IT VISION
“TRANSFORM THE USPTO WITH NEXT GENERATION TECHNOLOGY AND SERVICES.”

IT MISSION
“DELIVER INFORMATION AND TECHNOLOGY TO ENABLE INNOVATION.”
MESSAGE FROM THE CHIEF INFORMATION OFFICER

This is an exciting time to be leading the USPTO’s IT program!

The hard work of hundreds of individuals, and the investment of millions, over the past five years – while delivering immediate benefits in those years – has positioned the USPTO to deliver more IT improvements in the next five years than over the past fifteen years... and we’ll be able to do this faster, and of a higher quality, than has been seen before at the USPTO!

To meet the challenges of the future, the USPTO has developed an ambitious strategic agenda to help position the agency to operate more successfully and efficiently. An important component of the USPTO agenda is leveraging information technology to enable the USPTO to maintain current business production, meet legislative and legal requirements, improve and enhance the current business through electronic commerce, and add new capability to achieve the future electronic workplace. This results in optimizing the processing of patents and trademarks, elimination of paper-based processing, enhancing the quality of products and services and evolution of the businesses to electronic commerce.

Customers expect to interact with the USPTO through digital channels such as websites, email, and mobile applications. By building better digital services that meet the needs of the customers that use our services, we can make the delivery of our products and services more effective. The USPTO follows an incremental, fast-paced style of software development to reduce the risk of failure by getting working software into users’ hands quickly, and by providing frequent opportunities for the delivery team members to adjust requirements and development plans based on watching people use prototypes and real software. A critical capability is being able to automatically test and deploy the software so that new features can be added often and easily put into production. Following Agile methodologies is a proven best practice for building digital services, and will increase USPTO’s ability to build services that effectively meet our customers’ needs.

This Strategic IT Plan (SITP) describes the management approach and information technology initiatives that are critically important to achieving our vision, mission, goals, and objectives. All USPTO organizational units should ensure that current and planned information technology initiatives are in conformance with this plan, which will be used as the primary basis for justifying and prioritizing future budget requests involving information technology resources.

John B. Owens II

Chief Information Officer
This high-level Plan will be used to govern the USPTO’s IT activities for the next four years linked to the USPTO 2014 - 2018 Strategic Plan (www.uspto.gov/about/stratplan/index.jsp). The SITP can be considered in six parts:

- Where We’ve Been is a quick review of the preceding SITP and accomplishments to provide context for this SITP (pages 3-6)

- Overview of the USPTO’s Mission, Organization, Strategic Goals, and the USPTO’s IT Framework (pages 7-11)

- Description of USPTO’s IT planning process (to include Capital Planning and Investment Control – CPIC), its project management and software development (i.e., Agile) processes, and technical challenges (to include the Technology Vision) facing the USPTO during the timeframe of the Plan. (pages 12-18)

- Identification of IT Governance and Presidential Objectives and OMB Strategies (pages 19-22)

- The USPTO manages its IT program by USPTO Business Unit. Pages 23-28 summarizes the USPTO’s major IT investments planned for these business Units and the IT services and infrastructure upon which they all rely.

- Description of the organizational structure for the Office of the Chief Information Officer (OCIO), as well as it’s “Business Plan” and where additional information may be sought (pages 39-44)
For the major IT investments planned:

- **Page 23** describes plans to modernize the IT used to support the Patent organization’s business area by developing and implementing totally new Patent End-to-End processing capability.

- **Page 24-25** describes plans to modernize the IT used to support the Patent Trial and Appeal Board (PTAB) organization’s business area by developing and implementing totally new PTAB End-to-End processing capability.

- **Page 26-27** describes plans to operate and maintain the Patent Legacy Systems and eventually retire most of them as PE2E is implemented.

- **Page 28** describes plans to modernize the IT used by the Trademark organization’s business area by developing the Trademark Next Generation Systems (TMNG) processing capability.

- **Page 29** describes plans to operate and maintain the Trademark Legacy Systems and eventually retire most of them as their functionality is replaced by TMNG.

- **Page 30-31** describes plans to operate, maintain, and improve the Dissemination Systems that support the dissemination of information about patents and trademarks to the public.

- **Page 32-33** describes plans to modernize the IT used by the USPTO to collect and manage revenue by developing the Fee Processing Next Generation processing capability.

- **Page 34-35** describes plans to operate, maintain, and improve the Corporate and Management Support Systems that support USPTO executive management, international, legal, financial, administrative, and other business areas that support all USPTO operations.

- **Page 36-38** describes plans to operate, maintain, and improve the OCIO Services and IT Infrastructure upon which all business areas and systems rely.

The USPTO’s implementation of SITP activities is subject to the availability of resources and funding.
WHERE WE’VE BEEN...

In the summer of 2008, the USPTO created The OCIO Road Map and Transformation Plan ("The Road Map") to respond to urgent IT infrastructure issues that were so severe, they risked jeopardizing the Agency’s mission. These issues grew out of a previous infrastructure investment strategy that aimed at achieving short-term returns rather than maximizing benefits to the Agency over the long term. While there has been a focus on year-over-year fiscal reductions and the formulation of budgetary dollars as projects, investments to sustain and improve the underlying infrastructure had not kept pace with an increasing workforce and an accelerating need to replace ‘end-of-life’ and over-taxed technology components.

Under new leadership, the OCIO responded to the immediacy and severity of the IT infrastructure risk under which USPTO was operating in 2008. The CIO structured The Road Map as an integrated portfolio and obtained approval in just three months. Until The Road Map, the USPTO had never executed an effort of this magnitude. In 2008, essential capabilities for planning, management, measurement, and collaboration were either not sufficient or largely absent. Moreover, the OCIO had a credibility gap with its customers in the business units.

In a highly compressed timeframe, the CIO was able to identify nine major areas (or programs) that The Road Map needed to address. However, it could not define specific projects without completing additional analysis and planning. Thus, the CIO proceeded with Road Map planning as an iterative process driven by the discovery of issues, formulation of specific solutions, and understanding of interrelationships not fully known before work commenced.

The Road Map was a vital, high priority undertaking for USPTO. The CIO defined four overarching Road Map goals. Achieving these goals would resolve immediate issues and enable long-term business value. These four goals remained essentially unchanged throughout The Road Map:

• Stabilize the existing infrastructure environment and strengthen the core competencies of the IT workforce
• Consolidate the existing infrastructure and application systems to avoid unnecessary duplication and excessive cost
• Optimize the IT infrastructure to improve performance, facilitate governance, and ensure compliance
• Maintain and enhance the services delivered to customers

ROAD MAP FORMULATION

• Developed and approved within three months
• Integrated nine interrelated programs into a single portfolio
• Encompassed all aspects of OCIO: people, process, and technology
• Addressed complex interdependencies and many unknowns
• Planned and prioritized short and long term projects
• Anticipated change and external impacts
The investment consisted of nine programs defined to address the full range of problems and to achieve the four overarching goals. The nine programs, listed below, remained the same over the life of the portfolio.

- Organizational Strengthening
- Process Standardization
- Data Center Stabilization
- Application Information System Stabilization
- Desktop Stabilization
- Service Desk
- Disaster Recovery
- Telecommunications Stabilization
- Enterprise Architecture

The Road Map was a significant accomplishment from a planning and management perspective. Using an agile planning approach, OCIO successfully incorporated significant changes that occurred within the first two years, from both early discovery efforts and externally driven factors. The OCIO established improved governance and management practices at all levels: portfolio, program, and project. It also implemented tools such as the Corporate Planning Tool (CPT), the Software Development Life Cycle (SDLC), and the Enterprise Program Management System (EPMS) to support these practices.

Another major contributor to The Road Map’s success was the decision to address the serious organizational and process issues that existed in 2008. The OCIO could not have realized these, without making investments and leveraging industry standard processes accomplishments such as ITIL and SDLC.

The OCIO achieved the critical planning and management outcomes while concurrently executing nine Road Map programs with numerous subordinate projects. Not only were these planning and management outcomes critical to the success of The Road Map, they created a solid foundation of best practices that has positioned USPTO to take on the major modernizations of core applications systems, such as Patent End to End (PE2E), Trademark Next Generation (TMNG), and Fee Processing Next Generation (FPNG).

At its conclusion in 2013, the OCIO had accomplished the majority of what it set out to achieve as articulated in the four overarching Road Map goals. Beyond the accomplishments of the individual programs, The Road Map has created enduring value for OCIO and for USPTO.

*Page 5 displays the Long term Business Value diagram...*
THE FOUNDATION IS BUILT...

Web-based Software Innovation for the 21st century

Delivering Breakthrough Digital Services for the USPTO

The OCIO is in the midst of a tidal wave of transformation. Our organization must innovate in the face of rapidly changing technologies, new federal mandates, rising demand for patent and trademark applications and the need to serve a global workforce and operate 24/7/365.

Infrastructure and Systems Stability

In recent years, the organization stabilized critical systems and improved overall performance. Dramatic infrastructure improvements and proactive monitoring improved systems availability and incident response. Moving to the cloud means we transition from an organization that manages and maintains technology infrastructure to one that enables innovation through digital capabilities. Our systems are now 70% virtual, as we swiftly provision infrastructure to serve business requirements.

