and-employment/at-will-employment-overview.aspx.

decisions and returning cases to the PTAB, with more expected in the future. As of May 1, 2020, USPTO has decided not to rehear the remanded cases, holding them "in administrative abeyance until the Supreme Court acts on a petition for certiorari or the time for filing such petitions expires."[30] USPTO and Department of Justice filed a petition for certiorari[31] at the Supreme Court on June 25, 2020. The U.S. Supreme Court granted certiorari on October 13, 2020. The Supreme Court heard arguments on the *Arthrex* case on March 1, 2021.[32]

Congressional intervention provides another potential avenue for addressing *Arthrex*. The House Committee on the Judiciary's Subcommittee on Courts, Intellectual Property and the Internet held a hearing on the issue on November 19, 2019. At that hearing, subcommittee members expressed concern that if APJs were not protected by Title 5 removal provisions, their impartiality would be threatened. Witnesses who testified at that hearing suggested a few possibilities for reform. One was to establish a review board of officers who were appointed by the President and confirmed by the Senate. Another possible option was to confer upon USPTO Director the authority to review PTAB decisions directly. An alternative remedy included putting APJs under the Administrative Law Judge statute, thereby providing for protection and still allowing selection based on technical background. As of November 2020, no legislative proposals addressing *Arthrex* have been introduced before Congress.

In our interviews with PTAB staff, *Arthrex* was mentioned as a risk more than any other area except IT systems (see Section 3.1). Interviewees were most concerned with *Arthr*ex's impact on PTAB morale and its ability to recruit and retain quality APJs. With their re-classification to at-will employees, APJs may lose some of their judicial independence. Regardless of the actual state of the PTAB's independence, public *perception* of that independence may be negatively impacted. This perception could make the PTAB a less attractive adjudicator to the patent community, resulting in fewer appeals from adverse patentability decisions, and reduced use of IPRs and post-grant reviews (PGRs).

As it currently stands, the *Arthrex* decision constitutes a significant development in the brief history of the PTAB. It has an impact upon the morale, retention, and recruiting of APJs; the judicial independence of APJs from USPTO leadership; and public perception of the PTAB. In addition, because the remedy imposed by *Arthrex* may possibly be modified by the Supreme Court and/or Congress, considerable uncertainty remains about the ultimate impact of the ruling. If *Arthrex* remedy is not modified by the Supreme Court or Congress, job security and judicial independence of APJs will continue to be adversely impacted.

We considered three potential paths for addressing these adverse impacts: (1) the Supreme Court rules in USPTO's favor; (2) USPTO develops an internal policy to restore the sense of job security lost to the *Arthrex* case;[33] or (3) USPTO works with Congress to address the Appointments Clause defect (e.g., by putting APJs under the Administrative Law Judge

[30] Boalick, "General Order in Cases Remanded Under Arthrex, Inc. V. Smith & Nephew, Inc., 941 F.3d 1320 (Fed. Cir. 2019)," 2.

[31] *Certiorari* is a "writ that the Supreme Court of the United States issues to review a lower court's judgment." (https://www.law.cornell.edu/wex/certiorari)

[32] https://www.supremecourt.gov/oral_arguments/calendars/MonthlyArgumentCalFebruary2021.html

[33] This could include fixed, renewable terms, or employment contracts unique to APJs.

statute).[34] The first path is out of USPTO's control, and the second may not be effective and could result in additional risks. The third option remains as the best course of action.

Therefore, we recommend the Undersecretary of Commerce and Director of the U.S. Patent and Trademark Office:

R3: Work with Congress to address the Appointments Clause defect identified in the *Arthrex* decision.

3.4 The PTAB Lacks Sustainable Staffing Projection Capabilities

The U.S. Government Accountability Office (GAO) pointed out in a report in 2003 that "the lack of attention to strategic human capital planning had created a risk to the federal government's ability to serve the American people effectively."[35] However, projecting staff needs at the PTAB is difficult due to the number of potential variables, for example: the varying tasks required to process cases; the time needed to perform these tasks; case volume and complexity; available staff time; and workload standards.[36] The ability of an organization to use its data to enhance management decision making is paramount.[37] The GAO recommends that leaders "use *data-driven* [emphasis added] reviews to drive performance improvement."[38]

As shown in Figure 3-1, the number of incoming appeals has been decreasing since 2017—a 41.9 percent decrease from a spike in FY2017 of 11,776 appeals received.[39] The reasons for this decrease are outside the scope of this evaluation,[40] but the downward trend of appeals *is* relevant as it reflects a significant portion of the workload on PTAB staff and APJs. In addition, the PTAB has steadily reduced the backlog of pending appeals for the past six years (see Figure 3-2). While this is a positive trend for the PTAB, it compounds the trend in reduction of available work.

Finally, the number of AIA trial petitions has been decreasing since its peak in 2017 at 1,912 (see Figure 3-3). Operationally, when AIA trial petition filings decline, PTAB management is able to shift APJs from trials to appeals to reallocate workloads. The appeals backlog, which is currently at a 13.4-month pendency, provides the PTAB with a workload cushion.

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[34] 5 U.S.C. § 3105.

[35] U.S. Government Accountability Office, "Human Capital: Key Principles for Effective Strategic Workforce Planning," December 2003, 6, www.gao.gov/cgi-bin/getrpt?GAO-04-39.

[36] Matthew Kleiman, Cynthia G. Lee, and Brian J. Ostrom, "Workload Assessment: A Data Driven Management Tool for the Judicial Branch," *The Council of State Governments*, 2013, 243–47, http://knowledgecenter.csg.org/kc/system/files/kleiman_lee_ostrom_2013_0.pdf.

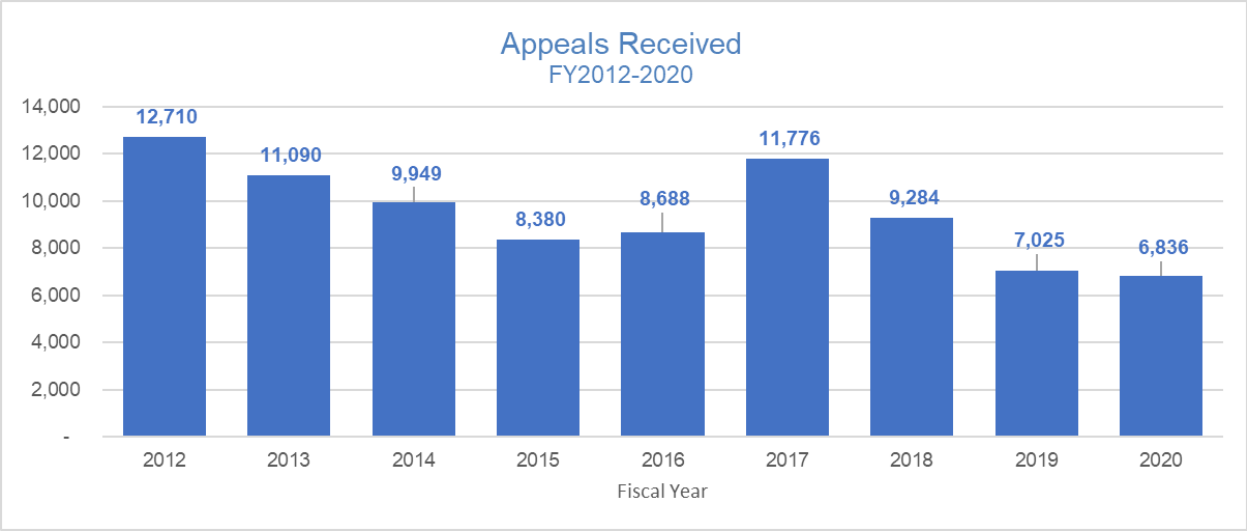
[37] Joint Technology Committee (JTC), "JTC Resource Bulletin Big Data: What State Courts Should Know," December 5, 2014, 4 of 5, https://www.ncsc.org/__data/assets/pdf_file/0028/17938/big-data-1-0-1-23-2015-final.pdf.

[38] U.S. Government Accountability Office, "U.S. GAO - Key Issues: Data-Driven Decision Making," 2016, https://www.gao.gov/key_issues/data-driven_decision_making/issue_summary.

[39] USPTO, "Appeal & Interference Statistics Archive"; The spike in PTAB appeals in 2017 was attributable in part to judicial decisions pertaining to patentable subject matter, including *Alice Corp. v. CLS Bank In't*, 134 S. Ct. 2347 (2014).

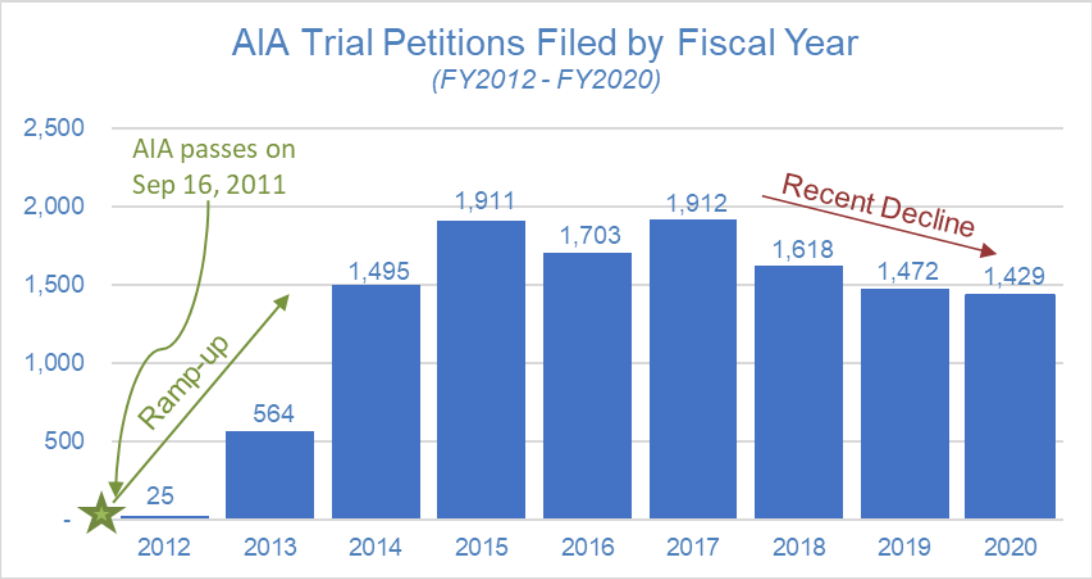
[40] However, we did note that the number of appeals in a given year is most highly correlated with the number of patents issued one year prior ($R^2 = 0.62$, p=0.01) and the number of patent applications three years prior ($R^2 = 0.56$, p=0.02).

