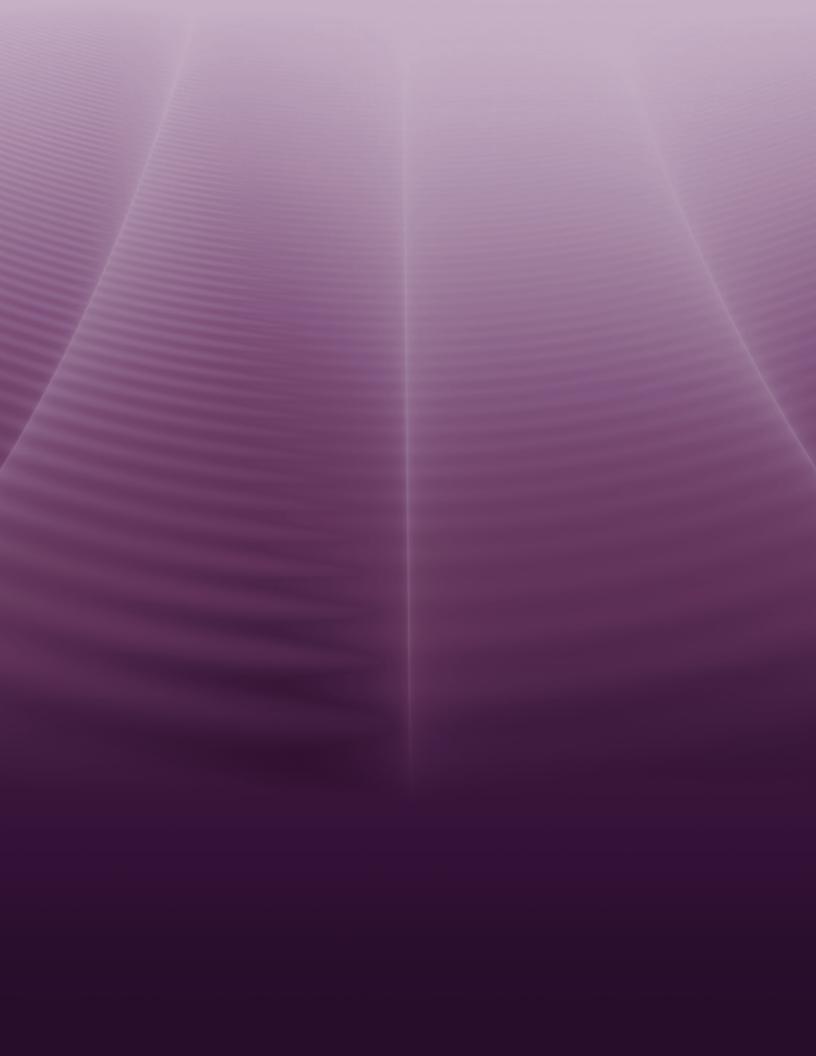# United States Patent and Trademark Office

Overview of Information Technology Plan for FY 2010 - 2015

Strategic Vision for IT to support USPTO's mission

Message from the Chief Information Officer

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, the Information Technology Plan (ITP) documents the role that information technology plays in achieving the USPTO mission, vision, and goals. The ITP 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 2010 to FY 2016 period.

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.

In this era of e-Government, the USPTO is dedicated to conducting business with customers and business partners electronically in a secure manner. This will enable us to provide quality services and products in a timely manner and useful format. We have implemented electronic filing for trademark applications and soon our customers will be able to electronically file patent applications and make changes in assignment information via the Internet. Our customers can also use the Internet to search patent and trademark databases, monitor their USPTO deposit accounts, order and pay for various USPTO products, and obtain status information for their patent and trademark applications.

This plan describes the management approach and information technology initiatives that are critically important to achieving the vision, mission, goals, and objectives. All USPTO organizational units should ensure that current and planned information technology initiatives are in conformance with this plan. This plan 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

Overview of the USPTO Information Technology Plan

THE STRATEGIC INFORMATION TECHNOLOGY PLAN

This Overview of the USPTO Information Technology (IT) Plan for FY 2010 - 2015 provides an executive summary of nearly 1000 pages of detailed plans contained in the Strategic Information Technology Plan (SITP). An electronic copy of the full Information Technology Plan for FY 2010 - 2015 is provided on a Compact Disk that can be found on the inside back cover of this brochure. This plan will be in used to govern our IT activities through FY 2015. The first 7 pages summarize the SITP by providing overviews of the USPTO and the Office of the Chief Information Officer (OCIO) Missions and Organizations (page 3), IT Governance (page 4) and the hierarchical IT goals and objectives (pages 5-7) linked to the USPTO 2010 - 2015 Strategic Plan.

