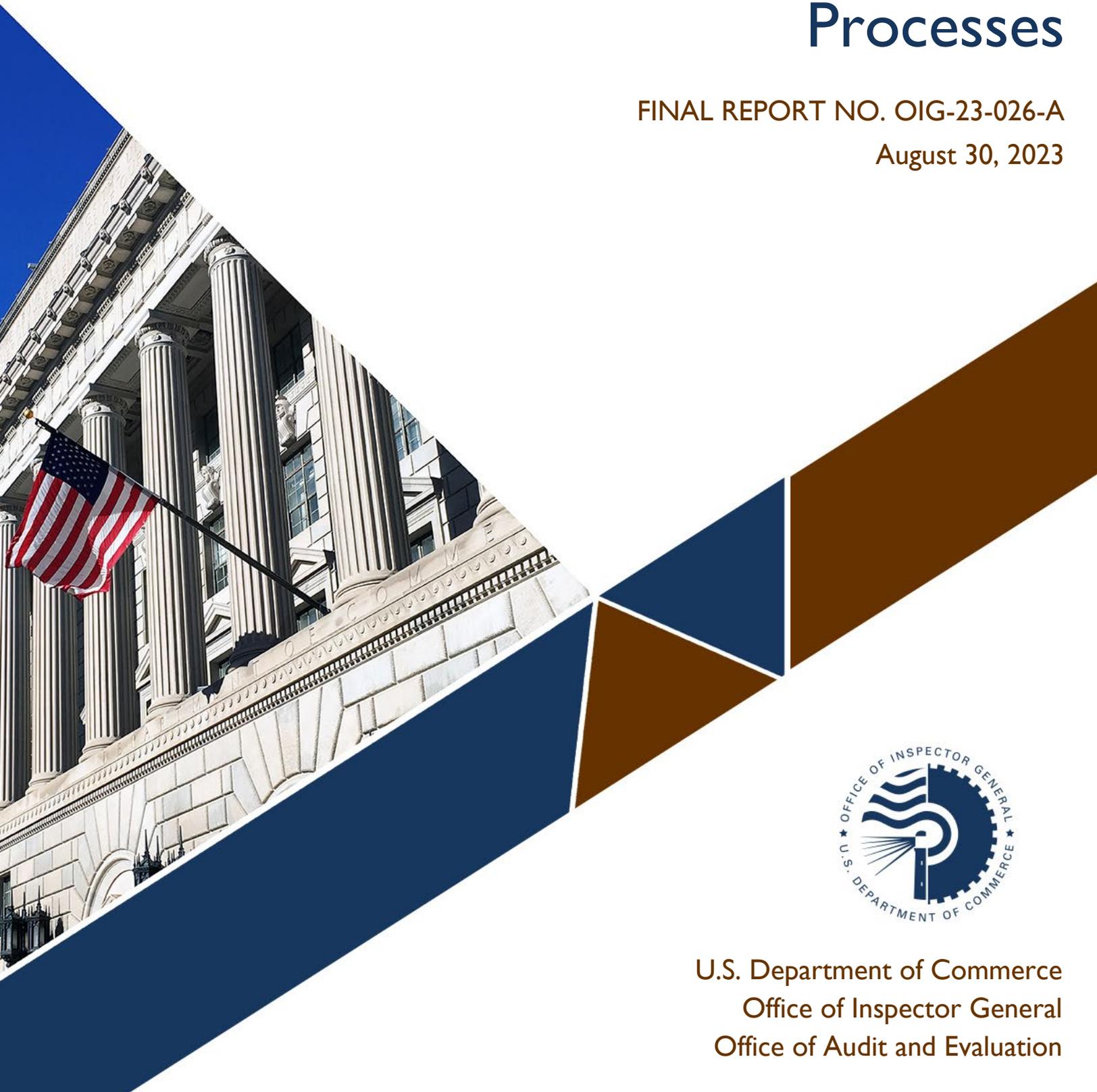


USPTO Needs to Improve Oversight and Implementation of Patent Classification and Routing Processes

FINAL REPORT NO. OIG-23-026-A

August 30, 2023



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



August 30, 2023

MEMORANDUM FOR: Kathi Vidal
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: *USPTO Needs to Improve Oversight and Implementation of Patent
Classification and Routing Processes*
Final Report No. OIG-23-026-A

Attached for your review is our final report on the audit of the United States Patent and Trademark Office's (USPTO's) patent classification and routing processes. Our objective was to determine whether USPTO's patent application classification and routing processes are effective. Specifically, we determined whether (1) USPTO adequately ensured that classification contractors were providing quality patent classification and reclassification services; (2) USPTO examiners properly challenged C* (or claim indicator) classifications and whether USPTO properly resolved challenges; and (3) USPTO effectively designed and implemented Cooperative Patent Classification system-based routing.

Overall, we found that USPTO's patent classification and routing processes were not effective. Specifically, we found that:

- I. USPTO did not ensure effective contract oversight for classification services.
- II. USPTO lacked adequate controls to ensure that classification challenges were efficiently and effectively submitted and adjudicated.
- III. USPTO did not effectively design and implement Cooperative Patent Classification system-based routing.

On August 8, 2023, we received USPTO's response, including technical comments, to the draft report's findings and recommendations. We accepted USPTO's technical comment and updated the final report accordingly. In response to our draft report, USPTO concurred with all the recommendations and described actions it has taken, or will take, to address them. USPTO's formal response is included within the final report in appendix C.

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. The final report will be posted on the Office of Inspector General's website pursuant to sections 4 and 8M of the Inspector General Act of 1978, as amended (recodified at 5 U.S.C. §§ 404 & 420).

We appreciate the cooperation and courtesies extended to us by your staff during this audit. If you have any questions or concerns about this report, please contact me at (202) 793-2938 or Amni Samson, Director for Audit and Evaluation, at (202) 793-3324.

Attachment

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Report in Brief

August 30, 2023

Background

When the United States Patent and Trademark Office (USPTO) receives a patent application, it classifies the application before the examination process begins. Historically, USPTO classified documents using the United States Patent Classification system (USPC). In October 2020, USPTO shifted to Cooperative Patent Classification system (CPC) to route patent applications to examiners. The new system was designed to automate routing by using an algorithm to match the CPC symbols on an application to an examiner's portfolio of previously examined applications, while considering other factors. Only the symbols that represent at least one concept that is claimed in an application form the basis for routing and are given a claim indicator (known as a "C-star" or C*).

USPTO also created a new challenge process. Supervisory patent examiners (SPEs) decide whether to approve or deny a challenge and may refer the challenge to search and classification examiners (SCEs). USPTO received feedback from some examiners that the new routing system was assigning them applications that they were not qualified to examine. As a result, USPTO paused its transition to CPC-based routing in August 2022.

USPTO relies on contractors for initial classification and reclassification services.