Figure 3-1. Appeals Received by PTAB, FY2012-2020



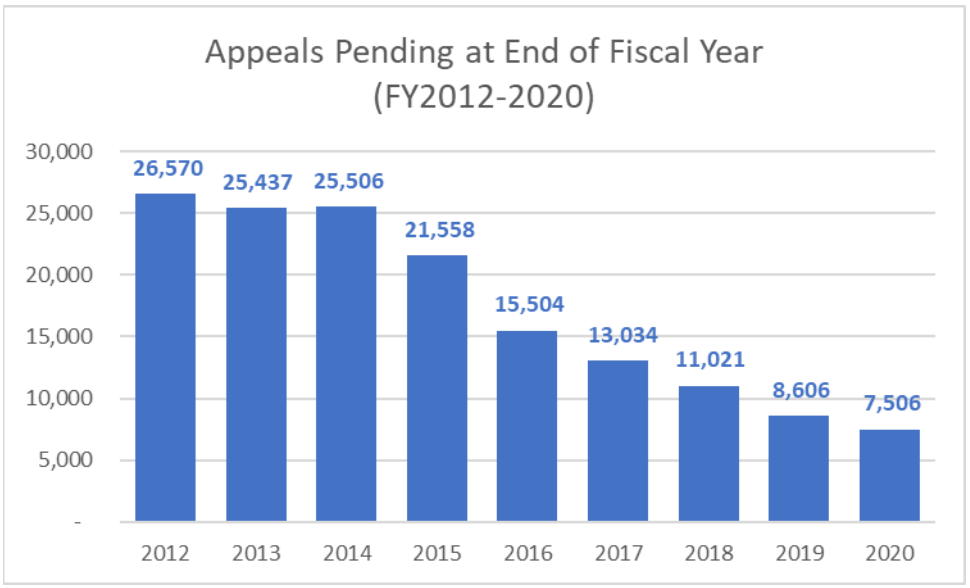
Source: MITRE analysis of USPTO data

Figure 3-2. Appeals Pending at End of Fiscal Year (FY2012-2020)



Source: MITRE analysis of USPTO data

Figure 3-3. AIA Trial Petitions Filed by Fiscal Year (FY2012-FY2020)



Source: MITRE analysis of USPTO data

If AIA trial petitions continue to decline, and the appeals backlog is eventually eliminated, then the PTAB management will have to examine other alternatives, including staff reductions, in order to address decreasing workload. Any "staff reductions" will have an impact. "[D]ownsizing is an unpleasant shock that prompts fear and resentment." It also undermines

"organization commitment."[41] However, as Iverson and Zatzick found in their 2011 study, organizations can "reduce productivity losses from downsizing by heightening their consideration for employees' morale and welfare."[42]

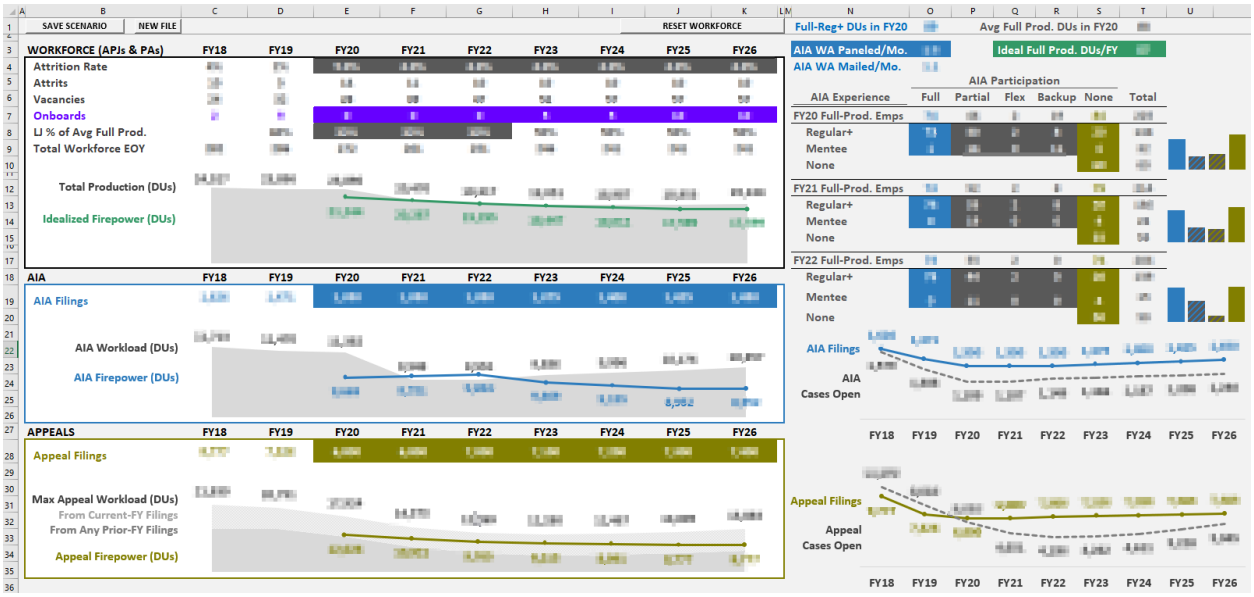
PTAB leadership currently uses an in-house developed tool, built in Microsoft Excel, to model workload and project staffing needs: the Operations Management Model (OMM) (see Figure 3-4). The PTAB Data Analysis & Process Improvement (DAPI) team began developing and using OMM in 2019. The OMM is based on historical production data and updated quarterly but does not currently include external business or legal trend data. The tool is maintained by a small DAPI team with statistics expertise. By and large all of the work (e.g., data input, manipulation of variables) is manual and somewhat fragile; because OMM is implemented as a complex spreadsheet, it is vulnerable to breaking if input columns change. The tool requires significant effort to produce monthly reports for judges and quarterly reports assessing staffing. The OMM also includes a number of data sources, such as scheduling, workload, decisional units (DUs), historical filings, withdrawals of petitions, terminations, etc.

DAPI staff referred to the OMM as "organic intelligence." The tool projects trends based solely on internal historical data and applies the judgment of the statisticians and PTAB leadership. The model does not include external market conditions driving potential increases or decreases in case filings. In addition, while the OMM projects staffing needs five years into the future for planning purposes, the DAPI team only admitted to confidence in the one-to-two-year projections (i.e., current fiscal year and next fiscal year).The DAPI team claimed the OMM is "99.9 percent" accurate, yet the data issues discussed in Section 3.2 render any assessment of the model's reliability questionable.

[41] Charlie O. Trevor and Anthony J. Nyberg, "Keeping Your Headcount When All about You Are Losing Theirs: Downsizing, Voluntary Turnover Rates, and the Moderating Role of HR Practices," *Academy of Management Journal* 51, no. 2 (2008): 260, https://doi.org/10.5465/AMJ.2008.31767250.

[42] Roderick D. Iverson and Christopher D. Zatzick, "The Effects of Downsizing on Labor Productivity: The Value of Showing Consideration for Employees' Morale and Welfare in High-Performance Work Systems," *Human Resource Management* 50, no. 1 (2011): 29, https://doi.org/0.1002/hrm.20407.

Figure 3-4. Screenshot of Operations Management Model Dashboard



Source: USPTO, OMM_20200423.xlsm

As discussed in Section 3.2, the PTAB is in a nascent stage of data assessment and management. That being so, external advances in artificial intelligence are able to make more reliable predictions based on larger volumes of data than OMM is capable of supporting.[43] While the OMM appears to be working, increasing the quality and quantity of business inputs (e.g., case volume- and business-related inputs) could make the model more dynamic and better able to support PTAB management.

To address this finding, we recommend the Undersecretary of Commerce and Director of the U.S. Patent and Trademark Office:

> **R4.** Direct the PTAB Chief Judge and the Chief Information Officer (CIO) to assess the affordability of procuring or developing a more sustainable and scalable predictive case management system to project staffing needs.

[43] Richard Susskind, *Online Courts and the Future of Justice* (Oxford University Press, 2019), 263–75.

4 Conclusion

In the course of this evaluation, we found that the key internal and external risks facing the PTAB center around the people—in particular, the APJs—and the IT systems they use. Throughout our interviews, we heard significant discontent among PTAB staff, APJs, and IT staff concerning PTAB E2E. Users lamented the process used to collect requirements for the system and to deploy newly developed functionality. They also disliked the quality and reliability of the data, as well as the many "work-arounds," offline data stores (e.g., in Microsoft Access databases and Excel spreadsheets), external reporting, and manual processes required to mitigate the system's current deficiencies.

The *Arthrex* decision at the U.S. Court of Appeals for the Federal Circuit has reduced the APJs' sense of job security by making them "at-will" employees. Compounding that insecurity, the PTAB's workload has been declining with fewer appeals and IPR petitions. The uncertainty this generates further undermines job security and morale in the organization.

Finally, PTAB leadership relies on a complex modeling tool to project staffing needs based on predicted workflow. Models require reliable data and, as discussed in Section 3.2, the PTAB possesses significant shortcomings with respect to its data. We verified these findings through analysis of the system documentation and data.

This combination of factors represents a significant opportunity for improving the IT capabilities provided to PTAB leadership, APJs, and staff, so that they may manage their workforce and case load more efficiently, effectively, and reliably.