Partnership with Customers

Collaboration with the OCIO and major business units soared in recent years through ongoing dialogue, executive input and establishing of collaborative working groups e.g. the IT Liaisons committee. We co-design next generation products and services with our customers as partners, with a goal of designing and delivering tools for a global, mobile user base. Our journey toward the mastery of Agile methods makes customers a priority and, as a result, our products better reflect their needs and strengthened the OCIO’s relationship with all USPTO business units.
Managing Innovative Processes

In innovation, process must come first. On the road to modernization the OCIO has rationalized and standardized how we invest in IT. The investment process is now transparent and engages stakeholders early and throughout all stages. Program management and project management became transparent and customer-driven.

Escalating customer demands and changing technology means we must have faster release cycles to maintain the pace of innovation. We introduced new technology-enabled processes like automated software builds and performance testing. More automation means less errors, less triage and continuous improvement. Along with industry best practices, we have adopted a model known as DevOps which is the most effective way of delivering next-generation software systems for today’s marketplace. A transformation agenda requires masterful execution to get the job done.

Revitalized, Engaged strategic workforce...Transformed and Ready to Deliver

The OCIO has hired a record amount of technology talent in recent years with the right skills and the mindset to help transform USPTO’s IT. The OCIO continues to close the critical skills gap noted several years ago and invest in vigorous training for every employee. This will lead to, reduced attrition and stronger links between employee performance and organizational goals. The journey to real transformation in our workforce processes and systems happened because many teams committed to work hard to fuel 21st century IT innovation here at the USPTO. With sound technology, smart processes and an energized, sharply skilled staff, the OCIO is poised to deliver breakthrough new digital systems in 2015 and beyond.
The United States is a global leader in promoting laws and policies that foster innovation and Intellectual Property (IP) rights – and in encouraging economic investment in the arts, innovation, and creativity.

The USPTO Vision is to “Lead the Nation and the World in Intellectual Property Protection and Policy.” The USPTO Mission is to “foster innovation, competitiveness and economic growth, domestically and abroad by delivering high quality and timely examination of patent and trademark applications, guiding domestic and international intellectual property policy, and delivering intellectual property information and education worldwide, with a highly-skilled, diverse workforce.”

In the USPTO Strategic Plan, the Director of the United States Patent and Trademark Office outlines a vision and establishes goals, which recognize the importance of intellectual property protection in a global and technology-based economy. In concert with the USPTO Strategic Plan, this Strategic IT Plan documents the role that information technology plays in achieving the USPTO mission, vision, and goals. The SITP also defines a vision for USPTO information technology that will greatly enhance the quality of service to its customers and guide the Office of the Chief Information Officer during the FY 2015 to FY 2018 period.

The USPTO is organized to support its constitutionally-mandated business functions, with a Commissioner for Patents, a Commissioner for Trademarks, Advisory Committees, and Appeals Boards that report directly to the Director. The other offices that report directly to the Director provide support for enterprise-wide management functions. One of those is the Office of the Chief Information Officer (OCIO), which by law oversees all information technology used by the USPTO.

The offices that report directly to the Chief Information Officer (CIO) support all USPTO business areas, but manage their work by having subordinate divisions and/or segmenting their resources by business area. In addition to its purely IT function, the OCIO’s Office of Information Management Services includes divisions that manage a constitutionally-mandated business function to disseminate information about patents and trademarks to the general public.
The USPTO is the agency responsible for meeting the constitutional mandate from Article I, Section 8, Clause 8, of the U.S. Constitution: “to promote the progress of science and useful arts, by securing for limited times to authors and inventors the exclusive right to their respective writing and discoveries”; as well as the Commerce Clause of the U.S. Constitution (Article 1, Section 8, Clause 3) supporting the federal registration of trademarks.

The USPTO Strategic Plan specifies three USPTO strategic goals and one management goal: (1) Optimize Patent Quality and Timeliness, (2) Optimize Trademark Quality and Timeliness (3) Provide Domestic and Global Leadership to Improve Intellectual Property Policy, Protection and Enforcement Worldwide. The management goal, Achieve Organizational Excellence, focuses on the shared responsibility for achieving these strategic goals. These strategies and performance measures are the foundation for the USPTO 2014-2018 Strategic Plan, which is in turn the foundation for the USPTO Strategic IT Plan.

To meet this commitment, the United States Patent and Trademark Office is aggressively pushing to completely modernize its IT systems – not just to incrementally improve, but to radically re-invent systems from scratch. It is looking at building new patent and trademark systems from end to end – from the writing and submission of applications, to the workflow, examination, issuance, and maintenance at the other end. To accomplish this, the USPTO started with the prudent thing – stop, look and listen. That means: stop investing in endless modifications to our outdated systems; look at what other agencies and industry are doing; and listen to its employees and stakeholders to determine their wants and needs. It means embracing an agile and iterative development methodology to incrementally build and improve core functionality, and then scale to meet the broad needs of our user community. For these changes to make an impact on timeliness and quality, the new capability must fully meet the needs and desires of examiners, and be flexible enough to absorb continuous change going forward.”

The USPTO Strategic Plan includes objectives specifically for IT. The overall strategies to “optimize Patent and Trademark quality and timeliness” include the following objectives that are directly related to IT:

**Ensure Optimal IT Service Delivery to All Users (see page 9 of the 2014-2018 USPTO Strategic Plan for more information):**

- Stabilize the Patent Application Location Monitoring (PALM) and other legacy IT systems;
- Redesign and re-architect current patent IT systems to provide end-to-end electronic processing;
- Increase the acceptance, creation and publication of standardized, structured, and searchable patent data and documents;
- Upgrade search systems and prior art access; and
- Identify IT opportunities with other IP offices to invoke work sharing efficiencies.

**Ensure Optimal IT Service Delivery to All Users (see page 14 of the 2014-2018 USPTO Strategic Plan for more information):**

- Modernize IT systems by developing and implementing the Trademark Next Generation (TMNG) IT system to create full electronic workflow, and state-of-the-art IT resources for external and internal users; and
- Continue to provide optimal service on legacy systems to employees and public users.

**Provide Leadership and Education on IP Policy and Awareness (see page 17 of the USPTO Plan for more information)**

- Leverage technology to increase domestic and international education, training, and outreach at all levels.

**Leverage IT Investments to Achieve Business Results (see page 20 of the 2014-2018 USPTO Strategic Plan for more information):**

- Leverage IT to improve internal and external collaboration and information sharing;
- Enhance the internal and external user experience by developing user-driven products, including those accessible in a mobile environment;
- Evolve and improve IT infrastructure and services;
- Continue to provide cost-effective, transparent operations, processes and information; and
- Deliver cost-effective and seamless next generation IT solutions; for example, integrations of Patent End-to-End (PE2E), Trademark Next Generation (TMNG), and Fee Processing Next Generation (FPNG).
BUSINESS CHALLENGE

As a production-oriented entity, the USPTO relies upon IT as a mission-critical enabler for every aspect of its operation. The quality, efficiency, and productivity of patent and trademark operations are directly correlated to the performance of their IT systems, which are in the latter stages of a major modernization effort. To accomplish its performance-based strategies, the USPTO continuously engages in multi-year efforts to upgrade its business systems, and the IT infrastructure supporting those systems to keep pace with emerging business needs and technology standards.

This view of IT mirrors a statement from June Drewry, formerly of the Chubb Corporation, who stated: “There is no such thing as an IT Project. There are only business projects with an IT component.”

The business of the USPTO is extremely reliant on technology services provided by the OCIO to examine, manage rights, and collect revenues associated with patents and trademarks. IP examination itself is a complex skill that uses techniques which require state of the art technology for searching vast amounts of data resources, compiling evidence, and sometimes conducting specialized analysis such as biomedical sequencing to conclude that an idea is truly unique. The technology services that support IP examination require a next generation transformation to provide examiners with the tools necessary to be successful.

The OCIO supports eleven unique Business Units. They are:

- Office of the Under Secretary and Director
- Office of Commissioner for Patents
- Office of Commissioner for Trademarks
- Office of Policy and International Affairs
- Office of the General Counsel
- Patent Trial and Appeal Board
- Trademark Trial and Appeal Board
- Office of Director of EEO and Diversity
- Office of Chief Communications Officer
- Office of the Chief Financial Officer
- Office of the Chief Administrative Officer

Each Business Unit has unique operational considerations, challenges, and plans for the future. As a result, the USPTO requires an approach to IT which can provide the flexibility needed to meet this uniqueness, and, at the same, do so under a single Plan, Framework, and IT Governance.
USPTO IT FRAMEWORK

As a key element of our ongoing continuous improvement effort, the USPTO has established a Framework for Organizing and Managing IT Portfolios, Programs and Projects (“The Framework”). IT initiatives are tied to USPTO Strategic Goals and are administered through the Framework. It provides absolute transparency of all IT efforts through a structured mapping to strategic goals and internal/external reporting requirements. The Framework also provides a delineation of roles and responsibilities for those charged in achieving the desired results laid out through defined scopes of work through a matrixed organizational structure. Portfolio and Program Management is approached through a strategic and horizontal oversight role from centralized resources, while project execution is managed through a more tactical and vertical, or decentralized approach from within specific functional organizations.