Why We Did This Review

Our objective was to determine whether USPTO's patent application classification and routing processes were effective. We determined whether (1) USPTO adequately ensured that classification contractors were providing quality patent classification and reclassification services; (2) USPTO examiners properly challenged C* classifications and whether USPTO properly resolved challenges; and (3) USPTO effectively designed and implemented CPC-based routing.

UNITED STATES PATENT AND TRADEMARK OFFICE

USPTO Needs to Improve Oversight and Implementation of Patent Classification and Routing Processes

OIG-23-026-A

WHAT WE FOUND

We found that USPTO's patent classification and routing processes were not effective. Specifically, we found that:

- I. USPTO did not ensure effective contract oversight for classification services.
- II. USPTO lacked adequate controls to ensure that classification challenges were efficiently and effectively submitted and adjudicated.
- III. USPTO did not effectively design and implement CPC-based routing.

WHAT WE RECOMMEND

We recommend that the Under Secretary of Commerce for Intellectual Property and Director of the United States Patent and Trademark Office direct the Directors of the Office of Procurement and the Office of International Patent Cooperation to:

1. Develop a plan to address the continuing lack of compliance with initial classification error rate requirements. Specifically, this plan should include (a) methods to optimize oversight resources to ensure effective communication and collaboration between USPTO and vendors regarding technical or quality issues and (b) contingencies for the contract structure for future option periods, including consideration of the optimal number of vendors, the effectiveness of the use of volume adjustments to drive quality improvements or lower costs, the inclusion of quality price incentives or disincentives for all vendors, and thresholds for enforcement of price reductions or other considerations for nonconformance.
2. Document the official roles and responsibilities for all members of the contract team and all offices tasked with contractual planning and oversight duties, and develop procedures to ensure that task order managers are nominated for all orders.
3. Strengthen controls to ensure Contractor Performance Assessment Reporting System ratings for the classification contracts are accurate and completed in accordance with USPTO policy.
4. Improve oversight of reclassification projects by formalizing: (a) the 2023 updates to the reclassification technical evaluation and award process and (b) the termination for default process for reclassification projects.

We recommend that the Under Secretary of Commerce for Intellectual Property and Director of the United States Patent and Trademark Office direct the Commissioner for Patents to:

5. Develop controls, such as edit checks in the Classification Allocation Tool, to ensure that examiners and reviewers enter comments for classification challenges.
6. Strengthen controls on the classification challenge process to ensure examiners, SPEs, and SCEs review and address the challenge history when submitting and adjudicating any challenge after the first challenge for an application.
7. Create a routing implementation plan that articulates roles and responsibilities (including decision-making authority and accountability), goals and measures, milestones, associated timelines, employee engagement, and transparent reporting of progress.

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Cover: Herbert C. Hoover Building main entrance at 14th Street Northwest in Washington, DC. Completed in 1932, the building is named after the former Secretary of Commerce and 31st President of the United States.

Introduction

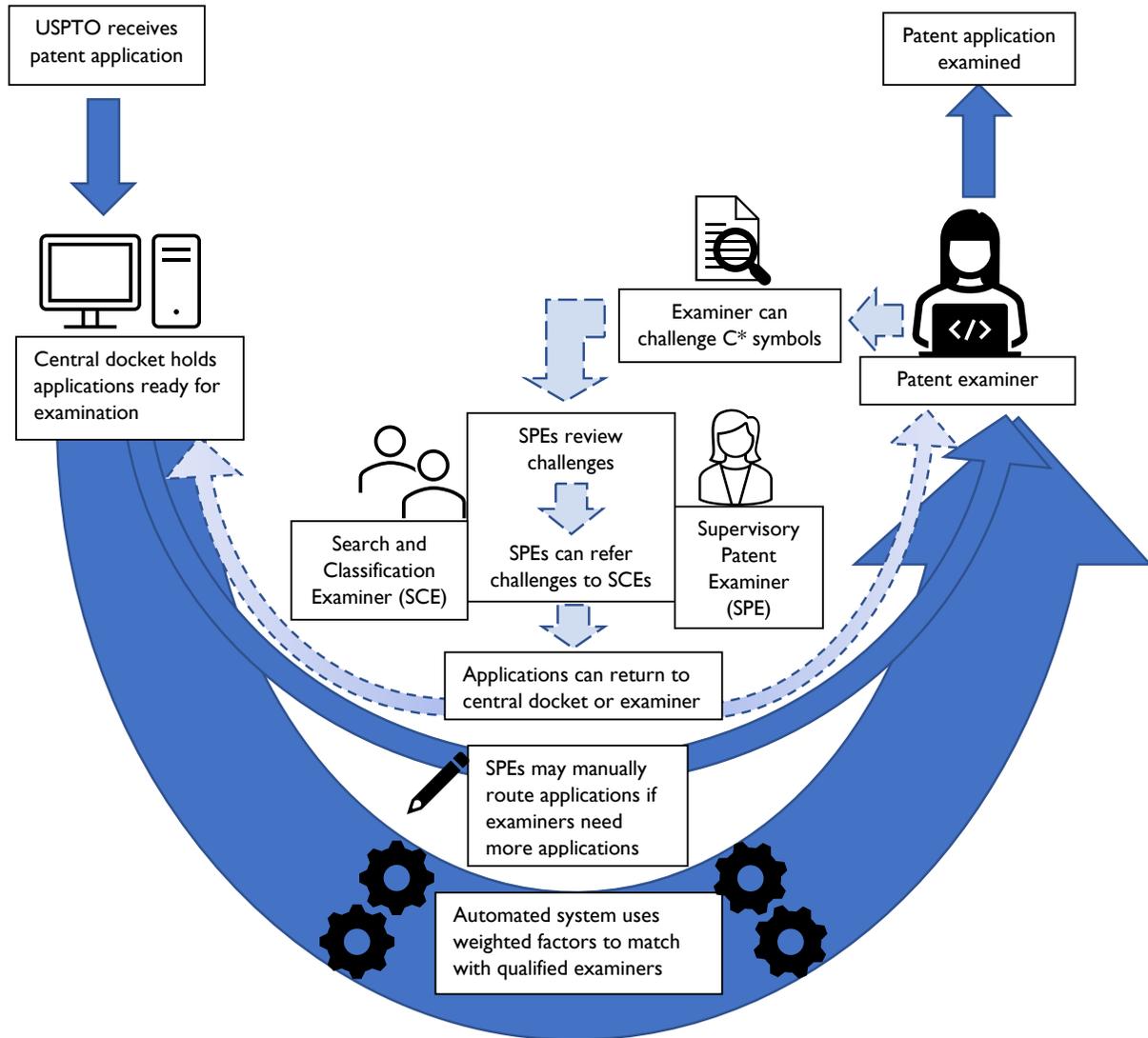
When the United States Patent and Trademark Office (USPTO) receives a patent application, it classifies the application before the examination process begins. Classification involves the assignment of one or more classification symbols to patent documents to categorize them, based on their technical content. USPTO uses classification to assign an application to a patent examiner by matching the technology to an examiner's qualifications and to assign examination time. Classification also helps examiners and stakeholders in searching for patent documents that may be relevant to an application.