THE OPERATIONAL INFORMATION TECHNOLOGY PLAN

The USPTO manages its IT systems by categorizing them into the USPTO business area that they support. Pages 8-19 of this "Overview" summarize Operational IT plans for the four major businesses and the IT services and infrastructure upon which they all rely.

- Page 8 describes plans to modernize the IT used to support the Patent organization's business area by developing and implementing the totally new **Patent End-to-End (PE2E)** Processing System.

- Page 9 describes plans to operate, maintain, and enhance the 41 **Patent Legacy Systems** and eventually retire most of them as PE2E is implemented.

- Page 10 describes plans to modernize the IT used by the Trademark organization's business area by developing **Trademarks Next Generation Systems (TMNG)** System.

- Page 11 describes plans to operate, maintain, and enhance the 27 **Trademarks Legacy Systems** and eventually retire most of them as their functionality is replaced by TMNG.

- Page 12 describes plans to operate, maintain, and enhance the 16 **Dissemination Systems** that support the dissemination of information about patents and trademarks to the public.

- Page 13 describes plans to operate, maintain, and enhance the 27 **Corporate and Management Support Systems** that support USPTO legal, human resources, financial, executive management, and other business areas that support all USPTO operations.

- Page 14 describes plans to operate, maintain, and enhance the **OCIO Services and IT Infrastructure** upon which all business areas and systems rely.

- Pages 15-19 summarize plans for the five OCIO offices that support all IT systems and provide IT services in support of all business areas including the Office of: Policy and Governance (page 15), Program Administration (page 16), Infrastructure Engineering and Operations (page 17), Information Management Services (page 18), and Applications Engineering and Development (page 19).

- Page 20 provides a high-level summary of the IT budget for all of these systems and services.
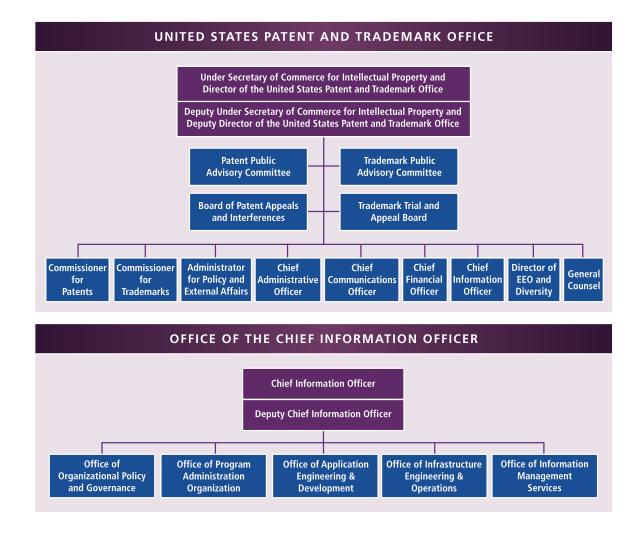
Note that all plans are based on the availability of funds.

Mission and Organization

The United States is a global leader in promoting laws and policies that foster innovation and 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 and competitiveness by providing 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."

The USPTO is organized to 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 OCIO Vision is to "provide service excellence through reliable, secure, cost-effective and responsive delivery." The OCIO Mission is to "enable the success of the USPTO with information and technology services through cooperation with our business partners." The offices that report directly to the Chief Information Officer (CIO) support all business areas, but manage their work by having subordinate divisions and/or segmenting their resources by business area. 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.

UNITED STATES PATENT AND TRADEMARK OFFICE

Under Secretary of Commerce for Intellectual Property and Director of the United States Patent and Trademark Office

Deputy Under Secretary of Commerce for Intellectual Property and Deputy Director of the United States Patent and Trademark Office

Patent Public Advisory Committee

Trademark Public Advisory Committee

Board of Patent Appeals and Interferences

Trademark Trial and Appeal Board

Commissioner for Patents | Commissioner for Trademarks | Administrator for Policy and External Affairs | Chief Administrative Officer | Chief Communications Officer | Chief Financial Officer | Chief Information Officer | Director of EEO and Diversity | General Counsel

OFFICE OF THE CHIEF INFORMATION OFFICER

Chief Information Officer

Deputy Chief Information Officer

Office of Organizational Policy and Governance | Office of Program Administration Organization | Office of Application Engineering & Development | Office of Infrastructure Engineering & Operations | Office of Information Management Services

IT Governance

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.