- USPTO Goals- Defined in The USPTO 2014-2018 Strategic Plan and classified as mission-focused or management-focused goals.
- IT Portfolios- Generally based on the organization’s IT Investments and are established within each USPTO goal. They are designed to cut across the USPTO and OCIO organizationally.
- IT Programs- Groups of related projects within a Portfolio and designed to cut across the USPTO and OCIO.
- Projects- Very specific scopes-of-work, assigned to specific Offices within OCIO or elsewhere in USPTO.

The OCIO’s Program Management Division (PMD) serves as a Program Management Office (PMO) for establishing, implementing, facilitating, and administering processes and tools related to management of USPTO IT Portfolios, Programs, and Projects as defined in the USPTO Framework. IT Program Managers are located within PMD and work with Portfolio Managers, USPTO Business Unit Representatives (i.e., IT Liaisons), Project Management Leads, Project Managers and Technical Leads to ensure IT requirements are met. Program Managers implement best practices and are responsible for providing leadership and oversight at the Program level.
USPTO IT PLANNING

Each year during the months of January through April, the USPTO conducts an extensive, Office-wide, IT planning process. Following USPTO’s IT Framework, the planning process is accomplished at the Portfolio level. The annual planning process revalidates Portfolio Goals, Portfolio Objectives, and identifies specific IT projects to be undertaken over the next two fiscal years. These projects are directly linked to the four-year USPTO Strategic Plan. The USPTO’s annual budget submission contains additional information regarding IT Program objectives planned to be met for specific fiscal years.

There are different levels of planning at the USPTO: strategic planning at the USPTO level; Business Unit planning, strategic IT planning, tactical IT planning, and OCIO “business planning”.

How it all fits Together...the different levels of IT planning. Below is a graphic depicting the relationship between these planning process and their outcomes.

**USPTO STRATEGIC PLAN**
- 4 year plan
- Updated every 4 years
- High-level, ~ 40 pages
- Process involves all USPTO Business Units, with input from employees and customers/stakeholders
- Includes USPTO mission and vision, strategic goals, objectives, and initiatives
- “Owner” - Under Secretary and Director

**USPTO IT STRATEGIC PLAN (SITP)**
- 4 year plan
- Updated every 4 years
- High-level, ~ 30 pages
- Process involves OCIO Office Directors, IT Portfolio Managers, and Mid-Level OCIO Management, with input from employees
- Includes OCIO mission and vision, USPTO IT Framework, and IT Portfolio Goals
- “Owner” - Chief Information Officer

**USPTO IT TACTICAL PLAN**
- 2 year plan
- Updated annually
- Detailed, ~ 375 pages, taken directly from EPMS
- Process involves Portfolio Teams
- Includes IT Portfolios Goals, IT Portfolio Objectives, IT Programs, and IT Projects
- 1 page EPMS Project Profile for every project planned for the 2-year timeframe, including cost estimates
- “Owner” - Portfolio Teams and USPTO Business Units
IT Portfolios and Portfolio Goals

Each Portfolio Team has identified one or more Goals which guide the identification of projects and investments to be undertaken within the Portfolio. Below are the Portfolio Goals which were identified during the USPTO’s Annual IT Planning Process conducted in 2014.

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<th>PORTFOLIO</th>
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| Patent End-to-End (PE2E) Portfolio | • Expand upon initial end-to-end processing capability to include “specialized” processing required for the Patent Business to phase-out legacy systems and existing IT capability  
• Expand the amount and use of “intelligent data” (i.e., structured vs image) in end-to-end processing  
• Develop additional tools for sharing Patent processes and work products among Global IP stakeholders |
| Patent Legacy IT Capability (PLIC) Portfolio | Until PE2E replaces existing, legacy capability:  
• Ensures stability of Legacy IT Systems to meet both internal and external user demands  
• Improve scalability of Legacy IT Systems to support increasing user base and data requirements, when necessary  
• Upgrade Legacy IT Systems to meet legislative, other federal mandates, and international treaty agreements  
• Develop legacy IT system retirement plans |
| Patent Trial & Appeal Board (PTAB) IT Capabilities Portfolio | • Maintain the Patent Trial and Appeal Board’s (PTAB) ability to provide timely and high quality decisions |
| Trademark Next Generation (TMNG) Portfolio | • Modernize IT systems by developing and implementing the Trademark Next Generation (TMNG) IT system to create full electronic workflow, and state-of-the-art IT resources for external and internal users |
| Trademark Legacy IT Capability (TLIC) Portfolio | Until TMNG replaces existing, legacy capability:  
• Ensure stability of legacy Trademark systems to meet both internal and external user demands  
• Plan for and retire legacy Trademark systems |
| Dissemination Portfolio | • Provide public access to both patent and trademark information and services |
| Policy IT Capabilities Portfolio | • Deliver high-quality IT capabilities to support the Policy Goal of the USPTO |
| Administrative IT Capabilities Portfolio | • Invest in business management systems and IT capabilities necessary to support managerial, legal, administrative, communication, and workforce needs |
| Fee Processing Next Generation (FPNG) Portfolio | • Replace the current fee collection system with 21st century technology that supports other USPTO Next Generation investments and aids in the implementation of fee collection business process reengineering recommendations |
| Consolidated Financial Systems Portfolio | • Achieve efficiencies through automation of financial management processes based upon business process reengineering recommendations and keep pace with advancements in technology |
| Capital Hardware Replacement Portfolio (CHIRP) | • Provide continual management of IT obsolescence in order to maintain a standards-based, supportable, and optimized IT infrastructure |
| Enterprise Infrastructure IT Portfolio | • Provide the infrastructure foundation for the Next Generation efforts, take advantages of emerging technologies to retain and improve the infrastructure, and deliver compliance to IT mandates |
| Program Governance and Support Services (PGSS) Portfolio | • Provide the management and oversight of enterprise IT policies, processes, OCIO budget and workforce development effort  
• Develop tools for measuring and providing visibility into OCIO Organizations’ progress and efficiency levels |
| Technology Sustaining Portfolio | • Sustain the technical standards necessary to deliver high-quality IT products and services to our customers |
| Enterprise Business Systems (EBS) Portfolio | • Increase efficiency and availability, by pursuing Enterprise IT solutions that meet business requirements for multiple Business Units, not already covered elsewhere in the Framework |
USPTO CPIC PROCESS

The United States Patent and Trademark Office’s (USPTO) information technology (IT) Capital Planning and Investment Control (CPIC) process is a systematic approach to selecting, controlling, and evaluating information technology Investments as envisioned by the Clinger-Cohen Act of 1996 (CCA), the Office of Management and Budget’s (OMB) Circular A-130 (Management of Federal Information Resources), and other related guidance and regulations.

The USPTO, as an independent agency under the Department of Commerce, has developed its own CPIC Process, through USPTO Administrative Order (AAO) 212-05. This AAO establishes a CPIC process for maximizing the value and assessing and managing the risks of the Agency’s IT Investments. The process provides for a decision-making framework for selecting, controlling, and evaluating USPTO’s portfolio of IT Investments.

The USPTO’s CPIC process is built on a foundation of strategic and operational IT planning with linkages to the USPTO’s enterprise architecture, IT security and privacy, IT accessibility, electronic government, and other domains of IT management responsibility, such as budgeting and acquisition processes. Investments that meet specific criteria are identified through the annual IT planning process are submitted for formal consideration via the USPTO CPIC process.

As a result of the Annual Planning Process, the USPTO is able to review the results and determine which Portfolios, Programs, and/or Projects meet the thresholds for management within its CPIC process. The actual task of conducting this review belongs to the CRB. At the conclusion of the Board’s review, Investments are proposed, with specific projects identified within the Investment. These Investments are identified as Planned Investments. In addition to the formal annual process, a Business unit can recognize a business problem at any point and develop a business case (CIDP).

Once an Investment Team is identified, and it submits a CIDP to the IT Investment Coordinator, the “state” of the Investment is changed to a Pending Investment. While Pending, the Investment undergoes formal reviews as part of the Selection Phase of the CPIC process. If selected, the CIDP is recognized as an Active Investment. Once Active, the Investment enters the Control Phase of the CPIC process. CPIC Investments are executed, at the project level in compliance with USPTO’s SDLC process, to include all of its associated artifacts, reviews, and internal controls.

Upon completion of the final task for the final project associated with the Investment, it is marked as a Completed Investment, upon which it enters the final Phase of the CPIC Process: the Evaluation Phase.
USPTO PROJECT MANAGEMENT AND AGILE

The USPTO uses a System Development Life Cycle (SDLC) process as its project management process. SDLC encompasses the necessary information and supporting tools that assist project managers and project teams in following best practices in project management and product development while adhering to requirements of regulatory compliance and maintaining awareness of internal and external policies, standards, practices, and processes.

The USPTO has made an informed and proactive decision to invest substantial resources, time and money in its Agile Transformation efforts (including the practice of User-Centered Design) with the end goal of increasing its efficiency, effectiveness and the quality of the products and services it delivers to its customers.