Historically, USPTO classified documents using the United States Patent Classification system (USPC). To improve coordination and harmonization with international patent offices, USPTO signed an agreement with the European Patent Office in 2010 to create the Cooperative Patent Classification system (CPC) and began classifying patent documents using CPC in 2013. USPTO continues to classify applications using USPC to assist with application routing. However, USPTO intends to fully phase out USPC, which USPTO no longer updates for technological change.

Application routing

In October 2020, USPTO shifted to CPC from USPC to route patent applications to examiners. The new system was designed to automate routing by using an algorithm to match the CPC symbols on an application to an examiner's portfolio of previously examined applications, while considering other factors such as the age of an application. Only the symbols that represent at least one concept that is claimed in an application form the basis for routing and are given a claim indicator (known as a "C-star" or C*).

In conjunction with the new routing system, USPTO created a new challenge process by which an examiner can request deletion or addition of C*s and/or a change to the USPC routing symbol. Supervisory patent examiners (SPEs) decide whether to approve or deny a challenge and may refer the challenge to search and classification examiners (SCEs), who are technical experts with additional classification training, for guidance. Because a change to an application's C*s can cause the application to be rerouted to another examiner, the challenge process prevents rerouting of applications without management approval. Figure I provides an illustration of the routing and challenge processes.

Figure I. USPTO's CPC-based routing and classification challenge processes

Source: OIG analysis of USPTO documentation and interviews of responsible officials

Following implementation of the new CPC-based routing system, USPTO received feedback from some examiners that the new routing system was assigning them applications that they were not qualified to examine. Some examiners also stated that the classification challenge process was inefficient and took too much of their time. As a result of these concerns, USPTO paused its transition to CPC-based routing in August 2022, leaving USPTO reliant on USPC symbols to route applications.¹ USPTO has not yet determined a timeline or strategy to return to CPC-based routing.

¹ USPTO intended to phase out USPC by the end of FY 2022.

Contracts for classification services

USPTO relies on contractors for initial classification and reclassification services.² Two contractors perform initial classification, which is the classification of all incoming applications. Reclassification occurs after a revision to the classification system and involves changing a document's symbols to move it from the old classification to the new one. USPTO awarded reclassification contracts to four contractors. Individual reclassification projects are competed among these four contractors and awarded via delivery orders. USPTO's Classification Quality and International Coordination (CQIC) division in the Office of International Patent Cooperation is responsible for overseeing the contracts. With guidance from CQIC classification staff, SCEs perform quality assurance reviews of contractors' work and assist in contractor training. We performed this audit to address risks to USPTO's routing system implementation and oversight of patent classification.

² USPTO awarded the current contracts in 2017. They consist of a 2-year base period and four, 2-year option periods. As of February 2023, USPTO expended approximately \$90 million on these contracts.

Objectives, Findings, and Recommendations

Our objective was to determine whether USPTO's patent application classification and routing processes were effective. Specifically, we determined whether (1) USPTO adequately ensured that classification contractors were providing quality patent classification and reclassification services; (2) USPTO examiners properly challenged C* classifications and whether USPTO properly resolved challenges; and (3) USPTO effectively designed and implemented CPC-based routing. See appendix A for a more detailed description of our scope and methodology.

We found that USPTO's patent classification and routing processes were not effective. Specifically, we found that:

- I. USPTO did not ensure effective contract oversight for classification services.
- II. USPTO lacked adequate controls to ensure that classification challenges were efficiently and effectively submitted and adjudicated.
- III. USPTO did not effectively design and implement CPC-based routing.

Taken together, these ineffective processes create risks for USPTO and potentially increase difficulties for patent examiners and supervisors. Incorrect classifications put a greater burden on examiners who must correct the classification during examination and represent a potential risk of federal funds spent on inadequate services. Additionally, inefficiencies in the C* challenge process could lead to repeated challenges and delays in examination. Finally, the ineffective implementation of CPC-based routing led USPTO to pause its transition to CPC-based routing, contributing to a continued reliance on the costly and outdated USPC system.

I. USPTO Did Not Ensure Effective Contract Oversight for Classification Services

Part 46 of the Federal Acquisition Regulation (FAR) requires agencies to ensure that supplies or services tendered by contractors meet contract requirements, to conduct contract quality assurance before acceptance, and to discourage or reject nonconforming supplies or services.³ To help comply with this, USPTO's classification contracts stipulate timeliness and quality requirements and specify corrective actions for noncompliance.⁴ For quality, the contracts specify that the maximum allowable error rate is 10 percent, measured in multiple error categories.

A. *Classification deliverables did not meet contractual quality standards*

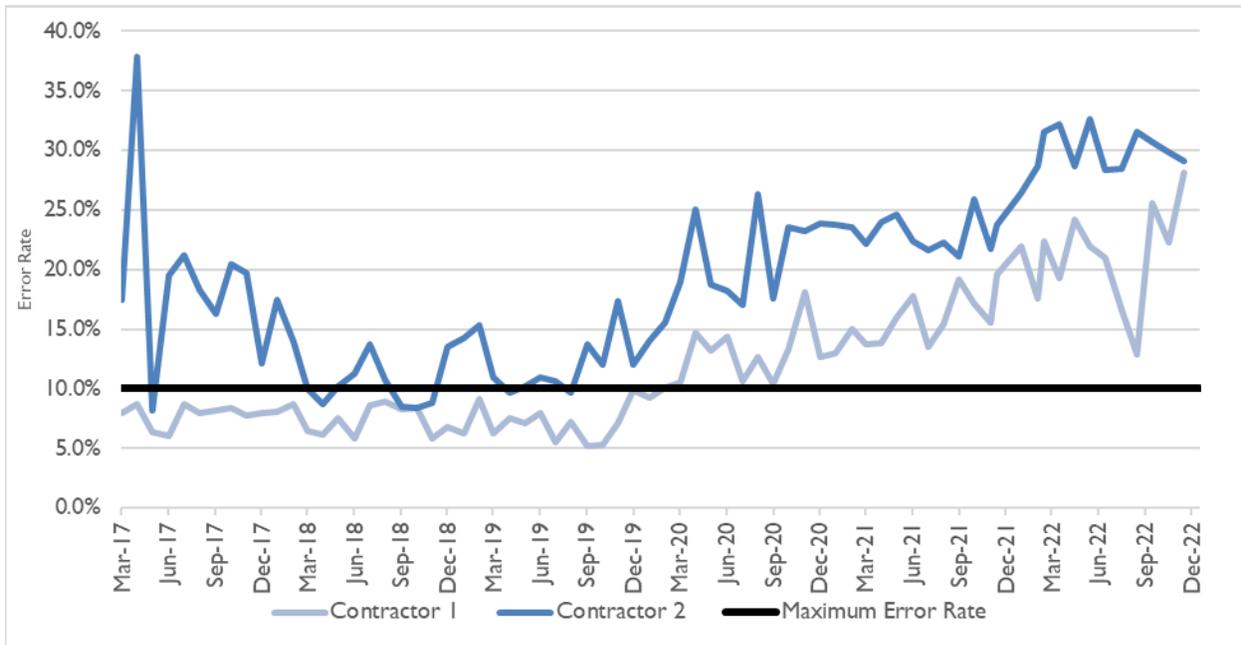
To determine whether USPTO ensured compliance with the FAR and contractual performance requirements, we reviewed quality assurance documentation and internal

³ FAR § 46.102 (b), (c), and (e).