5 Summary of Recommendations

In Table 5-1, we summarize the recommendations discussed in Section 3. We consider three broad time horizons (near-term, mid-term, and long-term) described at the end of Appendix A. USPTO should act on recommendations R1, R2, and R3 in the near term by beginning immediately and completing the actions within six to 12 months. USPTO should act on R4 in the next six to 12 months, targeting a completion date two to three years from time they receive this report.

Table 5-1. PTAB Risk Mitigation Recommendations

#	Recommendation	Section
R1	Direct the PTAB Chief Judge and the Chief Information Officer (CIO) to appoint and empower a PTAB E2E/PTAB Center product owner who will be involved in every stage of planning, development, and testing of the system.	3.1
R2	Direct the PTAB Chief Judge to determine the viability of implementing a comprehensive data quality and governance program following best practices for data governance.	3.2
R3	Work with Congress to address the Appointments Clause defect identified in the *Arthrex* decision.	3.3
R4	Direct the PTAB Chief Judge and the Chief Information Officer (CIO) to assess the affordability of procuring or developing a more sustainable and scalable predictive case management system to project staffing needs.	3.4

6 Summary of Agency Response

In response to our draft report, USPTO concurred with all of our recommendations and provided several technical comments. We accepted the technical comments, as appropriate, and included them in the final version of this report. We have included USPTO's formal comments in Appendix E.

In concurring with recommendation R1, USPTO indicated they have appointed a Lead APJ as temporary Acting Lead Product Owner (LPO) for PTAB E2E/PTAB Center. In agreeing with recommendations R2 and R4, USPTO indicated the PTAB has begun efforts to create a centralized, authoritative operational data store that will reduce reliance and dependency on spreadsheets and other data sources. In concurring with recommendation R3, USPTO shared that it has had "numerous discussions with Members of Congress regarding the Appointments Clause issue."

We appreciate the courtesies extended by USPTO personnel at all levels during the course of this evaluation.

Appendix A Objective, Scope, and Methodology

We conducted this evaluation in accordance with the *Quality Standards for Inspection and Evaluation*.[44] Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our review objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our review objectives. The Office of the Inspector General (OIG) provided oversight to ensure the work was completed in compliance with the Council of the Inspectors General on Integrity and Efficiency guidance.

A.1 Objective

The objectives of this evaluation were four-fold:

(1) provide an overview of the structure and history of PTAB;

(2) identify and prioritize the risk areas within PTAB, the methods to overcome these risk areas, and the timelines for risk mitigation;

(3) identify any internal and external challenges PTAB faces, and the significance and impacts of these challenges; and

(4) identify any actions PTAB or USPTO should take to mitigate these challenges.

A.2 Scope

The evaluation focused on actions that the PTAB could take to address risk items identified during the course of the evaluation to enable effective, transparent, and consistent operations of PTAB. It includes the PTAB's interfaces with other parts of United States Patent and Trademark Office (USPTO), as well as its interaction with the various external stakeholders.

A.3 Standards

We conducted this evaluation according to MITRE standards for the conduct of evaluations, which are well-aligned and consistent with the *Quality Standards for Inspection and Evaluation*. Appendix C describes this alignment of MITRE and *Blue Book* standards. In addition, we applied best practices in risk analysis and management from MITRE's *Systems Engineering Guide*.[45]

A.4 Methodology

A.4.1 Identify and Validate Risks

Our evaluation started with a review of literature, including legal journals, opinion pieces (e.g., blogs), published articles, previous studies, and legislative histories. As shown in Figure A-1, we engaged experts on intellectual property law familiar with USPTO in general—and the PTAB specifically—to identify risks and validate the risks identified in the literature. We conducted

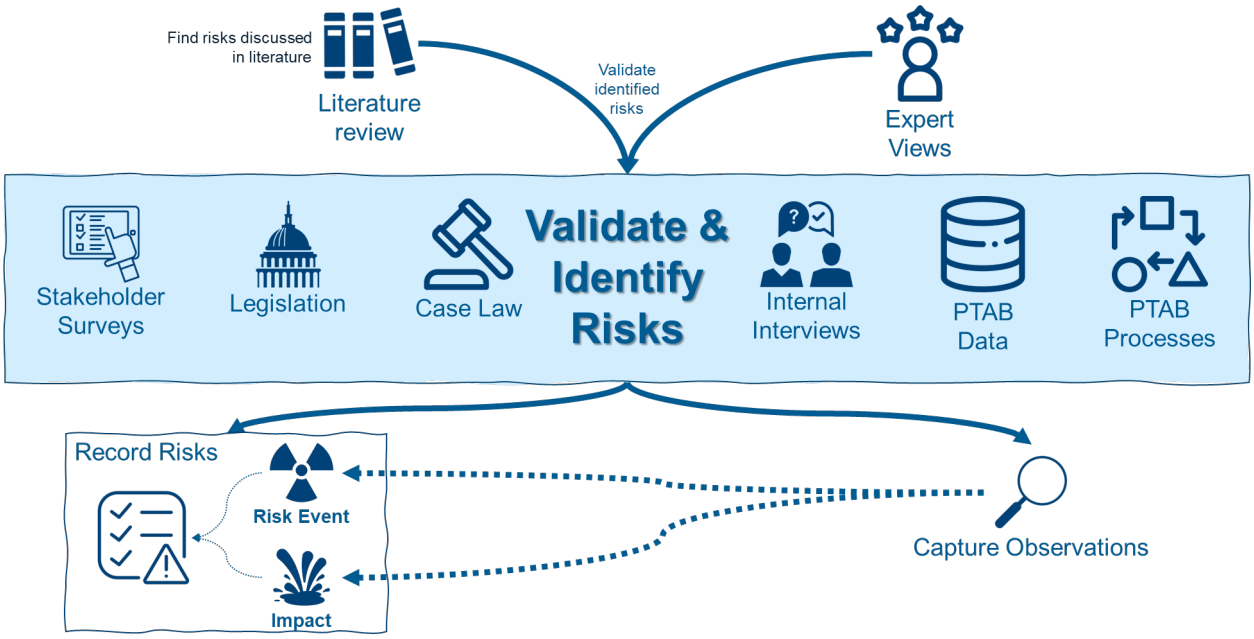
[44] Council of the Inspectors General on Integrity and Efficiency (CIGIE), *Quality Standards for Inspection and Evaluation*.

[45] The MITRE Corporation, *Systems Engineering Guide* (McLean: The MITRE Corporation, 2014), 599-633.

surveys of petitioners and patent owners (in inter partes reviews [IPRs]) and appellants (patent applicants appealing their denied patents to the PTAB), to gather their views of PTAB processes, validate earlier identified risks, and identify any new risks. We consulted applicable legislation and case law for further risk areas, validation, and potential mitigations.

The evaluation team then conducted a series of interviews with PTAB staff, including the chief judge and deputy chief judge, the vice chief judges, most lead judges, and some non-supervisory administrative patent judges (APJs). We also interviewed PTAB administrative staff to gain their perspectives. Considering PTAB data, information technology (IT) systems, and processes to be potential sources of both risks and mitigations, we analyzed data on America Invents Act (AIA) trials, appeals, petitioners, patent owners, and appellants. We reviewed the PTAB's published standard operating procedures and trial practice guide to verify risk areas, identify new risks, and look for areas that could serve to mitigate risks.

Figure A-1. Risk Identification Methodology



Source: MITRE

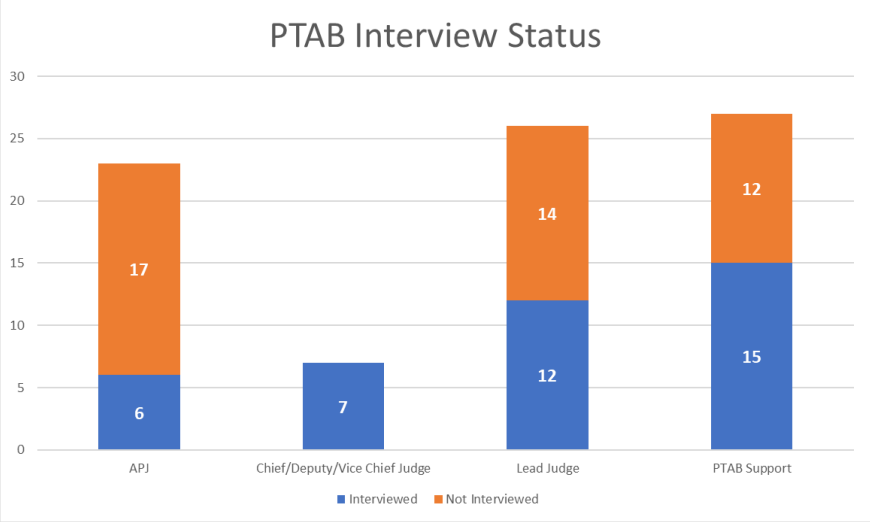
Interview Selection Criteria

USPTO provided us with a roster of 76 staff at the PTAB, comprising the deputy chief judge,[46] the five vice chief judges, 26 lead judges, 23 APJs, and 21 additional non-judge PTAB staff. We first selected key individuals (such as the chief judge, vice chief judges, chief clerk, etc.) as a highest priority for interviewing based on their senior roles. As a second priority, we selected the 26 lead judges as interview candidates. For the remaining 34 individuals, we randomly selected 12 staff and 22 APJs. We were able to interview six APJs, along with 12 lead judges, the

[46] The Chief Judge was not on the list, but we had already interviewed him and maintained a dialogue with him.

chief and deputy chief judges, all five vice chief judges, and 13 PTAB support staff (see Figure A-2).

Figure A-2. PTAB Interview Status



Source: MITRE

Survey Invitation Sampling Method

In response to our data request (reference number DR27), USPTO provided data including email addresses for IPR petitioners and patent owners subject to an IPR from fiscal year (FY)2013 through February 2020, and patent applicants who filed an appeal before the PTAB from January 1, 2015 through January 13, 2020. The emails were primarily those of representatives of the patent applicant/owner (e.g., patent attorneys); therefore many email addresses appeared several times across cases. Table A-1 summarizes the data received.