Federal Information Technology Management Guidance. Federal regulations and guidance documents influence the USPTO strategic information technology planning process. These reference documents include the requirements and guidelines to improve the efficiency, effectiveness, and public accountability of federal agencies as well as to improve congressional decision-making. Among the key legislation and regulations are the: Government Performance and Results Act (GPRA) of 1993, Office of Management and Budget (OMB) Circular A-130 (Management of Federal Information Resources, E-Government Act of 2002, Paperwork Reduction Act of 1995, Federal Information Security Management Act of 2002, Information Quality Act of 2002, annual updates to OMB A-11 (Preparation, Submission and Execution of the Budget), and Section 508 of the Rehabilitation Act of 1973.

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.

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;
- Tailor activities to the project;
- 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;
- Improve data integrity by applying and enforcing data structuring rules and standards;
- Use of common methods and tools when developing data models and elements;
- Share data with customers by pursuing additional electronic data interchange agreements with foreign and international intellectual property patent organizations and selected private sector organizations;
- Provide business 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 of IT

THE PRESIDENT'S OBJECTIVES FOR USPTO AND TECHNOLOGY

The President's objectives are described at *www.whitehouse.gov/issues* and include specific provisions that are relevant to the USPTO and its information technology, including to: Protect American Intellectual Property Abroad, Protect American Intellectual Property at Home, Reform the Patent System, Safeguard our Right to Privacy, Open up Government to its Citizens, Bring Government into the 21st Century, Deploy Next-Generation Broadband, and Expand Flexible Work Arrangements.
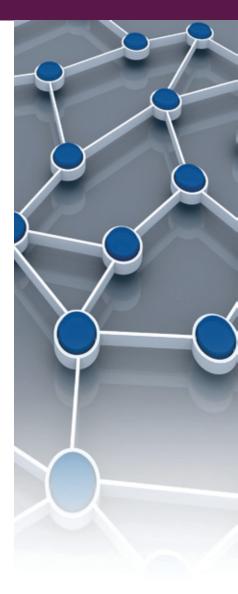
The President appointed the first ever Federal Chief Information Officer (CIO) in 2009 to provide management and oversight over federal IT spending, and the first ever Federal Chief Technology Officer (CTO) to provide vision, strategy and direction for using technology. These Presidential and Federal CIO/CTO agendas permeate throughout this ITP as the USPTO strives to fully comply with their vision and guidance.

OMB STRATEGIES AND DIRECTIVES

Among the key federal management directives affecting information technology at the USPTO are the OMB guidance for compliance with the Federal Enterprise Architecture, the E-Government Act of 2002, the Government Paperwork Elimination Act of 1998 (GPEA), the Clinger-Cohen Act of 1996, the Federal Acquisition Streamlining Act of 1994, Title V (FASA V), and the Government Performance and Results Act (GPRA) of 1993.

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 the ITP 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."

USPTO Strategic Goals

DOC GOALS AND STRATEGIES

The Department of Commerce (DOC) is the department responsible for meeting the constitutional mandate to "protect intellectual property and improve the Patent and Trademark systems." The DOC Strategic Plan and related documents specifies three DOC goals related to this mandate: (1) improve intellectual property protection and enforcement domestically and abroad, (2) optimize patent quality and timeliness, and (3) optimize trademark quality and timeliness

These DOC goals directly impact the USPTO and its information technology. Among the DOC strategies for meeting the Patent goal is to "pursue … full electronic application processing and management, and options for exploring the development of a suite of alternative patent products in collaboration with stakeholders." Among the DOC strategies for meeting the Trademark goal is to "complete the transition to an electronic file management and workflow process in order to provide trademark owners a world-class registration system." Among the performance measures for these goals are the number of patent and trademark applications "filed and managed electronically." These strategies and performance measures are the foundation for the USPTO Strategic Plan, which is in turn the foundation for the USPTO ITP.

THE USPTO DIRECTOR IS COMMITTED TO USING INFORMATION TECHNOLOGY TO ENABLE IMPROVE-MENTS IN USPTO PERFORMANCE

As the Under Secretary of Commerce for Intellectual Property and Director of the United States Patent and Trademark Office has stated, "that's why I'm aggressively pushing the agency to completely modernize our IT systems – not just to incrementally improve, but to radically re-invent our systems from scratch. We're 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, we've 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 our employees and stakeholders to determine their wants and needs. But we must work fast. That 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, our new systems must fully meet the needs and desires of our examiners, and be flexible enough to absorb continuous change going forward."