⁴ Initial classification contractors have up to 29 calendar days to deliver an application, and each reclassification project has a fixed final completion date.

correspondence, and interviewed responsible officials. We found that the average error rate for initial classification exceeded the acceptable rate. For example, from March 2021 through December 2022, the vendors averaged a 19-percent and 27-percent error rate, respectively, for CPC classification. Figure 2 illustrates the average error rates for the vendors throughout the contract.

Figure 2. Average Initial Classification Error Rates,^a March 2017–December 2022



Source: OIG analysis of USPTO contractor error rate data from March 2017 through December 2022, which was the most recently available period during the audit

^a This figure represents an average of the error rates for CPC classifications. We omitted error rates for UPSC classification because USPTO intends to phase out USPC classification.

USPTO’s contracting officer told us that USPTO accepts the initial classification deliverables regardless of compliance with the error rate requirements to prevent delaying the examination of applications. However, incorrect classifications could impact patent examination pendency and quality by hindering searches of prior art. Examiners are responsible for correcting any classification errors, which requires time and technical resources, before a patent is granted.

Unlike initial classification, USPTO rejects reclassification deliverables that exceed the error rate requirement. Each time a deliverable fails to meet requirements and the contractor resubmits it, USPTO repeats the quality assurance on the deliverable. We determined that reclassification contractors frequently exceeded error rates (see table 1). USPTO rejected and reinspected deliverables at least five times on a third of all projects, with some reinspected as many as 15 times. We also determined that 22 percent of reclassification projects were completed late. Numerous reinspections strain USPTO’s technical resources and could delay completion of updates to the CPC scheme. These delays could hinder examiners’ ability to search for prior art.

Table I. Reclassification Project Quality, March 2017 to February 2023

Contractor	Average error rate (maximum error rate: 10%)	Average number of failed deliverables ^a per project	Total Projects
Contractor 1	11.9%	1.5	22
Contractor 2	21.6%	5.6	12
Contractor 3	22.7%	3.7	68
Contractor 4	28.2%	3.8	5

Source: OIG analysis of USPTO contractor error rate data from March 2017 through February 2023, which was the most recently available period during the audit

^a Deliverables are batches of reclassified documents. There may be more than one deliverable per project.

B. USPTO's oversight of contract performance was not effective

We assessed USPTO's responses to the contractors' excessive error rates. We found that USPTO did not hold contractors accountable for poor performance. For example, USPTO declined to enforce timeliness price disincentives for reclassification from 2017 to 2020, totaling \$140,000 in payments to vendors for work that exceeded initial deadlines. In addition, USPTO negotiated quality price disincentives with one initial classification contractor in 2022, but the other contractor did not agree to a similar contract modification.⁵ USPTO has not enforced price reductions for nonconformance, as allowed by the FAR, on the contractor that declined the contract modification.⁶ As a result, USPTO is receiving a reduced value of deliverables without a corresponding reduction in price or other consideration.

Further, USPTO also did not accurately document vendor performance in the Contractor Performance Assessment Reporting System (CPARS).⁷ For example, both initial classification vendors received "very good" interim CPARS ratings in 2021 for the quality element while significantly exceeding the contractual error rates. This was a missed opportunity for USPTO to hold the vendors accountable for inadequate performance. The inaccurate ratings could also impact future government contract award decisions.

We also found that USPTO did not implement corrective actions to address poor performance in a timely manner. For example, the contracts require a quality improvement plan for any noncompliance with error rates. However, USPTO did not implement a plan until 2022, despite contractor noncompliance since 2017 and 2020,

⁵ The contractor reported that it did not agree to the quality price disincentives because its pricing in response to the original request for proposal did not take this into account and because of perceived subjectivity in the evaluation of quality.

⁶ FAR § 46.407(f) instructs the contracting officer to modify the contract to provide for an equitable price reduction or other consideration, depending on the severity of the nonconformance.

⁷ CPARS is a government-wide evaluation reporting tool.

respectively. This delayed improvements in quality. In addition, neither initial classification vendors' error rates were on track to reach compliance levels as described in the plans. For example, the CPC classification error rate in December 2022 was nearly 30 percent for both vendors, which was more than double the projected rate. The contract team told us in March 2023 that they had not had discussions about the next steps to improve quality.

We found that multiple factors contributed to USPTO's inadequate oversight. First, there were unclear and undocumented oversight roles and responsibilities and ineffective coordination and communication among the contract team. For example, some technical leads assumed authority for many oversight tasks despite not being nominated as task order managers (TOMs) or reporting to the office tasked with oversight of the contracts.⁸ In addition, only 26 percent of reclassification projects had a TOM nomination memorandum documented.^{9,10} Some members of the contract team described their relationships as contentious and lacking coordination and trust. Disagreements about the level of engagement USPTO should provide to the vendors to improve quality outcomes, for example, led to delays in corrective action.

Second, the reclassification award process did not effectively implement a "best value" approach, which allows USPTO to consider technical factors more than price.¹¹ Instead, USPTO selected the lowest priced quote for 88 percent of all projects and evaluated minimal, if any, information related to technical factors, such as past performance or experience. For example, a vendor's performance on prior reclassification projects was not considered unless that experience was in the same technical area, which rarely occurred for all bidders.¹²

Third, pre-award planning did not effectively identify potential risks due to the contract structure or poor vendor performance. For example, some members of the contract team told us that having multiple initial classification vendors hinders quality because each vendor must have experts to cover the entire classification scheme. In addition, shifting work volumes among vendors as a quality improvement incentive is impeded when both vendors exhibit poor performance.

⁸ TOMs support the contracting officer's representative in monitoring the technical performance of the contract.

⁹ USPTO stated that for some projects, there were no TOMs officially assigned and for others, the documentation is missing from the contract files.

¹⁰ In 2015, we reported a similar finding and recommended that USPTO require contracting officers to appoint, in writing, properly trained and certified TOMs prior to awarding contracts. See Department of Commerce OIG, December 3, 2014. *The U.S. Patent and Trademark Office's Awarding and Administering of Time-and-Materials and Labor-Hour Contracts Needs Improvement*. Washington, DC: p. 10-13. Available online at <https://www.oig.doc.gov/OIGPublications/OIG-15-012-A.pdf> (accessed July 2023).

¹¹ Per FAR § 15.101-1(c) the best value process permits tradeoffs among cost and noncost factors and allows the government to accept other than the lowest priced proposal. The request for proposals established that USPTO will use a best value determination in which quality, management, capacity, and past performance are more important than price.