Since the "# of Unique Email" addresses represent the total "population" available to us for sampling, we based our desired sample size on this value. We anticipated a 50 percent response rate to select the desired sample size (with a target margin of error of 0.05); however, as the table shows, the response rate was much lower. Based on the number of responses, results have a margin of error of approximately 0.10.

Table A-1. Appellant and IPR Petitioner/Patent Owner Population and Sample Sizes Source

Category	# of Records	# of Unique Emails	# Selected for Sample	# of Survey Responses	Response Rate
Appellants	54,255	3,991	702	82	12%
IPR Petitioners	71,525	1,066	574	86	15%
IPR Patent Owners	70,727	1,044	574	180	31%

Source: MITRE analysis

To select the sample, we assigned a random number to each unique email address, sorted that list in descending order by the random number, then selected the top values based on the desired sample size (indicated in Table A-1). To ensure a representative sample, we balanced

the samples across several factors available to us in the data provided. For each population, we adjusted the selection to confirm that the percentage of the sample in each category above was close to the percentage of the population in that category:

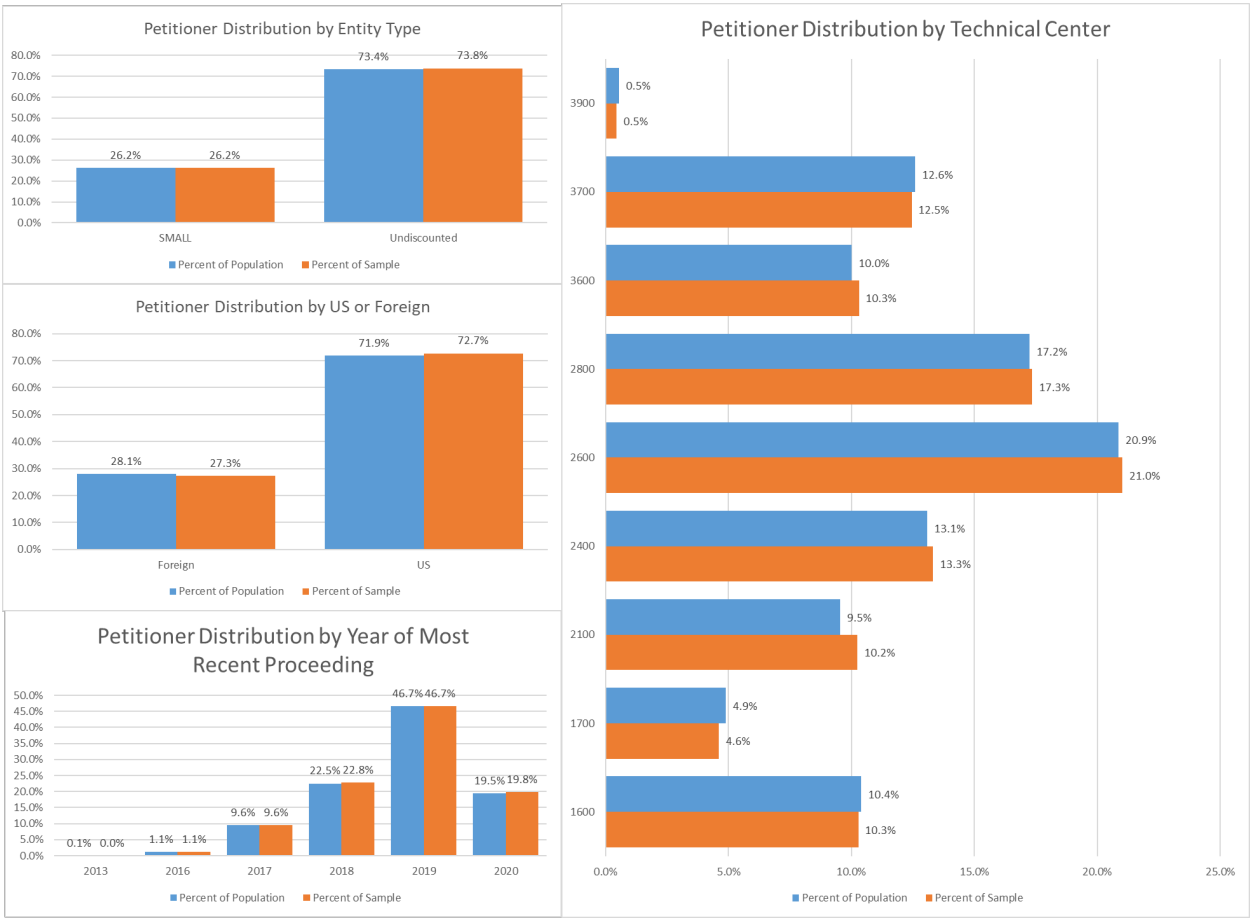
- Entity type (micro, small, undiscounted)
- U.S. or foreign applicant
- Tech Center prosecuting the patent application
- Year of the proceeding or appeal for the email address (the survey asks the respondent to only consider their most recent case)

The sample distributions for each population are depicted below in Figure A-3, Figure A-4, and Figure A-5.

Figure A-3. Patent Owner Survey Sample Distributions

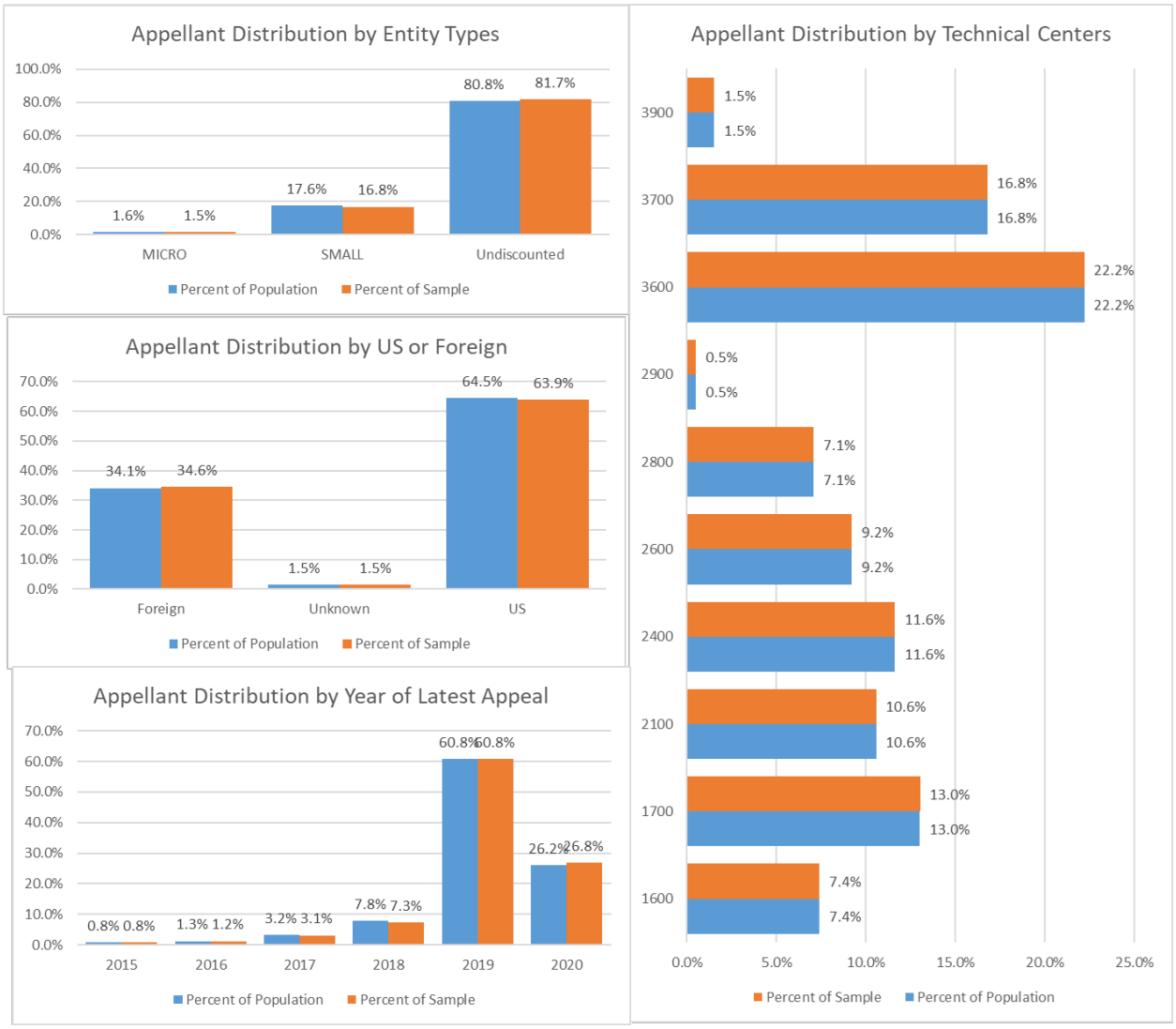
Source: MITRE analysis

Figure A-4. Petitioner Survey Sample Distributions



Source: MITRE analysis

Figure A-5. Appellant Survey Sample Distributions

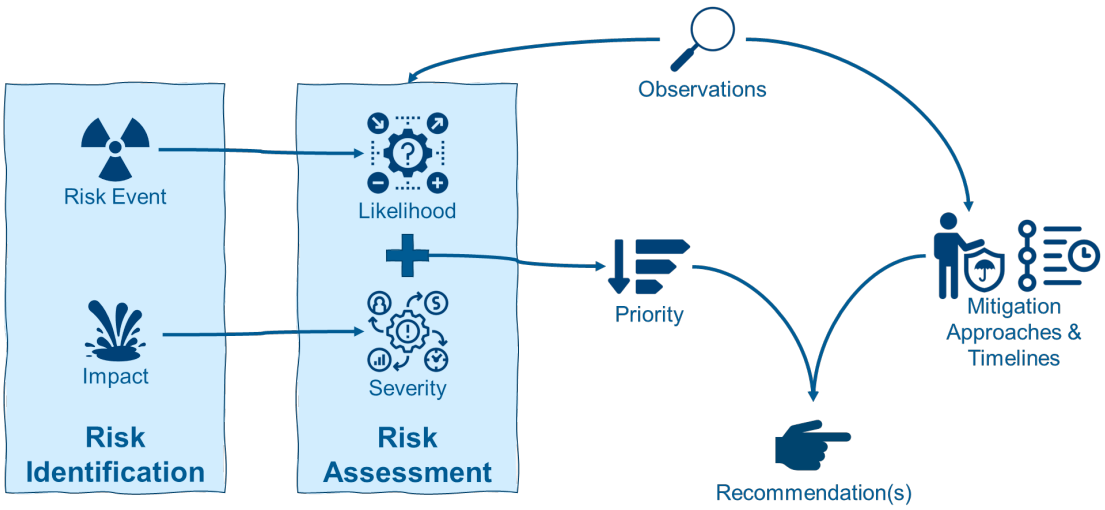


Source: MITRE analysis

A.4.2 Assess Risks

Throughout the process, we captured our findings and formulated a set of risks for further analysis. Using the findings from the previous steps, our team, including its intellectual property experts, analyzed the set of identified risks to assess their relative likelihood of occurrence and the relative severity of the impact of the risk event should it occur.