Like so many other organizations that have embarked upon an Enterprise Agile Transformation, the objective is not about “being Agile”, but rather about enabling and achieving stellar business results and providing consistent value to its customer base.

Over the last few years, the USPTO has made remarkable strides in its Agile implementation efforts; however, improvements remain in such areas as:

- capture consistent, accurate and meaningful Program, Portfolio & Team metrics across the enterprise
- define a consistent reporting hierarchy structure within the Agile development tracking tool; and
- ensure consistency in practice and integrity of the data being captured within the tool.

In an effort to effectively strengthen and scale the current agile foundational processes and practices, the USPTO is adopting the Scaled Agile Framework (SAFe) as its end state vision. By adopting the SAFe framework as a beacon for its end state Agile transformation goals, the USPTO has a solid roadmap to follow as it implements and drives consistency and commonality in Agile practices at every level within the organization. This approach to Agile transformation will facilitate the USPTO’s ability to delivers consistent results and provide the flexibility needed by the various programs/portfolios to meet their customers’ business objectives.
In order to keep up with customer demand, you need to create a deployment pipeline. You need to get everything in version control. You need to automate the entire ‘environment creation process’. You need a deployment pipeline where you can create test and production environments, and then deploy code into them, entirely on demand.” - The Phoenix Project, 2013

Real, tangible software development value occurs only when the end-users are successfully operating the software in their environment. This demands that the complex routine of deploying to operations receives early and meaningful attention during deployment. To ensure a fast flow of value to the end user, mechanisms are needed for tighter integration of development and deployment operations. This is accomplished, in part, by integrating personnel from the operations team with the Agile teams in the Agile Release Train. An organization must also continuously maintain deployment readiness throughout the feature development timeline. In turn, this gives the enterprise the ability to deploy improvements to production more frequently.

The USPTO subscribes to this industry model known as “Dev/Ops”. DevOps is an approach in which the Development and Operations teams collaborate continuously to deliver IT solutions to customers. To succeed, DevOps relies on employees working closely together across organizational lines supported by smart processes and tools. Such collaboration is vital to allowing organizations to meet the rapid pace of change.

**DevOps is characterized by an organization’s ability to:**

- Rapidly deliver new products and/or capabilities continuously
- Dynamically scale an environment and provide increased redundancy and high availability
- Eliminate single points of failure
- Provide 24x7x365 operational availability.

A highly collaborative team with operations personnel (e.g., working with System Administrators and Data Base Administrators) means Agile is not just about development and testing but it goes further than that. It’s about collaborating with all different aspects of the project lifecycle. By incorporating the idea of collaboration out further and starting to collaborate with operations personnel, then not only do operations personnel gain
the benefit of Agile development practices – like reducing feedback loops and increasing testability – but developers also gain the benefit of the operations’ perspective, such as the challenges of keeping production systems running reliably and the discipline that’s required in software code to support that type of operation. It’s a win-win for both sides.

DevOps eliminates the blurred lines separating the development and operations disciplines and enforces roles so that development is conducted in an agile manner and operations has the knowledge, tools and skills needed to successfully operate and maintain a production system. This is how it works in industry and this concept keeps many well-known, high-tech companies at the pinnacle of the IT world.

DevOps is a term for a group of concepts that, while not all new, have catalyzed into a movement and are rapidly spreading throughout the technical community. The graphic below shows how previous efforts and investments undertaken by USPTO (in people, process, and tools) have led to this point in time. During the timeframe of this Plan, the USPTO is properly positioned to implement its initial version of Dev/Ops.

A timeline depicting the various stages of DevOps throughout the years.
The USPTO technology vision starts with understanding what the USPTO businesses need and establishes a high level direction for technology that will meet the present and future needs. The USPTO technology vision is to provide evolving services that adapt quickly to the growing needs of our internal and external customers and take advantage of technology industry developments within our infrastructure and organization. In order to reach this technology state, the OCIO must not only move its technology forward but also people and processes that support the USPTO core mission to ensure we never fall behind. The technical challenges faced by the USPTO are:

- **Choose to reuse services and build services to be shared** to refocus resources on mission needs and quickly provide better capabilities that can themselves be reused and take full advantage technology industry developments.

- **Build services that are always available** to support geographic expansion of customers worldwide and examination nationwide with 24x7x365 operations and zero customer impact to downtime.

- **Make everything like a website** to improve the accessibility and management of all information on all devices and in all locations.

- **Provide searchable information** to improve IP research by accepting and converting all information into searchable technology formats for USPTO and other systems to be built upon.

- **Write code once and deploy wherever** to improve portability, stability, and cost effectiveness of solutions by increasing the technology choices available with vendor neutrality.

- **Take an Agile approach to everything** to improve the customer value delivered by incorporating continual customer and industry feedback into solutions iteratively before it is too late.

- **Provide Mobility and Collaboration** to improve the individual user experience and leverage collaborative technology to better share knowledge and work together towards business results.

Overcoming these challenges will create an environment scalable to meet the USPTO’s current and future needs.
The governing strategies below will guide future USPTO information technology initiatives and will greatly assist in enhancing the quality of information technology support provided to USPTO business areas and customers.


**Project Management.** The key management, control, and resource allocation strategies for information technology projects are to:

- Manage information technology projects as investments;
- Emphasize agile development and incremental delivery of products and services;
- Provide information technology products and services in a timely manner and in a useful format;
- Encourage end-user involvement;
- Plan cost and schedule performance; and
- Select appropriate solutions with a focus on providing value.

**Information Technology Infrastructure.** The following are the key strategies pertaining to on-going operations, modifications, augmentation, replacement, and maintenance of computer and communications equipment, network facilities, and system and data base software:

- Implement robust architecture;
- Ensure compatibility with the USPTO and federal Technical Reference Models, which define the information technology standards, services, interfaces, supporting data formats, and protocols;
- Implement robust systems and networks;
- Implement a comprehensive end-user computing support environment; and
- Implement appropriate infrastructure security.
**Application Software.** The key strategies pertaining to the analysis, design, development, deployment, operation, maintenance or enhancement of application software are to:

- Focus on improving business processes before automating;
- Clarify requirements, including use of prototyping when appropriate;
- Leverage proven assets, including software re-use and the use of Commercial-Off-The-Shelf (COTS) software; and
- Apply appropriate software security mechanisms.

**Data.** The key strategies pertaining to the standardization, control, and integrity of data stored or manipulated are to:

- Facilitate data sharing among USPTO systems by standardizing and re-using data whenever possible;
- Use of standard data elements by complying with applicable USPTO, federal, national, and international standard data;
- Share data with customers by pursuing additional electronic data interchange agreements with foreign and international intellectual property patent organizations and selected private sector organizations;
- Use of “intelligent data” (i.e., XML) rather than images and pictures of text;
- Provide data for analysis through an enterprise data warehouse separate from operational databases; and
- Apply appropriate data security mechanisms by limiting access to authorized users.
Presidential Objectives and OMB Strategies

The President’s Objectives for USPTO and Technology

The President’s objectives are described at www.whitehouse.gov/issues/technology and include specific provisions from the American Invents Act that are relevant to the USPTO and its information technology. The objectives of the Administration also include other issues relevant to USPTO: Protecting American Intellectual Property Abroad, Protecting American Intellectual Property at Home, Reforming the Patent System, Safeguarding our Right to Privacy, Opening up Government to its Citizens, Bringing Government into the 21st Century, Deploying Next-Generation Broadband, and Expanding Flexible Work Arrangements.

The President appointed the first ever federal Chief Information Officer (CIO) in 2009 to provide management and oversight over federal IT spending, and the first ever federal Chief Technology Officer (CTO) to provide vision, strategy and direction for using technology. These presidential and federal CIO/CTO agendas permeate throughout this Plan as the USPTO strives to fully comply with their vision and guidance.

OMB Strategies and Directives


Among the key issues affecting information technology at the USPTO are OMB guidelines for Information Quality Government-wide Initiatives, OMB-specific Information Quality Web page, Information Policy Documents, Computer Security, Privacy Guidance, Privacy Reference Materials, Government Paperwork Elimination Act (GPEA), the Freedom of Information Reform Act, and the Paperwork Reduction Act. In addition to OMB guidelines and policies outlined in OMB Circulars, the following OMB strategies are highly relevant to IT at the USPTO:

• The “Getting to Green” Initiative requires USPTO and other federal agencies to report on their performance using a reporting mechanism of red, yellow and green lights. The USPTO now regularly reports on its IT Investments using five criteria, and strives to achieve a green rating by collaborating with all stakeholders, setting measurable goals, aligning plans with budgets, tracking and managing costs, and validating effectiveness.
• The “cloud computing” Initiative requires the USPTO to take steps to enable convenient, on-demand network access to a shared pool of configurable networks, servers, storage, applications, services, and other computing resources that can be rapidly provisioned and released with minimal management effort or service provider interaction.