¹² Of 93 projects that received multiple bids, we identified three examples (3 percent) in which USPTO evaluated past performance for all bidders.

During our audit, USPTO developed improvements to the reclassification bid evaluation process, but has not formalized them to ensure continuity.¹³ Also in 2023 during our audit, USPTO implemented a termination for default process to address reclassification projects at risk of termination but was still in the process of discussing contingencies and had not formally documented the new process (for example, in the Quality Assurance Surveillance Plan).¹⁴ Some of the at-risk projects remain uncompleted more than a year after the fixed completion date.

Recommendations

We recommend that the Under Secretary of Commerce for Intellectual Property and Director of the United States Patent and Trademark Office direct the Directors of the Office of Procurement and the Office of International Patent Cooperation to:

1. Develop a plan to address the continuing lack of compliance with initial classification error rate requirements. Specifically, this plan should include (a) methods to optimize oversight resources to ensure effective communication and collaboration between USPTO and vendors regarding technical or quality issues and (b) contingencies for the contract structure for future option periods, including consideration of the optimal number of vendors, the effectiveness of the use of volume adjustments to drive quality improvements or lower costs, the inclusion of quality price incentives or disincentives for all vendors, and thresholds for enforcement of price reductions or other considerations for nonconformance.
2. Document the official roles and responsibilities for all members of the contract team and all offices tasked with contractual planning and oversight duties, and develop procedures to ensure that task order managers are nominated for all orders.
3. Strengthen controls to ensure CPARS ratings for the classification contracts are accurate and completed in accordance with USPTO policy.
4. Improve oversight of reclassification projects by formalizing: (a) the 2023 updates to the reclassification technical evaluation and award process and (b) the termination for default process for reclassification projects.

II. USPTO Lacked Adequate Controls to Ensure That Classification Challenges Were Efficiently and Effectively Submitted and Adjudicated

USPTO sets forth the procedures for the classification challenge process in a memorandum of understanding (MOU) with the Patent Office Professional Association, the union representing examiners and other patent professionals. The MOU and additional guidance from USPTO

¹³ Improvements to the technical evaluations include consideration of vendors' past performance for all previous revision projects, the inclusion of technical capability statements from the vendors, the submission of resumes for key positions, and USPTO approval for removing key staff from a project.

¹⁴ At-risk projects are those with five rejections of the same deliverable or three rejections of the same deliverable with final error rates greater than 50 percent.

require that examiners enter classification challenges via the Classification Allocation Tool (CAT) and provide sufficient comments to explain the reason for the challenge. If a challenge is denied, the MOU instructs the SPE to provide an explanation to the examiner. In addition to supporting efficient and accurate decisions, adequate explanations provide a complete record of a challenge.

A. Challenges contained inadequate explanatory comments

In order to determine whether examiners and SPEs properly provided explanations for classification challenges, we obtained and analyzed data for challenges from a judgmental sample of examiner art units, covering 87,384 challenged items¹⁵ from 886 examiners. We found that examiners and SPEs did not always provide adequate explanations for the challenges. Specifically:

- Examiners submitted 8,683 challenged items that did not have an adequate explanation, with 8,580 of these having no explanation at all.
- 679 examiners entered at least one item with an inadequate explanation.
- SPEs denied 5,899 items without providing an explanation.

We found multiple potential reasons why examiners and SPEs may have omitted comments. USPTO told us that while there are edit checks for some fields in the CAT, they may not have been enforced throughout the scope of our audit. Additionally, there was confusion among USPTO staff regarding the requirements. In response to our inquiry, USPTO told us that requests to remove a C* do not require explanatory comments. However, the MOU and guidance provided to examiners contradict this statement. Further, SPEs told us that they expect to see comments in challenges. Without sufficient explanation, reviewers may have greater difficulty properly deciding challenges, leading to incorrect classifications or improper rerouting.

B. Repeated challenges led to inefficiencies and potential delays in examination of some applications

A patent application can be the subject of multiple challenges and can be rerouted if an examiner has not issued a first action on the merits¹⁶ for that application. Although most applications in our data set were subject to only one challenge, we found that 1,895 applications were the subject of more than one challenge. To determine whether USPTO effectively disposed of repeated challenges for an application, we reviewed the challenge history for the 17 applications in the data set that had more than four challenges. We found that repeated challenges contributed to significant delays in examination of these applications. The average number of days between the end of the first challenge on an application and the end of the final challenge was 399 days. In one

¹⁵ Items include requests to change the USPC symbol, add or delete C* designations, and suggest symbols that may be missing from the classification picture and should have a C* designation.

¹⁶ A first action on the merits is a document written by a patent examiner that gives reasons why a patent's claims are approved or rejected. It is typically the first substantive examination of the application.

case, 646 days elapsed. Delays to examination can affect USPTO's ability to meet its pendency goals and negatively impact applicants.

We also examined the symbols challenged in each challenge for these 17 applications. We found that all the applications contained instances of symbols being repeatedly challenged. These repeated challenges of symbols likely contributed to delays in examination by rerouting the application multiple times, sometimes back to an examiner who had it previously. They also included instances of symbols being removed and added back, or vice versa. The challenges sometimes did not include comments that referred to previous challenges.

In 2022, USPTO introduced a policy to require that a supervisory SCE decide a fourth or later challenge and prohibit any further challenges for that application. However, challenges prior to the fourth challenge are unrestricted, and USPTO guidance does not specifically address how SPEs should review repeated challenges. Additional guidance to examiners and SPEs to review and address challenge history may help prevent repeated challenges of symbols and reduce delays in examination.

Recommendations

We recommend that the Under Secretary of Commerce for Intellectual Property and Director of the United States Patent and Trademark Office direct the Commissioner for Patents to:

5. Develop controls, such as edit checks in the CAT tool, to ensure that examiners and reviewers enter comments for classification challenges.
6. Strengthen controls on the classification challenge process to ensure examiners, SPEs, and SCEs review and address the challenge history when submitting and adjudicating any challenge after the first challenge for an application.

III. USPTO Did Not Effectively Design and Implement CPC-Based Routing

Given the potential benefits and challenges of developing and implementing agency reform efforts, the Government Accountability Office (GAO) identified key questions that agencies can use to assess the development and implementation of agency reforms.¹⁷ The key questions fall under four categories: goals and outcomes, process for developing reforms, implementing the reforms, and strategically managing the federal workforce. We applied these key questions as best practices to determine whether USPTO effectively designed and implemented CPC-based routing. See appendix B for the 18 key questions we judgmentally selected to be applicable to this audit.

Although USPTO's routing reform met some of the best practices, we found that USPTO's design and implementation of CPC-based routing lacked key elements related to goals and outcomes, implementing the reforms, and strategically managing the federal workforce. The

¹⁷ GAO, June 2018. *Government Reorganization: Key Questions to Assess Agency Reform Efforts*, GAO-18-427. Washington, DC: GAO, p. 8-19. Available online at <https://www.gao.gov/products/gao-18-427> (accessed July 2023).

lack of these elements contributed to challenges USPTO has faced in its implementation of CPC-based routing.