THE USPTO STRATEGIC PLAN INCLUDES IT GOALS. In September 2010, the USPTO published its FY 2010 - 2015 Strategic Plan. The overall strategies to "optimize Patent and Trademark quality and timeliness" included the following objectives that are directly related to information technology:

Develop and implement the Patent End-to-End (PE2E) Processing System (*see page 8 for more information*):

- Develop and implement eXtensible Markup Language (XML) for all data from application to publication;
- Build infrastructure for the PE2E Processing System; and
- Redesign and re-architect Patent IT systems to provide end-to-end electronic processing.

Develop and implement the Trademark Next Generation (TMNG) IT System (*see page 10 for more information*):

- Address Trademark business needs with a re-architected, virtualized and service-driven solution;
- Separate Trademark computer based resources (CBRs) from other USPTO CBRs;
- Move to cloud computing based on a sound business case; and
- Add functionality to meet the needs of users.

Improve IT infrastructure and tools:

- Ensure transparency of USPTO information and materials by increasing the availability of public information (*see page 12 for more information*);
- Develop and implement the next generation Fee Processing System (*see page 13 for more information*);
- Upgrade IT infrastructure (*see page 14 for more information*);
- Establish cost-effective, transparent operations and processes (*see page 17 for more information*); and
- Improve the user experience (*see page 18 for more information*).

OCIO Goals

The table below links the goals and strategies prescribed by the President, OMB, DOC, and USPTO to the strategies, program, projects and activities of the OCIO.

OCIO Strategies, Programs, Projects, and Activities		
Strategies	**Programs**	**Projects and/or Activities**
Replace Legacy Systems with 21st Century End-to-End Processing Systems	*Modernize Business Systems* ● Develop and implement Patent End-to-End Processing System ● Develop and implement Trademarks Next Generation System ● Develop and implement Fee Processing Next Generation System	● Plan in FY 2010 ● Prototype and design in FY 2011 ● Develop in FY 2011 - 2013 ● Deploy from FY 2011 - 2014 ● Retire legacy systems no later than FY 2015
	Leverage Green IT ● Refine the Enterprise Architecture ● Expand telecommunications ● Virtualize desktops and servers	● Acquire/build "cloud" hosts in FY 2011 ● Deploy dual path G-bit network to/from campus ● Establish Service Oriented Architecture
Improve the User Experience	● Replace desktops with laptops ● Expand collaboration tools ● Develop Web Portals and WIKIs	● Plan and architect in FY 2010 ● Deploy laptops, prototype and design others NLT FY 2011 ● Contract for new collaboration and Web tools in FY 2011 ● Deploy new collaboration and Web tools NLT FY 2013
Increase the Transparency of USPTO Systems and Data	● Expand access to USPTO data and knowledge through the World Wide Web ● Continue migration toward XML ● Establish IT partnerships with customers, industry, and other IPOs	● Finalize international XML data standard and build supporting NG systems ● Establish partnership with industry to expand data access, and continue to deploy data to data.gov ● Expand eLearning for IP partners, practitioners, and the public
Keep Legacy Systems Running until Replaced	● Continue to operate and maintain legacy business systems and infrastructure ● Enhance legacy business systems and infrastructure to meet critical business needs	● Stabilize legacy business systems ● Virtualize and separate legacy systems as warranted ● Stabilize data centers ● Expand business continuity and disaster recovery capabilities
Re-engineer the OCIO to Support 21st Century Demands	Strengthen the OCIO Organization	● Evolve the LCM and other standards to include agile systems development methods ● Results improve relationships with business units ● Expand OCIO telework ● Improve Position Descriptions and Performance Appraisal Plans ● Increase IT training
Tighten IT Security	Tighten AIS Security	● Integrate the HSPD-12 directive ● Implement Plans of Action and Milestones to remediate vulnerabilities ● Improve configuration management, testing, and scanning of code
	Tighten Infrastructure Security	● Address the Federal Information Systems Control Audit Manual findings ● Implementation of the Federal Desktop Core Configuration ● Improve patch management ● Implement password management ● Improve encryption ● Build security into disaster recovery

Patent End-to-End Processing System

The USPTO proposes to transition 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 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 "Modernize IT Systems by Developing and Implementing the Patent End-to-End Processing System." 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 fill gaps in legacy Patent IT systems that now require Patent employees and external stakeholders to perform labor-intensive, manual business processes.