Figure A-6. Risk Analysis Methodology



Source: MITRE

A.4.3 Potential Risk Mitigation Approaches

Table A-2 describes the potential risk mitigation approaches to apply to each risk.

Table A-2. Risk Mitigation Approaches

Risk Mitigation Approach	Description
Assume/Accept	When the cost to mitigate the risk exceeds the benefit, it may be best to simply accept the risk and its impact.
Avoid	Take action to decrease the likelihood of the risk event occurring.
Control	Take action to decrease the severity of the impact of the risk should it occur.
Transfer	Reassign (or share) accountability, responsibility, or authority for a risk area.
Watch/Monitor	Periodically revisit the basic assumptions and premises of the risk. Scan the environment to see whether the situation has changed in a way that affects the nature, likelihood, or severity of the risk.

Source: MITRE Systems Engineering Guide

A.4.4 Risk Timeline

We applied three broad time horizons for each recommendation to identify the period of time in which the USPTO would implement each recommendation.

- **Near-term**: begin implementation immediately; target completion within 6-12 months.
- **Mid-term**: begin implementation in 6-12 months; target completion in 2-3 years.
- **Long-term**: begin implementation after 6-12 months; ongoing implementation could take years.

Appendix B History and Structure of the PTAB

OIG tasked us to describe the history, structure, and work of the PTAB, and present some of the criticism and legal challenges it has addressed in the recent past.

B.1 History of the PTAB

The administrative agency now known as USPTO has incorporated some form of an internal adjudicative tribunal since the 19th century. Initially, the Patent Act of 1836 called for the *ad hoc* formation of "a board of examiners, to be composed of three disinterested persons," in the event applicants disagreed with an examiner's rejection of their patent applications.[47] The Patent Act of 1861 established the first permanent appellate tribunal within USPTO—the Board of Examiners-in-Chief with three members.[48]

At the time of the enactment of the Leahy-Smith America Invents Act (AIA) in 2011, these earlier entities evolved into a Board of Patent Appeals and Interferences (BPAI) composed of around 80 administrative patent judges (APJs). APJs are appointed by the Secretary of Commerce in consultation with the Director of USPTO under 35 United States Code (U.S.C.) § 6(a) and exercise authority as so delegated.[49] In addition to the usual function of hearing appeals from patent applicants, the BPAI also resolved interference proceedings. Interference proceedings ordinarily determine which of two or more competing applications claiming the same invention should be awarded a patent by establishing which applicant was the first to invent the claimed subject matter.[50]

In keeping with the provisions of the AIA, the PTAB came into existence on September 16, 2012. The PTAB succeeded the BPAI and inherited its existing docket. Congress also tasked the PTAB with the additional responsibilities of administering AIA trial proceedings; IPRs are the most popular of these proceedings. Since its inception, the PTAB has received over 10,500 IPR petitions (through April 2020).

A number of developments impacted the PTAB over its relatively brief history. Some of these developments originated within USPTO as the agency became more experienced with its new responsibilities and responded to both its workload and practical experience. The PTAB has also frequently developed and refined its procedural rules over the years relating to a number of topics. This rulemaking included the assignment of APJs to panels,[51] the designation of precedential and informative PTAB decisions,[52] and updates to the PTAB's Trial Practice Guide.[53]

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[47] Pub. L. No. 24-237, § 7, 5 Stat. 117 (1836).

[48] Public Law 36-42, 12 Stat. 246, § 2 (1861).

[49] 35 U.S.C. § 6.

[50] 35 U.S.C. § 135.

[51] USPTO, "PTAB SOP 1-Assignment of Judges to Panels," 2018, https://www.uspto.gov/sites/default/files/documents/SOP 1 R15 FINAL.pdf.

[52] USPTO, "PTAB SOP 2-Precedential Opinion Panel to Decide Issues of Exceptional Importance," 2018, https://www.uspto.gov/sites/default/files/documents/SOP2 R10 FINAL.pdf.

[53] USPTO, "PTAB Trial Practice Guide Update," 2019, https://www.uspto.gov/sites/default/files/documents/trial-practice-guide-update3.pdf.

Most notably, the PTAB grew substantially over the past decade. According to USPTO, the PTAB almost tripled in size by 2015.[54]

B.2 Structure of the PTAB

The PTAB consists of four statutorily identified members—the Director and Deputy Director of USPTO, along with the commissioner for patents and commissioner for trademarks—and an unspecified number of APJs.[55] The Patent Act requires APJs to be "persons of competent legal knowledge and scientific ability."[56] In practice, each APJ is a lawyer with a technical background and previous experience with the patent system.[57]

The PTAB comprises approximately 264 APJs and 125 Board operations staff. About three-quarters of the APJs are located in or near USPTO's headquarters in Alexandria, Va. The remaining APJs are either full-time teleworkers or based in one of USPTO's four satellite offices in Dallas, Texas; Detroit, Mich.; Denver, Colo.; and Silicon Valley, Calif.

The Office of the Chief Judge, which includes both the chief judge and deputy chief judge, serves as the senior executive management for the PTAB. The operations of the PTAB are further organized into five divisions: the Board Operations Division consisting of support staff, led by a board executive, and four divisions of judges and patent attorneys, each led by a vice chief judge. The divisions of judges and patent attorneys are each separated into six sections, which are each managed by a lead administrative patent judge. Some judges may work exclusively on appeals, while other judges work on both trials and appeals.

B.3 The Work of the PTAB

The majority of PTAB cases consists of appeals filed by patent applicants:[58] after an examiner issues a second or final rejection of a patent application, the applicant may appeal that rejection to the PTAB. Ordinarily three APJs will hear the appeal. Applicants file written briefs explaining why the examiner erred in declining to grant the patent. Applicants also may request a hearing in order to present oral arguments to the PTAB. The PTAB will then issue a decision, affirming, affirming-in-part, or reversing the examiner's decision. While the PTAB receives as many as 11,776 appeals in a year, that number has decreased since 2017 (7,025 appeals received in FY2019). The PTAB has historically had a backlog of appeals cases pending. When the PTAB was formed in 2012, the appeals backlog was at 26,570. The PTAB resolved a steady

[54] USPTO, "Organizational Structure and Administration of the Patent Trial and Appeal Board," 2015, https://www.uspto.gov/sites/default/files/documents/Organizational Structure of the Board May 12 2015.pdf.

[55] 35 U.S.C. § 6(a).

[56] 35 U.S.C. § 6(a).

[57] Michael Goodman, "What's So Special About Patent Law?," *Fordham Intellectual Property, Media and Entertainment Law Journal* 26, no. Summer 2016 (2016): 1–37, https://ir.lawnet.fordham.edu/cgi/viewcontent.cgi?article=1632&context=iplj; Christopher J. Walker and Melissa F. Wasserman, "The New World of Agency Adjudication," *California Law Review* 107, no. 1 (2019): 141–98, https://doi.org/10.15779/Z38Q23R09S; David P Ruschke and Christopher M Kaiser, "Introduction to the Patent Trial and Appeal Board," *Landslide* 11, no. 2 (2018): 1–6, https://www.americanbar.org/groups/intellectual_property_law/publications/landslide/2018-19/november-december/introduction-patent-trial-appeal-board/.

[58] PTAB appeals also include a small number from ex parte reexamination requests, which can be initially filed by any party, although only the patent owner may appeal to the PTAB from an adverse decision.

backlog of pending appeals at an average rate of about 2,000 appeals per year since 2012. As of March 31, 2020, the appeals backlog was 7,879.[59] For example, from October 2012 through June 2020, the PTAB received 84,023 appeals, and either decided or dismissed 100,714 appeals. In that same period, the PTAB "affirmed" or "affirmed-in-part" nearly 70 percent of patent examiners' determinations to deny the patent application. Over 30 percent of appeals were either reversed (i.e., returned to the examiner for action) or dismissed (e.g., withdrawn by the appellant or dismissed due to the appellant not responding in a timely manner) (see Figure B-1).[60]

In addition to serving as an appellate body, the PTAB also conducts administrative adversarial proceedings. These proceedings most commonly consist of IPRs and other trials established by the AIA. In an IPR, a member of the public may challenge an issued patent as failing to meet the requirement of novelty and "nonobviousness" based on prior patents or printed publications (but not based on other prior art such as public use of an invention).[61] They do so by filing a petition identifying earlier patents and publications that might not have been considered by the examiner when the challenged patent was originally granted.

Along with IPR proceedings, the PTAB also adjudicates post-grant reviews (PGRs), covered business method reviews (CBMRs), and derivation proceedings. While IPRs are restricted to the patentability requirements of novelty and nonobviousness and only certain forms of prior art,[62] PGR proceedings allow members of the public to raise any patent invalidity argument that would be a defense to infringement, such as whether the patent includes a sufficient technical description of the invention it claims.[63] CBMRs similarly allow a petitioner to challenge a patent pertaining to a financial service on any contestable condition of patentability.[64] Finally, in a derivation proceeding, the PTAB determines whether one party filed a patent application that claims an invention developed in whole or in part by the other party.[65]

[59] USPTO, "Appeal and Interference Statistics Mar 2020," 2020, https://www.uspto.gov/sites/default/files/documents/appeal_and_interference_statistics_march2020.pdf.