Goals and outcomes

USPTO communicated multiple goals to examiners without establishing measurable outcomes. Table 2 summarizes these goals, USPTO’s monitoring of these goals, and the goals’ divergence from best practices. The lack of specific, measurable goals as well as a plan to use available data can inhibit decision makers from identifying issues with implementation, balancing differing objectives, and planning for long-term effectiveness.

Table 2. Assessment of USPTO Routing Goals

USPTO Goals	USPTO Monitoring	Divergence From Best Practices
Get the right application to the right examiner.	None; a USPTO official told us success is evident when an examiner does not attempt to have the application rerouted.	<ul style="list-style-type: none"> Linkage between goal and outcome is unclear. No associated performance measures.
Maximize the retention of expertise and institutional knowledge.	None; USPTO routing officials stated this is achieved as examiners receive cases in new classification areas.	<ul style="list-style-type: none"> No clear outcome-oriented measure. Some SPEs and examiners raised concerns this has led to a loss of expertise.
Route to examiners the same cases they would have historically received based on USPC.	USPTO collected historical classification data to monitor this goal.	<ul style="list-style-type: none"> No related performance measures or timelines. USPTO planned to end USPC classification without a replacement to monitor this goal.
Reduce backlog of applications filed more than 14 months prior.	USPTO monitored progress by comparing against pendency data.	USPTO did not quantify the extent of reduction necessary to meet this goal.

Source: OIG analysis of USPTO documentation and interviews with key officials

Implementing the reforms

We found that USPTO’s implementation of the CPC-based routing lacked a defined leadership structure, such as designating responsibilities, holding leaders accountable for results, and improving the capacity of the implementation team to manage the reform process. USPTO officials implementing routing revealed that 3 months before implementation, USPTO reorganized its four deputy patent commissioners’ portfolios. This resulted in splitting the responsibility for implementing CPC-based routing among them, which hindered clear designation of responsibility and accountability. In addition, USPTO did not create an implementation plan with key components, such as the leadership structure. As a result, recommendations from the implementation team went unanswered.

Strategically managing the federal workforce

In the category of strategically managing the federal workforce,¹⁸ we found that USPTO engaged employees via listening sessions, for example, but did not develop an employee engagement strategy to help manage the transition to CPC-based routing. This approach likely contributed to some examiners' confusion and negative feedback about the routing system. Research on both private- and public-sector organizations has found that increased levels of engagement—generally defined as the sense of purpose and commitment employees feel toward their employer and its mission—can lead to better organizational performance.¹⁹ We also found that USPTO could improve transparency as it develops key milestones, such as by using web-based reporting.

USPTO paused its transition to CPC-based routing in 2022 due to examiner concerns and has not been able to determine a path forward or timeline to resume the transition, in part due to inadequate design and implementation of the new system. By delaying the transition, USPTO must continue to pay its classification contractors to classify applications in USPC for routing. We estimate the cost of this to be between about \$3.8 million and \$20.1 million from March 2021 to February 2027.²⁰

Recommendation

We recommend that the Under Secretary of Commerce for Intellectual Property and Director of the United States Patent and Trademark Office direct the Commissioner for Patents to:

7. Create a routing implementation plan that articulates roles and responsibilities (including decision-making authority and accountability), goals and measures, milestones, associated timelines, employee engagement, and transparent reporting of progress.

¹⁸ This category includes elements such as employee engagement, strategic workforce planning, and employee performance management.

¹⁹ GAO-18-427, p. 16.

²⁰ This estimate accounts for USPTO's flexibility to shift work between two contractors, who have different prices, to classify applications using USPC. USPTO's patent timing calculations also continue to rely on USPC, contributing to USPTO's dependency on these services.

Summary of Agency Response and OIG Comments

In response to our draft report, USPTO concurred with all recommendations and described actions it has taken, or will take, to address them. We accepted USPTO's technical comment and updated the final report accordingly. We have included USPTO's formal and technical comments in appendix C.

We are encouraged by the description of USPTO's efforts to address the oversight and implementation challenges related to patent classification and routing and look forward to reviewing its action plan for implementing the recommendations.

Appendix A: Objectives, Scope, and Methodology

The objective of our audit was to determine whether USPTO's patent application classification and routing processes are effective. To address this objective, we assessed whether (1) USPTO adequately ensured that classification contractors were providing quality patent classification and reclassification services; (2) USPTO examiners properly challenged C* classifications and whether USPTO properly resolved challenges; and (3) USPTO effectively designed and implemented CPC-based routing.

Our audit work focused on the classification contracts awarded in FY 2017 and contractor oversight activities from FY 2017 through FY 2023. We also reviewed classification challenge and routing activities from FY 2021 through FY 2023. Specifically, to accomplish our objective, we performed the following actions:

- Reviewed the following regulations and documents:
 - The FAR
 - *Standards for Internal Control in the Federal Government*, dated September 2014²¹
 - USPTO procurement memorandums
 - Award documentation for the classification contracts
 - MOUs with *Patent Office Professional Association* on the Classification Challenge Process and the Implementation of Time, Routing, and Performance Appraisal Plan
 - *Government Reorganization: Key Questions to Assess Agency Reform Efforts*²²
- Obtained an understanding of the performance requirements in USPTO's classification contracts by interviewing USPTO personnel responsible for quality assurance and contractor oversight, including contracting officers, the contracting officer's representative, TOMs, and CQIC staff.
- Analyzed contract documentation related to contractor performance, such as quality assurance surveillance plans, monthly quality assurance statistics, quality improvement plans, contractor invoices and backup documentation, delivery order selection memos, and internal USPTO correspondence to determine whether USPTO performed oversight of the classification contracts and took corrective actions in compliance with relevant requirements.

²¹ GAO, September 2014. *Standards for Internal Control in the Federal Government*, GAO-14-704G. Washington, DC. Available online at <https://www.gao.gov/assets/gao-14-704g.pdf> (accessed July 2023).

²² GAO-18-427.

- Obtained an understanding of USPTO's C* classification challenge and CPC-based routing processes by interviewing responsible USPTO personnel, including directors of Patent Technology Centers, SCE supervisors, and SPEs.
- Analyzed process charts and standard operating procedures for classification challenges, internal USPTO correspondence, written feedback from examiners, and C* challenge data from the CAT from a judgmental sample of examiner groups to determine whether examiners properly challenged C* classifications and whether USPTO properly resolved challenges. We selected our sample by identifying examiner groups with relatively high numbers of challenges and relatively high rates of rerouted applications, among other factors. The sample totaled 19,509 challenges comprising 87,384 challenged items. Because we used judgmental selection, our results are limited to the items tested and cannot be projected to the population of all challenges.
- Analyzed routing process charts and standard operating procedures, goals, internal USPTO correspondence, and written feedback from examiners to determine the adequacy of efforts to design, implement, document, and communicate the CPC-based routing system.