The key differences between prior unsuccessful attempts to modernize Patent's systems and PE2E are depicted in the following table, followed by a chart summarizing the PE2E development timeline.

Prior Attempts To Modernize Patents Systems	PE2E
• Waterfall Development (Deliverables seen after 3 years) • Incremental changes dependent on legacy systems when introducing Patent File Wrapper (PFW) system components • IT designed around outdated and inflexible business processes • Rigid, dedicated servers • Incumbent contractors with loyalty to legacy systems and inexperience in selected products • "Over-the-wall" stakeholder involvement resulting in unacceptable interface design	• Agile development (Deliverables seen Monthly or Quarterly) • Entirely new XML-based infrastructure and software • IT designed assuming continuous change to business processes, beginning with large business reengineering effort • Scalable, virtualized servers • Entirely new contracting partners selected via competition and evaluated on software prototypes • Continuous, interactive stakeholder participation in interface design

July 2010
Solicitations for Multiple Awards under GSA Alliant for Competitive Prototyping

July - August 2010
Examiner Interviews, Focus Groups, Surveys

October 2010
Multiple Prototype contractors selected for Integration

October - December 2010
Examiner Feedback on UI Designs including Storyboards, Wireframes, and Clickable Prototypes

January 2011
Delivery of PE2E Design Prototypes to Establish High-Level Core Architecture

February 2011
Selection of PE2E Integrator

July 2011
Business-focused Core Infrastructure 1.0 Completed

January - July 2011
Examiner Feedback on Advanced Search Tools

Quarterly in 2012 - 2013
Deliver Iterative PE2E functionality through SCRUM Sprints

Quarterly in 2012 - 2013
Examiner Feedback on Functionality developed during sprints

2013
● Deployment of Initial Version of Integrated PE2E with Integrated Examiner User Interface
● Near-Instantaneous Load of Patent Application and Search Results
● XML Data

Patents Legacy Systems

The Patents 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:

- The six systems that comprise the *Patent Capture and Processing System - Initial Processing (PCAPS-IP)* Master System 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.

- The sixteen systems that comprise the *Patent Capture and Processing System - Examination Support (PCAPS-ES)* Master System 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.

- The ten systems that comprise the *Patent Search System - Primary Search and Retrieval (PSS-PS)* Master System 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 US 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).

- The nine systems in the *Patent Search System - Specialized Search and Retrieval (PSS-SS)* Master System support the legal determination of prior art relevant to patent applications where such art is of unusual

Reliability of Patents Electronic Filing System Greatly Improved

The Patents Electronic Filing System Web (EFS-Web) is used by the public and patent practitioners to electronically submit more than 88% of all utility, plant, and reissue patent applications. EFS-Web helped the USPTO avoid spending $20M in FY 2010 by eliminating costs that would have been spent to scan, perform data entry, and manually process fees in paper-based applications. The EFS-Web team deployed new system capabilities that increased overall system availability and provided a new portal for applicants to use to file applications when the primary portal has an unscheduled outage.

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 enhancements are planned. Among those planned in FY 2011 are: (1) create the new capabilities to support new Examiner Performance Appraisal Plans (PAPs); (2) stabilize SCORE and other systems until they can be replaced; (3) create new groups of ePetitions to be automated in EFS-Web; (4) investigate Three Track examining; and (5) replace the official patent grant document with an electronic equivalent that applicants can view and print. There are no specific projects planned for FY 2012 and FY 2013. Our goal is to retire legacy systems starting in FY 2013 as the new PE2E system replaces the functionality they now provide.
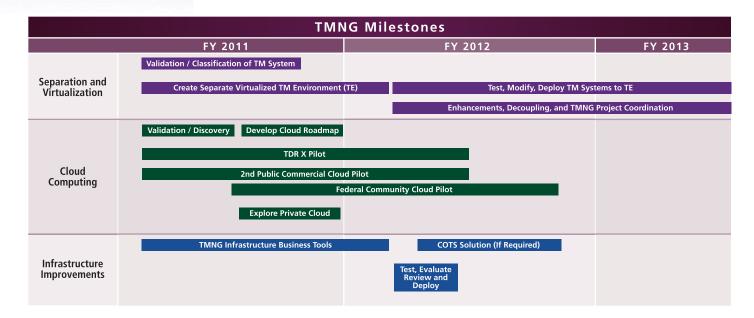
Trademark Next Generation System

The Trademark business processes and their supporting systems continue to develop improvements to better meet customer and USPTO needs. Processes and systems are more comprehensive and interconnected than ever before, providing the public with data and services that continue to grow increasingly more reliable and efficient. However, as capable as these systems are, the complete vision for the USPTO has not yet been fully realized. As our customer needs for more functional/technical services evolve, our Trademark IT infrastructure must also evolve in order to provide a platform capable of meeting the current and future needs of the USPTO and its customers.