• The “Federal Data Center Consolidation” Initiative requires the USPTO to take steps to migrate from dedicated data centers to consolidated federal data centers to (1) promote the use of Green IT, reducing the overall energy and real estate footprint of government data centers; (2) reduce the cost of datacenter hardware, software and operations; (3) increase the overall IT security posture of the government; and (4) shift IT investments to more efficient platforms and technologies.

• The “Open Government” Directive requires the USPTO to establish “a system of transparency, public participation, and collaboration” in order to “promote efficiency and effectiveness in Government.”
The USPTO is transitioning the patent application process to one in which the majority of applications are submitted, handled, and prosecuted electronically. The IT architecture and systems currently in place for legacy systems are inadequate and unable to evolve to meet the demands of the future. The databases containing patent data are already some of the world’s largest, and continue to grow at multiple terabytes per year, giving rise to the possibility of catastrophic failure. The continued dependency on inefficient and outdated automation will lead to an inability to support the USPTO mission of granting IP rights and dissemination of technology.

A key objective in the USPTO Strategic Plan is “Redesign and re-architect current patent IT systems to provide end-to-end electronic processing.” Among the key strategies for PE2E are to: (1) Develop and implement eXtensible Markup Language (XML) for all data from application to publication; (2) Build an infrastructure for PE2E based on virtualized and cloud computing environments in one or more consolidated data centers; and (3) Redesign and re-architect Patent IT Systems to provide End-to-End Electronic Processing to replace legacy Patent IT systems that now require Patent employees and external stakeholders to perform labor-intensive, manual business processes.

Patents End-to-End (PE2E) enables a new way of processing patent applications, providing a single place to manage examination activities, and supporting the work done now outside or across existing systems. The overall vision for PE2E weaves together activities that are currently done in separate systems. These systems include work management, application document viewing, searching, Office Actions, and saving reference information and electronic notes for easy retrieval.

Many examiners have been actively involved in the design, to ensure that the system incorporates what is currently done on paper and electronically. The idea is to reduce the number of steps so that examiners can focus on examination, not on manual tasks, and to provide maximum flexibility for configuring the toolset to meet each examiner’s individual preferences.
The duties of the Patent Trial and Appeal Board (PTAB) within the U.S. Patent and Trademark Office (USPTO) include (1) on written appeal of an applicant, review adverse decisions of examiners upon applications for patents pursuant to section 134(a); (2) review appeals of reexaminations pursuant to section 134(b); (3) conduct derivation proceedings pursuant to section 135; and (4) conduct inter partes reviews and post-grant reviews pursuant to chapters 31 and 32."

The two systems supporting PTAB are the Adjudicated Case Tracking System (ACTS) and the Patent Review Processing System (PRPS). ACTS provides IT support for PTAB’s (1) ex parte appeals filed by patent applicants who allege error during examination of their application, (2) interferences, a trial-like proceeding to settle a dispute between two parties about who was the first to invent particular subject matter, and (3) Reexamination appeals from the Central Reexamination Unit. PRPS implements electronic filing, payment, and limited case management for four new PTAB trial types required under the Leahy-Smith America Invents Act (AIA). The four new PTAB trail types required under AIA include (1) Inter-partes reviews, (2) post grant reviews, (3) the transitional program for covered business method (CBM) patents, and (4) derivation proceedings.

The Patents Trial and Appeal Board (PTAB) End-to-End (E2E) investment represents the planning, development, and delivery of an end-to-end system to meet PTAB’s current and future business capability needs, and to include the retirement of ACTS and PRPS.

The internal benefits of the PTAB E2E investment include the development of tools which:

- Meet current and future PTAB business capability needs expressed in the PTAB Business Architecture
- Is developed and implemented based on a PTAB IT Priority List
- Provides one end-to-end IT solution for PTAB case work, including AIA Decisions to Institute, Trials, Interferences, Appeals, etc.
- Meets USPTO’s Strategic Goal of Optimizing Patent Quality and Timeliness
- Meets PTAB’s Objective of Improving the Appeal and Post-Grant Processes
- Interfaces with the PE2E solution
• Uses a relational database, and uses existing data mart/warehouse tools as practical to generate reports/business analytics

• Allows for the retirement of the existing ACTS and PRPS legacy systems, and replaces PTAB’s current manual and semi-automated processes for functions and reporting not supported by legacy systems

**The external benefits of the PTAB E2E investment include a system that:**

• Offers a seamless external user interface for AIA case management

• Provides a reliable communication vehicle for PTAB to provide the public with relevant information regarding AIA decisions.

• Demonstrates to the public USPTO’s commitment to innovation and competitiveness

• Uses existing data mart/warehouse tools to generate reports/business analytics

• Allows for the retirement of the existing ACTS and PRPS legacy systems, and replaces PTAB ‘s current manual and semi-automated processes for functions and reporting not supported by legacy systems

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• Demonstrates to the public USPTO’s commitment to innovation and competitiveness
Patents Legacy Systems

The Patent’s business area now relies on over 40 legacy systems that support nearly every aspect of Patent business operations. These applications are grouped into four Master Systems:

- Six systems comprise the **Patent Capture and Processing System – Initial Processing (PCAPS-IP)** Master System and support the public prosecution of patent applications, as well as internal USPTO users. These systems support the processes of capturing patent applications and related metadata in electronic form using the Patents Electronic Filing System on the Web (EFS-Web) system, capturing supplemental information, processing applications electronically, reporting patent application processing and prosecution status, retrieving and displaying patent applications using subsets of the Patent Application Location and Monitoring (PALM) system, and ensuring security using the Patent Application Services and Security (PASS) system.

- Sixteen systems comprise the **Patent Capture and Processing System – Examination Support (PCAPS-ES)** Master System and support the examination process of patent applications. It provides the technical support staff with electronic access to the patent applications documents via Image File Wrapper (IFW), and similar access for the examiners and their supervisors using Electronic Desktop Application Navigator (eDAN) and Patent File Wrapper (PFW). Additional tools for examiners to utilize during prosecution include subsets of PALM for production and workflow tracking.

- Ten systems comprise the **Patent Search System – Primary Search and Retrieval (PSS-PS)** Master System and support the legal determination of prior art for patent applications, including the use of Application Information Retrieval System (AIRS), Classification Data System (CDS), Enterprise Text Search (ETS) and Patents Information Retrieval System (PIRS) for text and image search of repositories of U.S. application and grant publications, foreign application and grant publications, various concordances, and non-patent literature. It represents the databases that contain the images and text data for U.S. patent grants, published applications, and unpublished applications; as well as the Examiner’s Automated Search Tool (EAST) and Web-based Examiners Search Tool (WEST) examiner interfaces to those search systems, and the references document systems including the Manual of Patent Examining Procedures (MPEP) and Manual of Classification (MOC).

- Nine systems in the **Patent Search System – Specialized Search and Retrieval (PSS-SS)** Master System and support the legal determination of prior art relevant to patent applications where such art is of unusual form or size. The Supplemental Complex Repository for Examiners (SCORE) system provides a repository for jumbo applications, chemical structures, and computer program listings, the Automated Bio-sequence Search System (ABSS) provides specialized search databases which are necessary for bio-sequences, and the Electronic Chemical Drawing System (ECDS) is used to search chemical abstracts. Foreign documents are loaded and searched through Foreign Image Data Load (FiDL), Foreign Image Search Capability (FISC), and European Patent Office Query Workstations (EPOQUE). This area also supports the user interface that is available
on www.uspto.gov for the public to search the full text of patents and the full text of published applications.

In addition to operating and maintaining these legacy systems, numerous efforts must be taken to stabilize and modify these systems, until such time as PE2E is fully operational. Our goal is to retire legacy systems starting in 2015, as new PE2E tools replaces the functionality they now provide.

Trademark Next Generation Tools

Over the past four years, the next generation of Trademark IT tools have been under development. Some are in production meeting the business needs of the Trademark Business Unit. When fully deployed, the Trademark Next Generation (TMNG) tools will completely replace the existing legacy systems with a fully electronic, separate, and sustainable, end-to-end system in which technology and user services will be developed, managed, and adapted in an efficient and cost effective manner.

The approach to delivering TMNG tools is comprised of five major components:

- **Separation & Virtualization**: Separation includes physically moving all of the Trademark systems from servers and storage shared with other non-Trademark systems to Trademark-only servers and storage. Virtualization includes moving the Trademark systems from separate physical servers to Trademark only virtualized servers and Trademark-only storage to the maximum extent practicable. This component was completed in fiscal year 2014.

- **Examination Capability**: This aspect focuses on the business capabilities in the Trademark Business Architecture specific to examination functions. Capabilities such as: integrated user interface across multiple examination functions, electronic case management, improved reporting and monitoring of TM examination processes, and improved and integrated electronic searching.

- **Non-Examination Capability**: This aspect focuses on the business capabilities in the Trademark Business Architecture specific to non-examination functions. Capabilities such as: pre-examination, publication and issue, petitions, Madrid Protocol processing.

- **Customer/External Interaction**: This aspect will produce the next generation of tools for interacting with the Trademark Business’ customers. Tools such: electronic TM certificates, electronic TM ID Manual, “formless” TM application filing capability, and enhanced TM electronic Official Gazette.