Further, we gained an understanding of internal control processes significant within the context of the audit objective by interviewing USPTO officials and reviewing documentation for evidence of internal control procedures. We identified weaknesses in the controls related to USPTO's use of CPARS to document contractor performance. We also identified weaknesses in controls related to the explanation of C* challenges in CAT and in preventing repeated C* challenges. While we identified and reported on internal control deficiencies, our audit found no incidents of fraud, illegal acts, or abuse.

In satisfying our audit objective, we did not rely solely on computer-processed data. However, we relied on computer-processed data from USPTO to analyze the C* challenge process. We encountered limitations in performing this work due to data quality issues for classification challenges. These limitations impacted our ability to assess some aspects of the C* challenge process, such as timeliness of review. Although we could not independently verify the reliability of all the information we collected, we compared it with other available supporting documents to determine data consistency and reasonableness. Based on these efforts, we believe the information we obtained is sufficiently reliable for this report.

We conducted this audit from August 2022 through May 2023 under the authority of the Inspector General Act of 1978, as amended (5 U.S.C. §§ 401–24), and Department Organization Order 10-13, as amended October 21, 2020. We performed our work solely at remote telework locations.

We conducted this performance audit in accordance with generally accepted government auditing standards. These standards require that we plan and perform our audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions, based on our audit objective. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objective.

Appendix B: Applicable Key Questions for Agency Reform Efforts

Category	Key Question
Goals and Outcomes	To what extent has the agency established clear outcome-oriented goals and performance measures for the proposed reforms?
	To what extent has the agency considered the likely costs and benefits of the proposed reforms? If so, what are they?
	To what extent has the agency included both short-term and long-term efficiency initiatives in the proposed reforms?
Process for Developing Reforms	How and to what extent has the agency engaged employees and employee unions in developing the reforms (e.g., through surveys, focus groups) to gain their ownership for the proposed changes?
	Is there a two-way continuing communications strategy that listens and responds to concerns of employees regarding the effects of potential reforms?
	How will the agency publicize its reform goals and timeline, and report on its related progress?
	What data and evidence has the agency used to develop and justify its proposed reforms?
	How has the agency determined that the evidence contained sufficiently reliable data to support a business case or cost-benefit analysis of the reforms?
Implementing the Reforms	Has the agency designated a leader or leaders to be responsible for the implementation of the proposed reforms?
	Has agency leadership defined and articulated a succinct and compelling reason for the reforms (i.e., a case for change)?
	How will the agency hold the leader or leaders accountable for successful implementation of the reforms?
	Has the agency established a dedicated implementation team that has the capacity, including staffing, resources, and change management, to manage the reform process?
	How has the agency ensured their continued delivery of services during reform implementation?
	What implementation goals and a timeline have been set to build momentum and show progress for the reforms? In other words, has the agency developed an implementation plan with key milestones and deliverables to track implementation progress?

	<p>Has the agency ensured transparency over the progress of its reform efforts through web-based reporting on key milestones?</p>
	<p>Has the agency put processes in place to collect the needed data and evidence that will effectively measure the reforms' outcome-oriented goals?</p>
	<p>How is the agency planning to measure customer satisfaction with the changes resulting from its reforms?</p>
<p>Strategically Managing the Federal Workforce</p>	<p>How does the agency plan to sustain and strengthen employee engagement during and after the reforms?</p>

Source: GAO-18-427

Appendix C: 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

August 8, 2023

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

FROM: Users, Vidal, Katherine K. Vidal Katherine (Kathi)
Under Secretary of Commerce for Intellectual Property and
Director of the United States Patent and Trademark Office

SUBJECT: Response to Draft Report, "USPTO Needs to Improve Oversight and Implementation of Patent Classification and Routing Processes"

Digitally signed by Users, Vidal,
Katherine (Kathi)
Date: 2023.08.08 16:58:04 -04'00'

Executive Summary

We appreciate the effort you and your staff made in reviewing the United States Patent and Trademark Office's (USPTO) patent classification and routing processes. Improving patent classification and routing is one of the first initiatives I took up under this Administration after hearing directly from patent examiners about their experiences and about their suggestions for ways to improve their effectiveness and efficiency. Most significantly, the USPTO concurs with the Office of Inspector General's (OIG) observation that "[i]ncorrect classifications put a greater burden on examiners who must correct the classification during examination and represent a potential risk of federal funds spent on inadequate services" (Draft Report, Objectives, Findings, and Recommendations, ¶ 3, page 4). The USPTO is committed to improving, and has been working to improve, the classification and routing processes to facilitate the important work of our patent examiners; enhance the quality and efficiency of the patent process; and ultimately drive innovation, entrepreneurship, and creativity.

First, the USPTO is focused on providing high-quality oversight of its classification multiple-award contract and demonstrating that high quality to our stakeholders. Over the last few years, the USPTO implemented several compliance efforts to enhance the quality and performance of its classification contract. These efforts include:

- **Contracting Officer's Representative-Approved Action Plan (COR-AAP).** In mid-2022, the USPTO implemented a 12-month quality improvement plan for both contractors performing the initial classification to meet contractual compliance metrics, resulting in a stabilization of error rates.
- **Quality performance-based price reductions.** In mid-2022, the USPTO implemented a negotiated quality-price disincentive for contractor nonconformance for one of the initial classification contractors, resulting in approximately \$850,000 in cost savings.

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- **Quality-based performance management process.** In mid-2023, the USPTO implemented a quality control process for reclassification projects and additional re-work submittals by contractors, resulting in 15 letters of concern and one cure notice.
- **Increased emphasis on quality in procurement process.** In early 2023, the USPTO implemented a holistic plan to address the reclassification pre-award planning and award processes.
- **Contractor Performance Assessment Reporting System (CPARS).** In mid-2022, the USPTO implemented a process to use standardized criteria for the CPARS evaluation and rating definition factors in order to more accurately document all contractors' performance challenges.
- **Enforcing contractual timeliness disincentive.** Since 2017, the USPTO has enforced disincentive structures for nonconformance of deliverable timeliness, resulting in approximately \$156,000 in cost savings.

Second, the USPTO continues to transform its processes to provide better business outcomes throughout the patent examination process, including classification challenges. The USPTO appreciates the OIG highlighting our memorandum of understanding with the Patent Office Professional Association (POPA) regarding the classification challenge process because the Patents organization's management is dedicated to working together with our unions on our shared commitments.

The OIG's findings show the majority of applications with classification challenges included sufficient comments to explain the reason for the challenge. The OIG's judgmental sample, unlike a statistically drawn sample, identified only 17 applications, or 0.0002% of challenged applications, that included repeated challenges that "contributed to significant delays in examination." Even with these high rates of compliance, the USPTO has already implemented additional procedures to improve the classification challenge process, such as introducing a policy to require supervisor intervention on a fourth challenge to prohibit further challenges, as highlighted in the OIG's report.