[60] USPTO, "Patent Trial & Appeal Board Receipts and Dispositions by Technology Centers: Appeals (September 2016)," 2016, https://www.uspto.gov/sites/default/files/documents/fy2016_sep_e.pdf; USPTO, "Patent Trial & Appeal Board Receipts and Dispositions by Technology Centers: Appeals (September 2017)," 2017, https://www.uspto.gov/sites/default/files/documents/fy2017_sep_e.pdf; USPTO, "Patent Trial & Appeal Board Receipts and Dispositions by Technology Centers: Appeals (September 2018)," 2018, https://www.uspto.gov/sites/default/files/documents/FY18 Appeals Receipts and Dispositions by Tech Center.pdf; USPTO, "Patent Trial & Appeal Board Receipts and Dispositions by Technology Centers: Appeals (September 2019)," 2020, https://www.uspto.gov/sites/default/files/documents/FY19 Appeals Receipts and Dispositions by TC - September.pdf; USPTO, "Patent Trial & Appeal Board Receipts and Dispositions by Technology Centers: Appeals (June 2020)," 2020, https://www.uspto.gov/sites/default/files/documents/FY20 Tech Center Production Report -20200630.pdf; USPTO, "Appeal and Interference Statistics Mar 2020."

[61] 35 U.S.C. § 311.

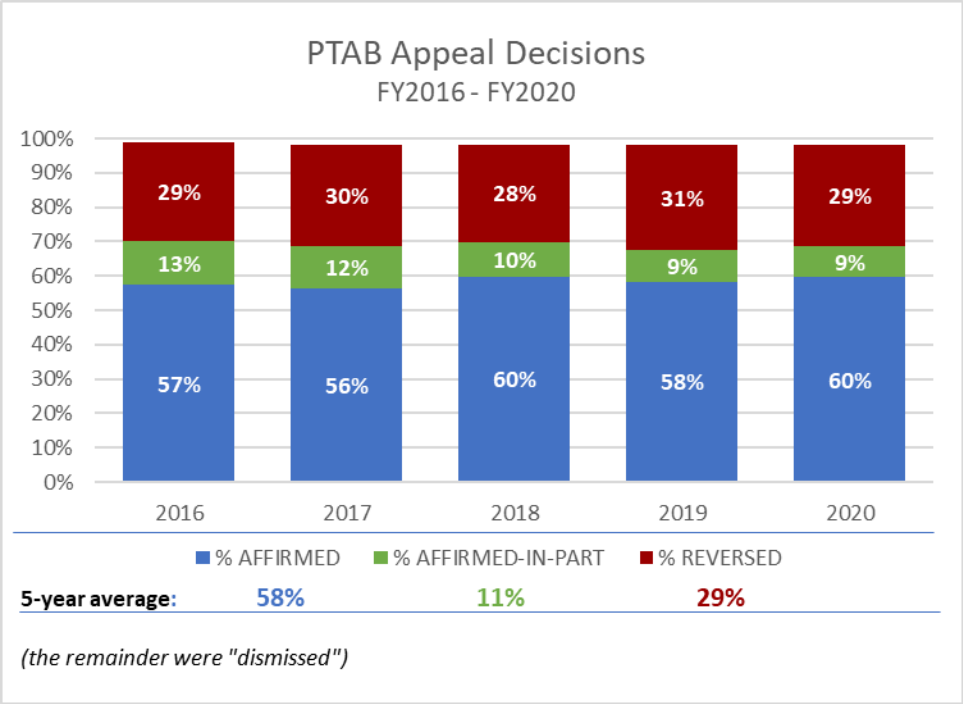
[62] 35 U.S.C. § 311(b).

[63] 35 U.S.C. § 321(b).

[64] Pub. L. No. 112-29, § 18, 125 Stat. 284 (2011). The AIA stipulated that this proceeding ceased operations as of September 16, 2020.

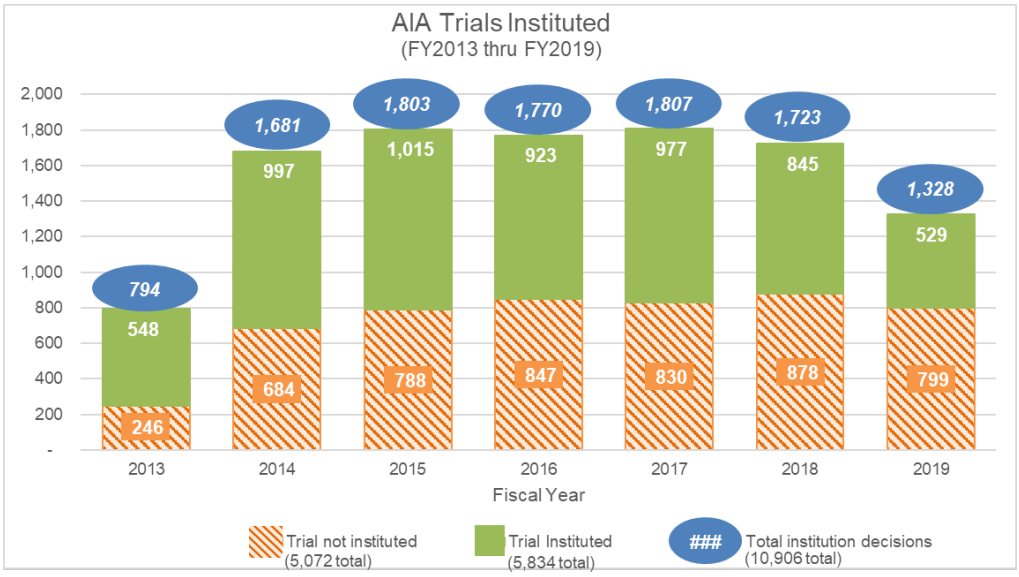
[65] 35 U.S.C. § 135.

Figure B-1. PTAB Appeal Decisions (FY2016-FY2020)



Source: MITRE analysis of USPTO data

Figure B-2. AIA Trial Institution Decisions (FY2013 through March 2020)



Source: MITRE analysis of USPTO data

PTAB trials under any of these statutes generally occur in two phases. First, the PTAB decides whether to institute a trial based upon the petition and any preliminary response the patent owner may file. If the PTAB decides to institute the proceeding, it will then conduct a trial

unless the parties to the proceeding reach a settlement. Based upon the totality of the arguments and evidence—which may include oral argument, the written report and deposition of a technical expert, and the disclosure of information through discovery—the PTAB will issue a final written decision as to whether the challenged claims of the patent should stand. Since 2012, the PTAB received 11,360 AIA petitions, made institution decisions on 9,078 of those petitions, and instituted 5,934 AIA trials.

As with appeals, the PTAB ordinarily sits in panels of three judges when conducting trials. Congress requires that IPRs and PGRs conclude within one year of institution, with the possibility of a single extension of six months.[66] Petitioners and patentees alike may appeal PTAB decisions to the U.S. Court of Appeals for the Federal Circuit.[67] The Supreme Court of the United States has discretionary authority to review rulings from that appellate court.[68]

B.4 Criticism of the PTAB

As mentioned in Section 1, some commentators have suggested PTAB has a bias against patents, claiming that PTAB invalidates on the order of 80 percent of the patents that appear before it.[69] Many of the criticisms were directed towards the PTAB relatively early in its history. However, a review of the statistics concerning the PTAB's operations through the present day reveals a more nuanced view of its invalidation rate.

First, the number of patent claims subject to a validity challenge before the PTAB is relatively small. In particular, out of 2,367,153 patents issued in calendar years 2013-2019, 10,999 (< 0.5 percent) patents had one or more claims challenged in the PTAB. Of the 324,162 total claims in those 10,999 patents, petitioners challenged 158,536 (48 percent) of them. Second, the PTAB instituted trials for 79,073 claims (50 percent of challenged claims) during the 2013-2019 timeframe. Finally, of the 79,073 claims considered in the instituted trials, the PTAB found 38,555 claims (49 percent) unpatentable. Notably, the PTAB found all of a patent's claims unpatentable in fewer than 7 percent (646) of challenged patents from 2013-2019. That figure amounts to fewer than 0.03 percent of all patents USPTO issued in those years.

Many accounts of the PTAB's invalidation rate do not recognize that the PTAB assesses the merits of a patent challenge prior to instituting the requested proceeding. From FY2013 through March 2020, roughly one-third of petitions for IPRs and other PTAB proceedings were not instituted, indicating that the PTAB had sustained the challenged patent. In addition, even if the PTAB invalidated some of the claims of a patent, the remaining unchallenged or sustained claims continue to provide viable intellectual property rights and may be asserted in enforcement litigation or licensing negotiations. These statistics suggest that early criticisms of the PTAB's purportedly high invalidation rate appear to be unfounded.

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[66] 35 U.S.C. § 316(a)(11).

[67] 28 U.S.C. § 1295.

[68] 28 U.S.C. § 1254.

[69] Brian Love and Shawn Ambwani, "Inter Partes Review: An Early Look at the Numbers," *Santa Clara Law Digital Commons*, 2014, http://digitalcommons.law.scu.edu/facpubs%0Ahttp://digitalcommons.law.scu.edu/facpubs/872; Rob Sterne and Gene Quinn, "PTAB Death Squads: Are All Commercially Viable Patents Invalid?," IPWatchdog, 2014, https://www.ipwatchdog.com/2014/03/24/ptab-death-squads-are-all-commercially-viable-patents-invalid/id=48642/ (observing these criticisms of the PTAB and compiling statistics).

B.5 Legal Challenges to PTAB Rulemaking and Structure

Because the PTAB was created less than a decade ago under a new statute, it has had to fulfill its statutory mandate of deciding matters at trial and conducting appeals, as well as promulgate the procedural rules under which it operates. During the PTAB's brief history, the U.S. Supreme Court has heard four cases involving USPTO's legal authority over PTAB procedures. In this section, we summarize those four cases plus one additional important case decided by the Court of Appeals for the Federal Circuit.