- **TM Trial and Appeals**: This aspect will develop next-generation, end-to-end capability for the USPTO’s Trademark Trial and Appeal Board, and it’s related functions and Business Architecture.

The resulting next generation IT tools, platform, and functionality will enable optimal use of Trademark Business data by both internal and external stakeholders to meet their continually evolving needs. Implementation of TMNG architecture, technology platform, systems, and functionality will be managed separately from other USPTO business units to the maximum extent practical. This will allow the Trademark Business to take advantage of new technology which will reduce the IT development, enhancement, and maintenance costs while providing a more manageable, agile, and adaptable technology platform.
Trademark Legacy Systems

The Trademark business area relies on existing systems that support all areas of Trademark business operations. The OCIO will continue to ensure that current “as-is” operations of the Trademark systems are maintained until the new TMNG tools are deployed into production. However, minimal enhancements may be necessary to legacy systems while the TMNG systems are under development.

Legacy systems are categorized under five different groupings:

- **Trademark e-Government Systems**—Trademark e-Government refers to those services and data that are made available on the Web. In general, this has involved using the Internet to expose and provide access to internal Trademark databases and establish specialized Web-based capabilities that provide the public with direct access to specific services.

- **Trademark Internal Operations**—The Trademark Internal Operations systems are focused primarily on the support of Trademark operations. These systems are among the most mature within the Trademark portfolio of systems, since the initial automated data processing (ADP) development efforts were specifically commissioned to support facets of managing application inventory and processes.

- **Trademark Records Management Systems**—Trademark Records Management Systems is the broad designation for the systems that manage the Trademark digital records. The management of these records includes the activities that allow for capture and storage, as well as the record retention activities including monitoring integrity and archiving.

- **Trademark Search Systems**—Trademark Search Systems are those custom systems that have been constructed to provide for enhanced search capabilities and retrieval of the contents of Trademark databases. Primarily and historically these systems are separate from the systems that create the content, since the technology that they rely on is specialized for the function.

- **Trademark Reference Systems**—Trademark Reference Systems have generally been considered to be search systems, since they have been constructed with full text search technology primarily to allow for searching and retrieving the contents. These systems are unique in that they provide for the management of, and access to, reference materials supporting the Trademark related functions; however, they do not contain data specific to any particular trademark.

Our goal is to continue retiring legacy systems, as new TMNG tools replaces the functionality they now provide.
Information Dissemination Systems and Transparency

In the USPTO’s Strategic Plan, both the Patent Business and the Trademark Business have objectives to: “Continue and Enhance Stakeholder and Public Outreach.” The USPTO is committed to providing increased transparency as called for by the President’s Open Government Initiative. An important element of this transparency initiative is making valuable public patent and trademark information widely available in bulk format to the public at no charge for analysis and research.

Dissemination refers to providing public access to both patent and trademark information and services. Timely access to information contained in issued patents, registered trademarks, and assignments is an essential part of the USPTO’s mission and critical to the global economy. Functions include delivery of quality information products and services to meet USPTO, public, and intellectual property community needs, as well as ensuring the quality and integrity of the electronic intellectual property data. The Office provides access to collections of patents, trademarks, and related information through multiple programs, and promotes dissemination of information to the public on the use of patent and trademark information systems.

Several of the Dissemination Programs make heavy use of Information Technology (IT). Challenges include changing user requirements and expectations, changing interrelated systems, such as Patents End to End (PE2E), Trademarks Next Generation (TMNG), Fee Processing Next Generation (FPNG) and MyUSPTO, and increasingly sophisticated demand for data services.

The Dissemination Portfolio consists of the following programs:

- **Assignment Recordation**—provides a public record of patent and trademark ownership changes.
- **Copy Sales**—provides certified copies of patent and trademark applications, patents and registrations for use in judicial proceedings, and to establish reciprocal intellectual property rights in other countries, such as under the Paris Convention or the Madrid Protocol.
- **Electronic Data Products**—provides bulk, electronic patent and trademark data to the public, for loading into their own databases for research purposes or for value-added resale.
- **Patent and Trademark Resource Centers**—provides support for a network of roughly 80 public, state and academic libraries across the country that further disseminate patent and trademark information and provide training and help to remote customers.
- **Public Search Facility**—provides onsite public access to USPTO patent and trademark source documents and related search tools in various formats.
• **USPTO Contact Center**—provides general information assistance to the public, primarily through the agency’s toll-free contact number

• **Mobile apps, Big Data, Application Programming Interfaces (APIs), etc.**—provides new and innovate tools and mechanisms which allows USPTO customers (large and small) to obtain IP information in a manner most beneficial to them

The USPTO operates numerous systems, most of which are accessible via the public [www.uspto.gov](http://www.uspto.gov) website, and are used to disseminate data about patents and trademarks. The USPTO coordinates information dissemination with Patent and Trademark Resource Centers around the Nation that provide on-line access and training, most of which are located in public or university libraries. The OCIO also provides free, bulk electronic data for downloading; records patent and trademark assignments; fulfills orders for certified copies of patents and trademarks; provides a toll-free information line; and operates a Public Search Facility on its Alexandria campus.
Fee Processing Next Generation Tools

The USPTO is looking to COTS, GOTS, and open source code to meet its IT needs and is making custom code a last resort. The USPTO also is listening to its stakeholders to identify opportunities for process and technology improvements. The Fee Processing Next Generation (FPNG) investment is the result of these process and technology improvements.

External Stakeholders: IT is being used to build an interactive relationship with USPTO customers, including the secure and easy payment of fees as customers do business with the USPTO. Customers will experience the same look-and-feel as they move from ordering goods/services (PE2E and TMNG) to paying for their order (FPNG); set up EFT/deposit/credit card payment accounts on-line and associate their payment accounts with their USPTO customer account for easy payment; receive on-line notification when additional fees are due or when refunds have been issued; electronically request refunds; and tailor their on-line notifications and their on-line queries to get financial history about specified payment accounts and/or business accounts to which they have secured access. Currently the process described above is non-standardized, or in some instances, not optimal.

Internal Stakeholders: Fee payment and refund documents will be stored in a single location that allows for proper financial internal controls and audit history as well as a complete business record for each order. Currently documents are stored across several systems. Customer notifications will be issued using standard electronic methods and following standard business rules. Many edits and audits that must now be done manually will be built into FPNG. Overall, workload related to system shortcomings such as time-consuming manual procedures or high helpdesk call volume will be significantly reduced.

Technology: There is a large body of knowledge and technologies to leverage. As appropriate, on-line payment technologies in the marketplace will be used. Where Government Off-the-Shelf (GOTS) technologies already exist, those will take precedence in order to gain financial management efficiencies across the Federal Government. Currently the custom collection system (RAM) is running on unsupported software, has a severely inefficient interface architecture (over 90 interfaces), lacks redundancy, has very limited disaster recovery, and is at risk of going down for an extended period of time. The final act in the FPNG Investment is the retirement of the current RAM system.

The benefits to our customers are:

• Building an interactive electronic relationship with USPTO;
• Provide secure electronic and easy payment of fees;
• Provide the same look-and-feel (GUI) as they move from ordering goods/services (Patents End-to-End and Trademarks NG) to paying for their order (FPNG);
• Receiving on-line notification when additional fees are due or when refunds have been issued;
• The Ability to electronically request refunds; and

• To Electronically search notifications and queries for financial history about specified payment accounts and/or business accounts to which they have secured access.

**The benefits to the USPTO are:**

• Fee payment and refund documents will be stored in a single location

• Secure financial internal controls and audit history are automated;

• Creates a complete business record for each order; and

• Use existing on-line payment technologies and Government Off-the-Shelf (GOTS) technologies in order to gain financial management efficiencies across the Federal Government.
Corporate and Management Support Systems

There are eight offices that provide management support to the USPTO’s Business Units. These are: Office of the Under Secretary and Director, Office of Policy and International Affairs, Office of General Counsel, Office of Equal Employment Opportunity and Diversity, Office of the Chief Communication Officer, Office of the Chief Financial Officer, Office of Chief Administrative Officer, and the Office of the Chief Information Officer. These offices rely on more than 28 existing automated information systems.

There are two systems that serve the Office of the Under Secretary and Director—the Executive Document Management System (EDMS) and the Statistic and Analysis System (STATA). These systems will continue to be operated and maintained, and there are notable plans to deliver new document management capability for executive correspondence.

There is one system that serves the Office of Policy and International Affairs (OPIA) – the Office of Legislative Affairs System (OLIADS). This system will continue to be operated and maintained, but no significant functional enhancements are planned. However, there are plans for improved IT capability to support the delivery of IP training domestically/internationally.

There are seven systems that serve the Office of General Counsel (OGC) – Electronic Freedom of Information Act (E-FOIA), the FOIA Electronic Management System (FEMS), the General Counsel’s Cast Tracking System (GCCTS), the General Counsel’s Library System (GCLS), the Office of Enrollment and Discipline Item Bank (OEDIB), the Office of Enrollment and Discipline Information System (OEDIS); and the E-discovery Software System (EDSS). These systems will continue to be operated and maintained and there are notable plans to: provide web services to interfacing systems for expeditious upload of documents for the public (i.e., FOIA requests); deliver new legal case management and document management capability for attorneys and paralegals; and provide end-to-end processing and fee payment capability for the enrollment and discipline of patent attorneys and agents.