The Trademarks business area is creating a fully electronic, separate, sustainable, end-to-end system in which technology and user services will be developed, managed, and adapted in an efficient and cost effective manner that meets the current and future needs of the users. The resulting next generation IT systems, platform and functionality will enable optimal use of Trademark data by the public and employees to meet their continually evolving needs. Implementation of Trademark Next Generation (TMNG) architecture, technology platform, systems and functionality will be managed separately from other USPTO business units and take advantage of new technology that will reduce information technology development, enhancement and maintenance costs while providing a more manageable, agile and adaptable technology platform.

The TMNG program is based on: (1) improvement of Functional/Technical Services to users of the Trademark systems, and (2) standup of a next generation IT Platform. Both the TMNG systems' Functionality and Platform will be managed under one program management structure. The TMNG Platform will separate Trademark systems from other business unit systems, maximize the use of virtualization and make necessary improvements to the Trademark IT Infrastructure using other innovative technologies resulting in, among other benefits, systems capable of operating in a cloud computing environment. The TMNG Functional/Technical Services area includes making improvements in the operation and usability of E-Gov systems, internal operations systems, records management systems, search systems, and reference systems.

The first year of the TMNG program will focus on planning and prototyping solutions, architecture, tools, enhancing existing applications with new functionality, designs, and products. Execution of the plans and implementation of the TMNG Functional/Technical Services and Platform will be primarily conducted in the second and subsequent years using both agile development methods and System Development Life-Cycle (SDLC) processes.

TMNG Milestones

	FY 2011	FY 2012	FY 2013
Separation and Virtualization	Validation / Classification of TM System		
	Create Separate Virtualized TM Environment (TE)	Test, Modify, Deploy TM Systems to TE	
		Enhancements, Decoupling, and TMNG Project Coordination	
Cloud Computing	Validation / Discovery — Develop Cloud Roadmap		
	TDR X Pilot		
	2nd Public Commercial Cloud Pilot		
	Federal Community Cloud Pilot		
	Explore Private Cloud		
Infrastructure Improvements	TMNG Infrastructure Business Tools	COTS Solution (If Required)	
		Test, Evaluate Review and Deploy	

Trademark Legacy Systems

The Trademark business area relies on 27 existing systems that support all areas of Trademark business operations. The systems are categorized under six different groupings:

- **Trademark e-Government Systems** – Five systems provide services and data that are made available on the Web: Trademark Document Retrieval (TDR), Trademark Electronic Application System (TEAS), Trademark Electronic Search System (TESS), Trademark Application and Registration Retrieval (TARR), and The Design Search Codes Manual (TDSCM). FY 2011 plans include: (1) modifying TDR to post urgent messages in a shorter period of time using database tables without requiring a code build or baseline, and (2) redesigning TDR to handle multimedia files. Plans for FY 2012 - 2016 include providing a full range of Trademark portfolio management services that allow all stakeholders to better track, maintain, manage, and meet deadlines for their respective applications, registrations, and services.

- **Trademark Internal Operations** – Six systems are focused primarily on the support of Trademark operations, including the: Trademark Applications Monitoring System (TRAM), First Action System for Trademarks (FAST), and Form Paragraph Editor Program (FPEP). FY 2011 plans include: (1) enhancing FAST 2 to support new international procedures and protocols, (2) adding business services for Petitions, (3) adding business services for a Trademark Quality Review, and (4) enhancing FAST to make better handle "Notes" to file processing. Plans for FY 2012 - 2016 include: expanding electronic docket services to all areas in the Trademark examination and registration business processing units, expanding capabilities to improve efficiency and quality of Trademark data, and incorporating the Trademark Trial and Appeal Board (TTAB) as an integral part of Trademark processing.

- **Trademark Records Management Systems** – Three systems are used to manage Trademark digital records: the Trademark Cropped Image Manager (TCIM), the Trademark Image Capture and Retrieval System (TICRS), and the Trademark Date Entry and Update System (TRADEUPS). There are no additional planned enhancements in FY 2011. Plans for FY 2012 - 2016 include: creating a single repository to host all Trademark related records such as images, correspondence between the Trademark business area and its customers, and multimedia submissions in any format submitted with full ERM capabilities to manage the integrity of the records.