B.5.1 Cuozzo Speed Technologies, LLC v. Lee

First, in *Cuozzo Speed Technologies, LLC v. Lee,*[70] the Supreme Court held that § 314(d) of the Patent Act, which states USPTO's decision to institute an IPR "shall be final and nonappealable," bars a judicial challenge to a PTAB institutional decision. Additionally, *Cuozzo* held that § 316(a)(4), which gives USPTO authority to issue "regulations…establishing and governing inter partes review under this chapter," also gives USPTO discretion to determine the standard of patent claim construction governing PTAB trials.[71]

Claim construction—the process of interpreting patent claims—is an essential task when assessing the scope of an intellectual property right. During patent examination, USPTO examiners accord pending claims their "broadest reasonable interpretation" consistent with disclosure of the patent. The agency reasons that because the applicant has the opportunity to amend claims before they issue, affording claims their broadest reasonable interpretation reduces the possibility that the claims, once issued, will be interpreted more broadly than is justified. On the other hand, once USPTO grants a patent, courts interpret issued claims in accordance with their "ordinary and customary meaning" to a person skilled in the relevant area (i.e., "skilled artisan").[72]

USPTO initially decided to conduct IPRs and other AIA trials using the "broadest reasonable interpretation" standard prevailing in patent examination. In *Cuozzo*, the Supreme Court determined this choice was within USPTO's authority, but that USPTO could also exercise its discretion to choose a different standard. Upon further consideration, USPTO concluded, for AIA trials, the PTAB should employ the same standard as the courts in order to encourage consistency of outcomes. As a result, on November 13, 2018, the PTAB shifted to its current "ordinary and customary meaning" standard for interpreting claims.[73] Under this narrower standard, the PTAB is arguably less likely to find patent claims invalid, and PTAB decisions are more likely to preclude re-litigation of similar issues in federal district court.

[70] 136 S.Ct. at 2131, 2144 (2016).

[71] 136 S.Ct. at 2144 (2016).

[72] 415 F.3d 1303 (Fed. Cir. 2005).

[73] USPTO, "Changes to the Claim Construction Standard for Interpreting Claims in Trial Proceedings Before the Patent Trial and Appeal Board, 83 Fed. Reg. 51,340," 2018.

B.5.2 SAS Institute Inc. v. Iancu

In its second case on PTAB procedures, *SAS Institute Inc. v. Iancu*,[74] the Supreme Court of the United States rejected the PTAB's "partial institution" practice, concluding the Patent Act unambiguously required the PTAB, once it had granted an IPR petition, to address each of the patent claims challenged by the petitioner.

In *SAS*, an IPR petitioner challenged all 16 claims of a granted patent. The PTAB determined the petitioner was likely to succeed with respect to at least one claim, a ruling sufficient to commence the IPR. The PTAB instituted a review of only nine of the claims, however, and denied review of the rest. Ultimately, the PTAB ruled that eight of the nine reviewed claims were invalid.

Patents ordinarily include multiple claims—usually 20 or less, but sometimes dozens or even hundreds—and the *SAS* decision requires that if the PTAB institutes a trial, it must issue a final written decision on each claim challenged.[75] Some commentators worried the Supreme Court's ruling, in addition to upending pending cases for which the PTAB had made partial institutions prior to *SAS*, would decrease the PTAB's efficiency going forward.[76]

B.5.3 Thryv, Inc. v. Click-To-Call Technologies, LP

Section 315 of the Patent Act precludes the institution of an IPR more than one year after the petitioner "is served with a complaint" alleging infringement of the patent.[77] In *Thryv, Inc. v. Click-To-Call Technologies, LP*, April 2020,[78] the Supreme Court decided legal authority for interpreting the one-year time bar under § 315 rests with USPTO.

The IPR petition in *Thryv* was filed more than one year after the petitioner was served with a patent infringement complaint, but because that complaint was dismissed without prejudice, the PTAB determined the one-year time bar did not apply. The patent owner argued it should be able to appeal this determination to the Court of Appeals for the Federal Circuit, but the Supreme Court held review was precluded by § 314(d)'s statement that institution decisions are "final and nonappealable."

B.5.4 Oil States Energy Services, LLC v. Greene's Energy Group, LLC

In *Oil States Energy Services, LLC v. Greene's Energy Group, LLC*[79] the Supreme Court considered a challenge asserting that IPR proceedings violate the Constitution of the United States. In this case, the Supreme Court ruled that because the decision to grant a patent involves *public* rights, IPR proceedings violate neither Article III of the Constitution, which generally requires the federal courts adjudicate *private* rights, nor the Seventh Amendment of the Constitution, which preserves the right to a trial by jury.

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[74] 138 S. Ct. at 1348 (2018).

[75] 138 S. Ct. 1348 (2018).

[76] Saurabh Vishnubhakat, "Renewed Efficiency in Administrative Patent Revocation," *Iowa Law Review* 104, no. 2643 (2019): 2643–77, https://scholarship.law.tamu.edu/facscholar/1329.

[77] 35 U.S.C. § 315(b).

[78] 140 S. Ct. 1367 (2020).

[79] 138 S. Ct. at 1365 (2018).

B.5.5 Arthrex, Inc. v. Smith & Nephew, Inc.

In *Arthrex, Inc. v. Smith & Nephew, Inc.*[80] the U.S. Court of Appeals for the Federal Circuit agreed PTAB APJs qualify as "principal officers who, under the Constitution's Appointments Clause,[81] must be nominated by the President with the advice and consent of the Senate." None of the PTAB's APJs have been appointed in this fashion. Rather, under current practice, the Secretary of Commerce appoints APJs in consultation with the Director of USPTO.

To avoid nullifying the entire IPR system, the Federal Circuit sought to apply a remedy sufficient to disqualify APJs as principal officers. The Federal Circuit did so by severing the Patent Act's federal employee protections, so they do not apply to APJs. Under the *Arthrex* ruling, APJs now serve at the pleasure of USPTO Director and may be terminated at-will. In the view of the Federal Circuit, its ruling sidesteps the Appointments Clause issue and thus allows the IPR system to comply with the Constitution. According to the Federal Circuit, "Congress intended for the [IPR] system to function to review issued patents and that it would have preferred a Board whose members are removable at-will rather than no Board at all."[82] The Federal Circuit declined to rehear *Arthrex* as a full court in March 2020.[83]

However, in June 2020, the U.S. Government, Arthrex, and Smith and Nephew each asked the U.S. Supreme Court to review the Federal Circuit's *Arthrex* decision by filing a petition for a writ of certiorari.[84] On October 13, 2020, the Supreme Court granted certiorari to *U.S. v. Arthrex, Inc., et al.,* consolidating with two related cases.[85] The Court will limit its consideration to two questions:[86]

1. *Whether, for purposes of the Appointments Clause, U.S. Const. Art. II, § 2, Cl. 2, administrative patent judges of the U.S. Patent and Trademark Office are principal officers who must be appointed by the President with the Senate's advice and consent, or "inferior Officers" whose appointment Congress has permissibly vested in a department head.*
2. *Whether, if administrative patent judges are principal officers, the court of appeals properly cured any Appointments Clause defect in the current statutory scheme prospectively by severing the application of 5 U.S.C. 7513(a) to those judges.*

[80] 941 F.3d 1320 (Fed. Cir. 2019).

[81] U.S. Constitution, art. 2, sec. 2, cl. 2.

[82] 941 F.3d at 1337–1338 (Fed. Cir. 2019).

[83] 953 F.3d at 760 (Fed. Cir. 2020).

[84] "Parties who are not satisfied with the decision of a lower court must petition the U.S. Supreme Court to hear their case. The primary means to petition the court for review is to ask it to grant a writ of certiorari," U.S. Courts, "Supreme Court Procedures," 2020, https://www.uscourts.gov/about-federal-courts/educational-resources/about-educational-outreach/activity-resources/supreme-1. U.S. Government, *U.S. v. Arthrex*, Petition for a Writ of Certiorari.

[85] *Arthrex, Inc. and Smith & Nephew, Inc.* (https://www.supremecourt.gov/docket/docketfiles/html/public/19-1458.html)

[86] https://www.supremecourt.gov/docket/docketfiles/html/qp/19-01458qp.pdf

Appendix C Alignment of MITRE and Blue Book Standards

We conducted this evaluation work according to MITRE standards for the conduct of evaluations and in alignment with the Council of the Inspectors General on Integrity and Efficiency, *Quality Standards for Inspection and Evaluation* (January 2012, *Blue Book*). Table C-1 describes the alignment between *Blue Book* standards and MITRE standards.

Table C-1. Alignment of MITRE and Blue Book Standards

Blue Book Competencies	MITRE Independent Assessment (Evaluation) Standard
Competency The staff assigned to perform inspection work should collectively possess adequate professional competency for the tasks required.	MITRE carefully selects staff who have the knowledge, skills, abilities, and expertise necessary for the task, including assessment (evaluation) methodologies; technical domain; and the ability to quickly develop a working familiarity with the organizations, programs, activities, and/or functions identified for assessment.
Independence In all matters relating to inspection work, the inspection organization and each individual inspector should be free both in fact and appearance from personal, external, and organizational impairments to independence.	Working in the public interest requires MITRE to render impartial services that are free of conflict. MITRE maintains strict adherence to the principles of independence—personal, external, and organizational—so that observations, findings, conclusions, and recommendations will be viewed as valid and impartial by knowledgeable third parties.
Professional Judgment Due professional judgment should be used in planning and performing inspections and in reporting the results.	MITRE is committed to exercise reasonable care and diligence and to adhere in all matters to the principles of serving in the public interest. MITRE highly esteems its reputation for maintaining the highest degree of integrity, objectivity, and independence in applying professional judgment to all aspects of its work.
Quality Control Each Office of the Inspector General organization that conducts inspections should have appropriate internal quality controls for that work.	MITRE maintains disciplined internal processes and procedures for ensuring the work performed and the products delivered meet an exceptional quality standard.
Planning Inspections are to be adequately planned.	MITRE follows a disciplined and structured methodology for conducting assessments, beginning with comprehensive planning and preparation that meets well-understood expectations and lays the groundwork for a timely, impactful, and relevant assessment result.
Data Collection and Analysis The collection of information and data will be focused on the organization, program, activity, or function being inspected, consistent with the inspection objectives, and will be sufficient to provide a reasonable basis for reaching conclusions.	MITRE defines key focus areas and points of contention; focuses on answering assessment questions. MITRE considers resources, time, and data available; the need for different expertise; and time to integrate findings and recommendations.