There are two systems that serve the Office of Equal Employment Opportunity and Diversity (EEOD) – the Equal Employment Opportunity Case Management and Reporting System (EEOCMRS) and the Reasonable Accommodation System (RAS). These systems will continue to be operated and maintained, and there are notable plans to deliver new EEO case management and document management capability.

The Office of Chief Communication Officer (OCCO) has lead responsibility for managing USPTO’s primary communication vehicle, its external website: www.uspto.gov. There are plans to deliver an improved Internet site and experience, as well as a new and improved Intranet homepage.

The Consolidated Financial System (CFS) currently serves the Office of Chief Financial Officer (OCFO) and it used to track all USPTO financial...
management transactions and support financial management. CFS leverages commercial products for the core financial and acquisition systems, cost accounting system, budget execution and compensation projection systems, data warehouse, travel system, and imaging system. There are notable plans to expand and enhance these commercial products to provide improved planning, budgetary, financial, and procurement information, services, and advice. The OCFO also handles development of the Fee Processing Next Generation (FPNG) Tools.

There are eleven systems that serve the Office of Chief Administrative Office (OCAO). OCAO includes the Office of Human Resources (OHR) and the Office of Corporate Services (OCS).

- **The six OHR systems are:** the Office of Human Resources System (OHRS), the Human Resources Management System (HRMS), the Automated Hiring Solutions (USA Staffing), the Electronic Official Personnel Folder (eOPF), the Time and Attendance Automated System (webTA), and the Commerce Learning Center (CLC). These systems will continue to be operated and maintained and there are notable plans to: deliver new employee relations (ER) and labor relations (LR) case management capability; implement a DOC-wide solution for the USPTO web-based learning management system; provide improved time and attendance capability (i.e., functionality), via a COTS software version upgrade; and deploy a state-of-the-art Performance Management System.

- **The five OCS systems are:** Emergency Notification System (ENS), Computer Aided Design System (CADS), Employee Security Database (ESEC) - Entellitrak BI Edition, File Tracking System (FTS), and Background Investigation Tracking System (BITS). These systems will continue to be operated and maintained and there are plans for some enhancements.
Overview of OCIO Services and IT Infrastructure

Over the last several years, the OCIO completed major initiatives that upgraded, enhanced, and expanded the IT infrastructure at the USPTO in numerous ways across the board, and increased its reliability, robustness and flexibility.

Prior to that, the IT infrastructure at the USPTO had not kept pace with or leveraged developing technologies to the point that it severely limited the ability of the OCIO to respond to the Agency’s business needs and to provide services that were fully supportive of the Agency mission, as well as an ever increasing and distributed work force.

Accordingly, in 2008, OCIO management formulated a comprehensive effort and approach to addressing these issues. This effort was approved by USPTO management and formulated as a multi-year effort to be managed as a single portfolio of programs, called the IT Infrastructure Improvement Portfolio (IT IIP), or “The Road Map.”

This Road Map effort was successful in reversing this trend, and since then the increased reliability, robustness and flexibility of this enhanced IT infrastructure has been demonstrated in the agility with which it has been able to respond to new demands and new directions mandated by Agency leadership and the emergence and adoption of technologies.

This was confirmed by an independent assessment conducted by a non-profit organization in its report to USPTO’s Information Technology Investment Review Board (ITIRB). The Report also endorsed the Road Map’s own assertion in its final report that:

“...It is imperative for the USPTO and the OCIO to now continue to maintain, upgrade, and replace the IT infrastructure on an on-going and continuous basis, to ensure that the many gains of the Road Map are retained and improved upon, and so that the IT infrastructure is never permitted to degrade to the point where the ability to deliver effective IT services jeopardizes the mission of the Agency.”

Towards this end, the Enterprise Infrastructure Portfolio (EIP) was constituted as a Portfolio to continue to manage the IT infrastructure. It was and is intended that management and enhancement of the IT infrastructure will continue under the auspices of this portfolio at the USPTO.

Approach to Continuous Infrastructure Improvement

The OCIO has formulated seven broad capability statements to help define and guide programs and projects that will comprehensively work towards further enhancing the IT infrastructure under the auspices of the EIP.

These seven capability statements are:

• A standardized and optimized network and telecommunications infrastructure that meets all requirements of availability, performance, and enterprise wide collaboration; with
network traffic and security events monitored, and with effective and timely corrective measures to address vulnerabilities.

- A standardized and optimized desktop infrastructure including software, hardware, end-user network devices and collaboration solutions to meet end-user requirements while leveraging emerging technologies.

- A standardized and optimized data center infrastructure that supports all requirements for systems availability, performance, reliability, serviceability and real user application and event monitoring; while leveraging ‘cloud’ computing infrastructure and emerging technologies (such as IaaS, PaaS, SaaS).

- An established and mature USPTO Service Desk based on industry best practices, improved Service Desk operations, management and reporting.

- Configuration management of the USPTO IT infrastructure that is standardized and optimized to ensure the integrity of its design, development, test, and operational baseline-configurations; while supporting requirements for a ‘cloud’ computing infrastructure and emerging technologies.

- Effective business continuity and disaster recovery capability that ensures the timely availability of appropriate infrastructure and resources to permit continued execution of the USPTO and OCIO missions in the event of disasters; while leveraging virtual cloud computing technologies and other emerging technologies.

- Support the creation and expansion of regional facilities through the deployment of supporting information technology.

Execution of projects and efforts intended to achieve these capabilities will be organized under the following ten programs, which will form the underlying basis for planning, execution, tracking and reporting of the progress of the Portfolio. The ten essential, or core Programs and the major efforts formulated under these programs are detailed below.

- **Business Continuity/ Disaster Recovery Program**

  Program and projects supporting the protection of the Agency’s valuable Information Technology assets based on the priorities defined by business units for critical AIS availability, while leveraging virtual cloud computing technologies and other emerging technologies.

- **Collaborative Services Program**

  Programs and projects to define, implement, and manage integrated technologies and processes to advance a collaborative culture within the USPTO, that shares information efficiently, effectively, and seamlessly in order to achieve support business goals.

- **Configuration Management Program**

  Programs and projects to implement configuration management of the USPTO IT infrastructure
that is standardized and optimized to ensure the integrity of its design, development, test, and operational baseline-configurations; while supporting requirements for a ‘cloud’ computing infrastructure, automated build, test and deploy capabilities, and emerging technologies.

- **Cybersecurity Program**

Programs and projects to define, implement, and manage Cybersecurity and CIO Command Center (C3) and related technologies for integration into the USPTO Cybersecurity infrastructure, including upgrading this infrastructure to leverage new and emerging technologies.

- **Desktop Program**

Program and projects to define, implement, and manage the end-user desktop environment at the USPTO and ensure its security and stability.

- **IT Facilities Program**

Program and projects to evaluate and implement current cloud technologies for integration into the USPTO information technology infrastructure.

- **Network and Telecom Program**

Program and projects to define, implement, and manage the currency and capacity of the USPTO’s network and telecommunications infrastructure and ensure its security and stability.

- **Platform Services Program**

Program and projects to define, implement, and manage an infrastructure of consolidated middleware services and tools that includes Platform as a Service (PaaS) and Enterprise Software as a Service (SaaS).

- **Satellite Offices Program**

Program and projects to support the creation and expansion of regional facilities through the deployment of supporting information technology.

- **Service Desk Program**

Program and projects to establish and mature the USPTO Service Desk based on industry best practices, ITIL principles, improved Service Desk operations, management and reporting.
The Chief Information Officer (CIO) is the principal advisor to the Under Secretary of Commerce for Intellectual Property and Director of the United States Patent and Trademark Office on application of information technology (IT) to support and improve the USPTO’s business processes. As an advisor, the CIO:

- develops strategic and operational information technology plans and operating budgets;
- develops and maintains the United States Patent and Trademark Office’s (USPTO) automated information systems;
- operates the USPTO’s computer facilities, equipment, and telecommunications network;
- develops, maintains and disseminates patent and trademark information to the public;
- serves as the USPTO’s Senior Information Resources Management (IRM) Official;
- provides technical direction for the re-engineering of USPTO’s business process; and
- provides administrative policy direction to the organizational elements reporting to the CIO.

The Office of the CIO Consists of the following offices:

- Deputy Chief Information Officer
- Office of the Chief Technology Officer
- Office of Organizational Policy and Governance
- The Office of Program Administration Organization
- Office of Application Engineering and Development
- Office of Infrastructure Engineering and Operations
- Office of Information Management Services
Deputy Chief Information Officer

The Deputy CIO provides administrative and policy oversight to all OCIO offices with particular emphasis on day-to-day IT operations execution. The Deputy CIO leads major initiatives that span across Offices and serves as the Executive Sponsor for USPTO-wide committees and boards. The Deputy CIO provides administrative and policy oversight to and coordinates the activities of the following Offices:

Office of the Chief Technology Officer

The Office of the Chief Technology Officer (OCTO) is responsible for the management and oversight of the enterprise IT architecture, evaluating emerging technologies and applying these emerging technologies to USPTO’s changing business needs and strategic direction. The Office is responsible for technical planning to insure OCIO follows a consistent framework using best-fit technologies, continuously identifying and moving OCIO towards its target architecture. Additionally, the office has primary responsibility for the Federal Enterprise Architecture activities for the Agency and in that role serves as the documenting and governing body for all Architectural activities accomplished throughout the OCIO.