The USPTO continues to explore options for how to route applications to examiners, including alternatives to the Cooperative Patent Classification (CPC) system. The USPTO developed the CPC system in partnership with the European Patent Office, and there are now more than 25,000 patent examiners in 45 countries using the classification system. In 2022, I held listening sessions with approximately 1,000 patent examiners to better understand their experiences, and worked with the Patents organization and POPA to put measures in place to address the need to ensure that the examiner reviewing the application has the appropriate experience to do so. The USPTO has also created permanent positions for Search and Classification Examiners, who are the subject matter experts on classification for the more than 8,200 patent examiners across the patent corps. Finally, the USPTO has initiated work on the use of artificial intelligence solutions that will enable the real-time application of CPC classification symbols onto incoming applications in the future. The USPTO appreciates the OIG's findings regarding the use of CPC-based routing and will take this feedback into account as we make changes to the routing process in the future.

The USPTO recognizes the opportunity to strengthen internal controls and welcomes the OIG's recommendations. The USPTO concurs with the OIG's recommendations focused on improving written policies, documentation, transparent reporting, and communication with all stakeholders.

The USPTO's responses to the OIG's individual recommendations are discussed in detail below, and the USPTO's technical comment is attached.

OIG Recommendations

The OIG recommends that the Under Secretary of Commerce for Intellectual Property and Director of the USPTO take the following actions:

1. *Direct the Directors of the Office of Procurement and the Office of International Patent Cooperation to develop a plan to address the continuing lack of compliance with initial classification error rate requirements. Specifically, this plan should include (a) methods to optimize oversight resources to ensure effective communication and collaboration between USPTO and vendors regarding technical or quality issues and (b) contingencies for the contract structure for future option periods, including consideration of the optimal number of vendors, the effectiveness of the use of volume adjustments to drive quality improvements or lower costs, the inclusion of quality price incentives or disincentives for all vendors, and thresholds for enforcement of price reductions or other considerations for nonconformance.*

USPTO Response:

The USPTO concurs with the OIG's recommendation, which is consistent with the USPTO's existing plan, in place since 2021, to address contractors' continuing lack of compliance with classification error rate requirements, and is also consistent with OIG findings. Under this plan, the USPTO has already taken steps to: (1) optimize internal resources for better contractual oversight (e.g., leveraging internal subject matter experts and other procurement-focused resources); (2) increase collaboration and communication with vendors to address technical and quality issues; (3) address contractual nonconformance for all vendors (e.g., standardized CPARS documentation and use of pricing disincentives); (4) implement disincentives and price reductions for quality-related nonconformance; (5) implement a "best value" approach in the USPTO's pre-award planning and award processes (e.g., asking for vendors' technical capabilities and reviewing past performance prior to award); and (6) address contingencies in the next contract period based on quality-related performance results (e.g., active exploration of alternatives for classification tools and services). Where appropriate, the USPTO has augmented and/or refined its existing plan to address the OIG's recommendations.

2. *Direct the Directors of the Office of Procurement and the Office of International Patent Cooperation to document the official roles and responsibilities for all members of the contract team and all offices tasked with contractual planning and oversight duties, and develop procedures to ensure that task order managers are nominated for all orders.*

USPTO Response:

The USPTO concurs with this recommendation to document roles, responsibilities, and procedures where existing policy and/or guidance is unavailable. With respect to task order managers (TOM) being nominated in all orders, this recommendation was implemented in fiscal year (FY) 2023, including the use of the Office of Procurement's COR/TOM Appointment Memorandum. In addition, the USPTO provided training sessions on and increased attention toward COR/TOM roles and responsibilities in FY 2023 and will continue to provide such training.

- 3. Direct the Directors of the Office of Procurement and the Office of International Patent Cooperation to strengthen controls to ensure CPARS ratings for the classification contracts are accurate and completed in accordance with USPTO policy.*

USPTO Response:

The USPTO concurs with this recommendation and has implemented it into its reclassification processes using the Office of Procurement's Policy Memorandum 2020-02-ACQ (Rev 2), "Implementation of the Contractor Performance Assessment Reporting System (CPARS)." In addition, the USPTO provided training sessions on and increased attention toward CPARS compliance in FY 2023, and the agency continues to provide such training.

- 4. Direct the Directors of the Office of Procurement and the Office of International Patent Cooperation to improve oversight of reclassification projects by formalizing: (a) the 2023 updates to the reclassification technical evaluation and award process and (b) the termination for default process for reclassification projects.*

USPTO Response:

The USPTO concurs with this recommendation and has created a technical evaluation process for all new task order competitions that stresses past performance along with quality, technological knowledge, timeliness, and price. In addition, this is consistent with the USPTO's plan to address contractors' continuing lack of compliance with classification error rate requirements, as discussed in response to recommendation 1 above.

- 5. Direct the Commissioner for Patents to develop controls, such as edit checks in the CAT tool, to ensure that examiners and reviewers enter comments for classification challenges.*
- 6. Direct the Commissioner for Patents to strengthen controls on the classification challenge process to ensure examiners, SPEs, and SCEs review and address the challenge history when submitting and adjudicating any challenge after the first challenge for an application.*

USPTO Response:

The USPTO concurs with recommendations 5 and 6 and continues to improve its systemic management of internal controls to enhance consistency throughout the patent examination process, including by introducing a policy to require supervisor intervention on a fourth challenge, as highlighted in the OIG's report. The USPTO will continue to develop and document guidance for classification challenges.

7. *Direct the Commissioner for Patents to create a routing implementation plan that articulates roles and responsibilities (including decision-making authority and accountability), goals and measures, milestones, associated timelines, employee engagement, and transparent reporting of progress.*

USPTO Response:

The USPTO concurs with the recommendation. The Commissioner for Patents has been working to update the routing process and will ensure that the implementation plan is well defined and transparent.

Conclusion

The USPTO appreciates the OIG's work and thanks your team for providing this report. The USPTO continues to seek to improve its processes and drive the best outcomes on behalf of its stakeholders, and this information will help us achieve those goals.

If you need additional information, please contact Vaishali Udupa, Commissioner for Patents, USPTO, at 571-272-8800 or Vaishali.Udupa@uspto.gov.

**USPTO Technical Comment on OIG Draft Report:
“USPTO Needs to Improve Oversight and Implementation of
Patent Classification and Routing Processes”**

Technical Comment:

Page 12, Paragraph 4, Sentence 1: *“Create a CPC-based routing implementation plan that articulates roles and responsibilities (including decision-making authority and accountability), goals and measures, milestones, associated timelines, employee engagement, and transparent reporting of progress.”* Suggest deleting “CPC-based.”

The USPTO would like to broaden this recommendation to accommodate solutions beyond CPC-based routing. Evaluation of an effective routing process will require the Patents organization to reassess all requirements, not just CPC, to enhance the quality and efficiency of our patent processes.

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