Blue Book Competencies	MITRE Independent Assessment (Evaluation) Standard
Evidence Evidence supporting inspection findings, conclusions, and recommendations should be sufficient, competent, and relevant and should lead a reasonable person to sustain the findings, conclusions, and recommendations.	MITRE considers data-supported, evidence-based analysis as one of the hallmarks of its work. MITRE's disciplined quality standards are designed to ensure sufficient evidence is provided such that any reasonably informed person will concur in the findings, conclusions and recommendations provided.
Records Maintenance All relevant documentation generated, obtained, and used in supporting inspection findings, conclusions, and recommendations should be retained for an appropriate period.	MITRE carefully catalogs and maintains all relevant documentation generated during the conduct of the assessment that is used to support inspection findings, conclusions, and recommendations. All data is carefully controlled and stored in accordance with the sponsor's and MITRE's security policies and sponsoring agreements. There shall be no sharing or release of sponsor sensitive information without express permission by the government, need to know, and appropriate clearance.
Timeliness Inspections should strive to deliver significant information to appropriate management officials and other customers in a timely manner.	MITRE scopes the assessment with consideration of the resources, data availability, time to integrate findings, and recommendations, and conducts comprehensive internal and sponsor reviews and delivers an impactful and relevant assessment result.
Fraud, Other Illegal Acts, and Abuse In conducting inspection work, inspectors should be alert to possible fraud, other illegal acts, and abuse and should appropriately follow up on any indicators of such activity and promptly present associated information to their supervisors for review and possible referral to the appropriate investigative office.	MITRE is committed to performing all work activities to the highest achievable standards and will promptly report any findings that may indicate the possibility of fraud or other illegal acts and abuse.
Reporting Inspection reporting shall present factual data accurately, fairly, and objectively and present findings, conclusions, and recommendations in a persuasive manner.	MITRE will assure all reported findings are represented factually and fairly and are verifiable by multiple unbiased sources.
Follow-Up Appropriate follow-up will be performed to ensure that any inspection recommendations made to Department/Agency officials are adequately considered and appropriately addressed.	MITRE considers follow-up an important phase in the lifecycle of an assessment and recommends the sponsoring agent solicit the services of MITRE or any reputable independent organization to conduct follow-on activities that increase the likelihood of successful implementation of assessment recommendations.
Performance Measurement Mechanisms should be in place to measure the effectiveness of inspection work.	MITRE considers this competency the responsibility of the sponsoring organization and encourages the same.
Working Relationship and Communication Each inspection organization should seek to facilitate positive working relationships and effective communication with those entities being inspected and other interested parties.	MITRE considers the establishment of trust and transparency a critically important first step in the conduct of an assessment. Once these are established, positive working relationships and effective communications with the entity being assessed can thrive.

Appendix D Abbreviations and Acronyms

Term	Definition
AIA	America Invents Act
APJ	Administrative Patent Judge
BPAI	Board of Patent Appeals and Interferences
CBMR	Covered Business Method Review
CIO	Chief Information Officer
CRS	Congressional Research Service
DAPI	Data Analysis & Process Improvement
DU	Decisional Unit
E2E	End-to-End
FY	Fiscal Year
GAO	U.S. Government Accountability Office
IPR	Inter Partes Review
IT	Information Technology
ITSSB	IT Systems & Services Branch
JTC	Joint Technology Committee
NIST	National Institute of Standards and Technology
OCIO	Office of the Chief Information Officer
OIG	Office of the Inspector General
OMM	Operations Management Model
PE2E	Patents End-to-End
PGR	Post-grant Review
PTAB	Patent Trial and Appeals Board
SAFe	Scaled Agile Framework
SOP	Standard Operating Procedure
U.S.C.	United States Code
USM	Unified Staffing Model
USPTO	United States Patent and Trademark Office

Appendix E Agency Response

UNITED STATES PATENT AND TRADEMARK OFFICE

UNDER SECRETARY OF COMMERCE FOR INTELLECTUAL PROPERTY AND
DIRECTOR OF THE UNITED STATES PATENT AND TRADEMARK OFFICE

MEMORANDUM FOR: Frederick J. Meny Jr.
Assistant Inspector General for Audit and Evaluation

FROM: Andrew Hirshfeld Users, Hirshfeld, Andrew Digitally signed by Users, Hirshfeld, Andrew Date: 2021.04.06 13:42:30-04'00'
Performing the Functions and Duties of the Under Secretary of Commerce for Intellectual Property and
Director of the United States Patent and Trademark Office

SUBJECT: Response to Draft Report, "The PTAB Faces Operational, Information Technology, and Data Risks"

Executive Summary

We recognize the effort you, your staff, and the MITRE Corporation made in reviewing the United States Patent and Trademark Office's (USPTO) Patent Trial and Appeal Board (PTAB) operations with respect to the PTAB End-to-End (E2E) information technology (IT) system (also referred to as the PTAB Center), data management, and staffing projection capabilities, as well as the impact of the U.S. Court of Appeals for the Federal Circuit's *Arthrex* decision on retention and recruitment.

The USPTO continuously strives to ensure that the PTAB E2E/PTAB Center meets the needs of all users, the PTAB processes for data management follow best practices for data stewardship and data governance, and the PTAB staffing projections have been accurate and reliable. We, of course, are aware that the Federal Circuit's *Arthrex* decision has created significant uncertainty.

We have carefully considered and concur with the four recommendations made in the draft report. Our response to each recommendation is discussed in detail below, and the USPTO has provided technical comments under a separate cover.

Response to Recommendations

Inspector General (IG) recommendation that the Under Secretary of Commerce and Director of the U.S. Patent and Trademark Office take the following action (1): *Direct the PTAB Chief Judge and the Chief Information Officer (CIO) to appoint and empower a PTAB E2E/PTAB Center product owner who will be involved in every stage of planning, development, and testing of the system.*

P.O. Box 1450, Alexandria, Virginia 22313-1450 – www.USPTO.gov

USPTO response:
The USPTO concurs with this recommendation. A temporary Acting Lead Product Owner (LPO) has been in place for PTAB E2E/PTAB Center for over a year. That role is currently being held by a Lead Administrative Patent Judge (APJ) while the PTAB seeks to fill the permanent LPO position. In the past year, the PTAB has also increased end user involvement in IT planning and development. For example, the PTAB created a newly formed user group overseen by the PTAB Executive Team. The user group is led by a Lead APJ and is composed of APJs, paralegals, and other key support staff. The user group helps set and communicate user priorities and expectations to the IT Systems and Services Branch (ITSSB) of the CIO and provides recommendations to the PTAB Executive Team on IT direction. The LPO works with the Lead APJ of the user group and the PTAB Executive Team to define the vision, strategy, and roadmap for PTAB E2E/PTAB Center that align with end user needs and business value. The LPO also works with the CIO's software development teams and the ITSSB throughout the planning, development, and testing of new features for PTAB E2E/PTAB Center. The PTAB will continue to work with the CIO to improve its IT operations and ensure the PTAB E2E/PTAB Center product delivers the required business value and meets the needs of all users.

IG recommendation that the Under Secretary of Commerce and Director of the U.S. Patent and Trademark Office take the following action (2): *Direct the PTAB Chief Judge to determine the viability of implementing a comprehensive data quality and governance program following best practices for data governance.*

USPTO response:
The USPTO concurs with this recommendation. The PTAB has begun efforts to create a centralized, authoritative operational data store that will reduce reliance and dependency on spreadsheets and other data sources. The centralized data store will allow the PTAB to better manage its operations and address fast-paced policy, legal, and operational changes. The PTAB will continue to investigate additional areas of opportunity to improve data stewardship and data governance practices.

IG recommendation that the Under Secretary of Commerce and Director of the U.S. Patent and Trademark Office take the following action (3): *Work with Congress to address the Appointments Clause defect identified in the Arthrex decision.*

USPTO response:
The USPTO concurs with this recommendation. Since the Federal Circuit's *Arthrex* decision, the USPTO has had numerous discussions with Members of Congress regarding the Appointments Clause issue.

IG recommendation that the Under Secretary of Commerce and Director of the U.S. Patent and Trademark Office take the following action (4): *Direct the PTAB Chief Judge and the CIO to assess the affordability of procuring or developing a more sustainable and scalable predictive case management system to project staffing needs.*

USPTO response:
The USPTO concurs with this recommendation. The Office of the CIO and the PTAB will assess options for improving the PTAB's ability to project staffing needs. The PTAB's current Operations Management Model uses management plans and numerous data sources in a modular framework that can integrate more data and improved forecasting methods as they become available. The Office of the CIO and the PTAB also plan to leverage the aforementioned efforts to improve PTAB E2E/PTAB Center and the PTAB's data governance to further assist in staffing projections in a sustainable and scalable manner.

Conclusion

In closing, we thank the Assistant Inspector General for Audit and Evaluation for providing us with this draft report. The USPTO always looks to improve its processes and drive the best outcomes on behalf of its stakeholders, and this information will help us achieve those goals. The USPTO and, in particular, the PTAB have already made some improvements to implement the report's recommendations, and we are confident in our ability to satisfy these recommendations in a timely manner. We look forward to working with your office in the future as we continue our efforts.

If additional information is needed, please contact Scott Boalick, Chief Judge for the PTAB, by phone at 571-272-8138 or by email at Scott.Boalick@uspto.gov.