The Office consists of three divisions: Enterprise Data Architecture Division, Application Architecture and Enterprise Data Division, Enterprise Architecture Division.

Office of Organizational Policy and Governance

The Office of Organizational Policy and Governance (OPG) provides the management and oversight of enterprise Information Technology (IT) strategies, guidance, policies, and agency-wide cybersecurity. The Office implements and assesses the organization’s compliance with enterprise IT processes and standards. The Office serves as the primary coordinator for the OCIO strategic planning efforts to maximize process efficiency and cost-effectiveness through the development and deployment of quality products and services to OCIO customers, in accordance with USPTO strategic objectives. The Office is responsible for the institutionalization and governance of quality practices throughout OCIO through planning, quality assurance, education and training, and formal technical reviews. The Office performs reviews of OCIO processes and methods, and coordinates all review activity, translating findings and recommendations into action plans to improve quality. The executive of OPG serves as the focal point for IT security and ensures USPTO adherence to United States laws and policies.

The office consists of four divisions: Strategic and Investment Planning, Cybersecurity, and Policy and Process.

The Office of Program Administration Organization

The Office of Program Administration Organization (PAO) is responsible for the management of the overall USPTO IT program. The Office provides the major points of contact for OCIO customers, specifically Patent, Trademark, Corporate, International and Policy business areas. The Director of PAO also serves as the OCIO representative to the Trilateral, IP5, WIPO and other Intellectual Property Office (IPO) working groups. The Director is responsible for coordinating work efforts throughout OCIO that support international agreements in
support of Patent work-sharing, information dissemination, and standards developments.

The Office is responsible for program management of IT efforts that support the OCIO customers who use IT services. The Office maintains a working knowledge of customers’ missions and business functions, and manages interactions with them to ensure that business requirements are met. The Office is responsible for registering work requests, project planning, coordination and monitoring, updating the project repository and tracking issues and risks, and recommending or directly applying corrective actions when necessary to enforce OCIO processes and standards, address status issues, and respond to customer concerns. The Office communicates with customers throughout the project life cycle and is responsible for ensuring customer satisfaction with both the process and the end product.

The Office is also responsible for ensuring that appropriate budgetary, contractual, and human capital resources are in place to support the planned OCIO investments. The Office develops, maintains, and oversees the OCIO budgets and ensures compliance with guiding fiscal regulations, policies, and procedures. The Office manages the oversight, collaboration and feedback of the vendors that provide IT support and services to the OCIO. The Office drives workforce strategy, planning, development, and support programs for internal OCIO resources.

The office consists of four divisions: Program Management, Financial Resources, Office of Application Engineering and Development, Office of Infrastructure Engineering and Operations

Office of Application Engineering and Development

The Office of Application Engineering and Development (AED) is responsible for the full life cycle management of the USPTO’s automated information systems, consistent with the USPTO’s strategic IT plans and supporting technical architecture. The Office designs, develops the systems and validates that the business areas’ functional and performance requirements are met prior to delivery to Operations for production testing and deployment. AED ensures that USPTO websites and applications are designed and built with the direct end-user in mind at all times, and are highly usable, useful, desirable and accessible.


Office of Infrastructure Engineering and Operations

The Office of Infrastructure Engineering and Operations (IEO) provides day-to-day operational support for the USPTO’s various IT environments (i.e., production, development, testing, etc.). IEO maintains the USPTO data center facilities, production hardware, and telecommunications infrastructure. IEO leads the definition and evolution of the architecture for the USPTO-wide IT infrastructure, ensuring the proper development of that infrastructure, enforcing controls for new systems and applications, implementing necessary upgrades, and integrating applicable new technology. Principal focus areas include controlling the migration to an established system architecture, developing common infrastructure components, establishing and enforcing adequate security measures, upgrading the performance and reliability of infrastructure components, selecting IT and electronic commerce standards, leveraging Internet technologies to support USPTO business functions, establishing remote access capabilities, providing pre-production
acceptance testing, and performing capacity planning and performance management of the
USPTO’s computer resources.

The Office consists of three divisions: Project and Release Management, Infrastructure
Services, and Enterprise Platform Division.

**Office of Information Management Services**

The Office of Information Management Services (IMS) delivers quality information products
and services to meet USPTO, public, and intellectual property community needs and ensures
the quality and integrity of the intellectual property data. IMS provides access to collections
of patents, trademarks, and related information through multiple nodes, and promotes
dissemination of information to the public on the use of patent and trademark information
systems. IMS provides support across the USPTO with software, hardware, network, desktop,
and web services that support access to the USPTO’s IT assets. IMS monitors the electronic
access and dissemination of the USPTO’s products and services and proactively responds
to impending or existing disruptions in services through communication, coordination, and
escalation as needed until the problem is resolved. IMS maintains the content and context
configuration item data of the Agency’s information technology infrastructure assets and
services. IMS collaborates throughout OCIO on areas of common processes and services to
meet business customer commitments.

IMS consists of the Public Information Services Group and four divisions: Customer Support
and Monitoring, Collaborative Services, Enterprise Configuration Management, and Data
Management.
As mentioned earlier, in addition to this high-level USPTO Strategic IT Plan, the OCIO has prepared an OCIO Next Generation Road Map, which outlines specific strategies for transforming the USPTO with next generation technology and services to support the goals and objectives of the OCIO. It provides the overarching plan to architect and modernize IT services for the USPTO, strengthen the OCIO organization, incorporate best practices and improve services for the business customer by building next generation systems that meet or exceed customer expectations. Technology changes alone cannot support the demands of the USPTO and the federal government. Fundamental changes and shifts in the workforce, skills, processes, and procedures that support an “always on” operational environment must be made in parallel with the technology.

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<th>INITIATIVE</th>
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<td>3. Become More Service Oriented</td>
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<td>4. Improve Recruitment and Retention</td>
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<td>Continuous Process Improvement</td>
<td>1. Embrace Standardized, Best in Class Process Improvement Techniques</td>
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<td>2. Improve Understanding of Customer Needs</td>
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<td>3. Deliver Infrastructure as a Service</td>
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<td>1. Deliver Patents End-to-End</td>
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<td>3. Provide On-Line AIS retirement and Master Schedule</td>
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<td>Desktop Service Improvement</td>
<td>1. Improve Desktop Services by refining Incident and Problem Management</td>
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<td>2. Provide additional Self-Service Capabilities to Customers</td>
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<td>3. Implement more robust Change and Configuration Management Systems</td>
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<td>Enterprise Architecture</td>
<td>1. Provide a better view of the overall architecture for the USPTO</td>
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<tr>
<td></td>
<td>2. Provide EA knowledge and skills</td>
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Where can I find more information?

Recognizing that this Plan provides a high-level, four-year overview of the many facets of USPTO’s IT Program, it is worth noting that more specific, detailed information – for shorter timeframes – can be found, as noted below.

**Major IT Investment Business Cases** – located at the OMB-managed website, [www.ITdashboard.gov](http://www.ITdashboard.gov).

The IT Dashboard is a website enabling federal agencies, industry, the general public, and other stakeholders to view details of federal information technology investments. The purpose of the Dashboard is to provide information on the effectiveness of government IT programs and to support decisions regarding the investment and management of resources.

**USPTO Budget Submissions** – located at the USPTO website, [www.uspto.gov](http://www.uspto.gov).

Each fiscal year, as part of the US Federal budget process, the USPTO publishes a detailed document containing plans for the upcoming fiscal year. The document contains plans, funding, and performance measures.

**USPTO Performance and Accountability Reports** (PAR) – located at the USPTO website, [www.uspto.gov](http://www.uspto.gov).

At the conclusion of each fiscal year, the USPTO publishes a comprehensive PAR document which provides an overview of USPTO’s mission, planning process, internal structure, and strategies implemented to achieve the desired goals of the prior fiscal year. The PAR document also includes detailed performance and financial information.

**Reports from USPTO’s two Public Advisory Committees** – located at the USPTO website, [www.uspto.gov](http://www.uspto.gov).

Two Public Advisory Committees for the USPTO were created by statute in the American Inventors Protection Act of 1999 to advise the Under Secretary of Commerce for Intellectual Property and Director of the USPTO on the management of the patent and the trademark operations. The Public Advisory Committees consist of citizens of the United States chosen to represent the interests of the diverse users of the USPTO. The Public Advisory Committees review the policies, goals, performance, budget, and user fees of the patent and trademark operations, respectively, and advise the director on these matters. Appointments to the Public Advisory Committees are made by the Secretary of Commerce.
TRANSFORM THE USPTO WITH NEXT GENERATION TECHNOLOGY AND SERVICES

OCIO
The Office of the Chief Information Officer