- **Trademark Search Systems** – Refers to the four custom systems that have been constructed to provide for enhanced search capabilities and retrieval of the contents of Trademark databases such as Trademark Search System (X-Search) and Trademark Search Facility-Design Search Code Automation (TSF-DSCA). There are no additional planned enhancements in FY 2011. Planned enhancements in FY 2012 - 2016 include providing full search capabilities across all Trademark information resources.

- **Trademark Reference Systems** – Refers to the five systems that provide for the management of, and access to, reference materials supporting the Trademark related functions. Examples are Trademark Identification (Goods and Services) Manual (TIDM), Trademark Manual of Examination Procedures (TMEP), and Trademark Design Search Code Manual (TDSCM). FY 2011 plans include: (1) modifying TMEP to upload data for the TMEP 7th Edition first revision, improve the views of the various reference documents, and make HTML versions publicly available, and (2) enhancing TCIM to improve drawing tools capabilities, developing capabilities to load cropped image from drawing page into the TCIM repository, and consolidating all TCIM utility components into one software program that provides role-based access and logging, and migration to the latest compiler. Planned enhancements in FY 2012 - 2016 include providing capabilities to manage all aspects of Trademark reference manuals including TTAB reference manuals, and providing capabilities to orchestrate the collaboration and searching of the content of the materials.

- **Other Trademark Systems** – These four systems are those not clearly categorized in any of the previous sections including Fastener Insignia Recordal System (FIRS), Trademark Internal Publication System (TIPS) and Trademark Electronic Commerce Law Office (TECLO). Planned enhancements in FY 2012 - 2016 include adding or enhancing capabilities needed to satisfy emerging needs of the Trademark business area.

Information Dissemination Systems and Transparency

One of the USPTO's Strategic Goals is to "Ensure Transparency of USPTO Information and Materials by Increasing the Availability of Public Information." 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 form so companies and researchers can download it for analysis and research.

The OCIO operates 16 systems, most of which are accessible via the public *www.uspto.gov* website, and are used to disseminate data about patents and trademarks. The OCIO coordinates information dissemination with Patent and Trademark Depository Libraries that provide on-line access and training, most of which are located in public or university libraries. The OCIO also offers electronic hard-media copies of its bulk data, operates a Public Search Facility on its Alexandria campus, and fulfills orders for certified copies of patents and trademarks.

The USPTO has entered into a no-cost agreement with Google to make the electronic patent and trademark public data available on-line to the public in bulk form. Under this agreement, the USPTO is providing Google with existing bulk electronic files, which Google hosts without modification for the public free-of-charge. The USPTO has provided nearly ten terabytes of information that is presently available from Google through this agreement. Examples of the types of data that are available include: Patent grants and published applications; Trademark applications; proceedings, files, and decisions of the Appeals Boards; Patent classification information; Patent maintenance fee events; Patent and Trademark assignment data; and, Petition decisions.

USPTO Bulk Data Made Available Free-of-Charge via Data.gov

The United States Patent and Trademark Office embraces President Obama's Open Government Initiative to provide increased transparency of government operations and information by making bulk, electronic data available directly to the public for no charge. Ten terabytes of Patent and Trademark text and image data previously made available on hundreds of DVDs and Digital Linear Tapes, at a cost of nearly a quarter million dollars, was made available on the Internet and made more easily accessible via links to the federal www.data.gov website.

Corporate and Management Support Systems

There are four offices that provide management support and corporate systems to the USPTO: Office of the Undersecretary, Office of General Counsel, Office of Chief Administrative Offices, and Office of External Affairs. These offices rely on a total of 27 existing automated information systems.

There are two systems that serve the **Office of the Undersecretary** – the Executive Document Management System (EDMS) and the Statistic and Analysis System (STATA). These systems will continue to be operated and maintained, but no significant functional enhancements are planned or funded through FY 2015.

There are eleven systems that serve the **Office of General Counsel (OGC),** the **Board of Patent Appeal and Interferences (BPAI)** and the **Trademark Trial and Appeal Board (TTAB)**. These systems will continue to be operated and maintained, with only the following three notable changes – connecting the OGC systems as needed to the **Patent End-to-End (PE2E)**, the Trademark Next Generation (TMNG) and the Fee Processing Next Generation (FPNG) systems as they are developed. The eleven systems for this business area are:

- Electronic Freedom of Information Act (E-FOIA)
- FOIA Electronic Management System (FEMS)
- Appeals Case Tracking System (ACTS)
- General Counsel's Cast Tracking System (GCCTS)
- General Counsel's Library System (GCLS)
- Legal Information Filing and Tracking System (LIFTS)
- Office of Enrollment and Discipline Item Bank (OEDIB)
- Office of Enrollment and Discipline Information System (OEDIS)
- Electronic System for Trademark Trial and Appeals (ESTTA)
- Trademark Trial and Appeal Board Information System (TTABIS)
- Trademark Trial and Appeal Board Viewing System (TTABVue)

There are thirteen systems that serve the **Office of Chief Administrative Office (OCAO)**. OCAO includes the Office of Human Resources (OHR), the Office of Corporate Services (OCS), and the Office of Civil Rights (OCR). The six *OHR* systems are: Office of Human Resources System (OHRS), Human Resources Line of Business (HRLoB), Automated Hiring Solutions (USA Staffing), Electronic

Official Personnel Folder (eOPF), Time and Attendance Automated System (webTA), and Learning Management System (LMS). The six OCS systems are: Emergency Notification System (ENS), Computer Aided Design System (CADS), Employee Security Database (ESEC) - Entellitrak BI Edition, File Tracking System (FTS), Reference Document Management Services (RDMS). The two OCR systems are the Equal Employment Opportunity Case Management and Reporting System (EEOCMRS) and Reasonable Accommodation System (RAS). All of these systems will continue to be operated and maintained with only two enhancements planned between FY 2011 and FY 2012. These two enhancements are to make electronic the Employee Performance Plan (EPP) and Individual Pay Plan (IPP).

There is one system that serves the **Office of External Affairs (EA)** – the Office of Legislative Affairs System (OLIADS). This system will continue to be operated and maintained with only one enhancement planned in FY 2012. This enhancement is to make OLIADS available via the USPTO website.

The Consolidated Financial System (CFS) currently serves the **Office of Chief Financial Officer (OCFO)** 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. The OCFO has also initiated the development of the Fee Processing Next Generation (FPNG) System to provide USPTO customers with the same look-and-feel as they: (1) move from ordering goods or services through PE2E and TMNG to paying for their order using FPNG, (2) make and manage payments on-line, (3) receive notifications when fees are due or when refunds have been issued, (4) electronically request refunds, and (5) tailor their on-line notifications and queries to get financial information to which they are authorized. The legacy systems now used to support these processes are currently non-standardized, disjointed, and/or non-existent. In addition, FPNG will automate many edits and audits that must now be done using time-consuming and costly manual processes. Lessons learned in previous modernization efforts will be leveraged to explore, and then develop and deploy FPNG using Government and/or commercial off-the-shelf technologies. Highlights of the FPNG plan include initiating the program in FY 2011; configuring a COTS system and migrating legacy data to the COTS system by FY 2012; implementing a Revenue Subsidiary Ledger by FY 2012; implementing reports; implementing a new user interface and new services, and retiring the legacy system by FY 2014.

Overview of OCIO Services and IT Infrastructure

Information Technology is a mission-critical enabler for every USPTO business function. Productivity is directly correlated to the performance of IT systems, which are in need of modernization. The USPTO is engaged in an aggressive multi-year effort to upgrade its IT infrastructure by updating our IT processes, stabilizing our data centers and networks, and evolving to web-based virtualized computing technologies. Highlights of plans for the IT infrastructure are to:

- **Replace the aging IT infrastructure with expandable, reliable, secure technologies.** The OCIO is in the process of replacing obsolete infrastructure with virtualized systems. In addition, the OCIO is pursuing several service and deployment models for cloud computing. The strategy for cloud computing will involve using commercial cloud technologies where feasible, implementing internal private clouds, and utilizing federal community clouds where appropriate. These efforts will reduce costs, increase reliability and flexibility, and support the other plans outlined below.

- **Stabilize and consolidate Data Centers.** The USPTO now operates two data centers on its Alexandria campus, and one data center in a hardened site near Boyers, Pennsylvania that is used primarily to bunker data and provide limited disaster recovery capabilities. The USPTO is exploring using consolidated data centers operated by other DOC agencies to handle future growth.

- **Expand the Network.** The OCIO upgraded its data network in FY 2009 - 2010, and plans to upgrade its voice network and expand the bandwidth to/from the Alexandria campus in FY 2011 - 2012. Greater bandwidth will support the expansion of the USPTO nationwide telework program, support the establishment of new, and the expansion of existing, remote data centers; expand opportunities for the USPTO to disseminate bulk data to the public; and allow the USPTO to take greater advantage of the Internet.

- **Expand Business Continuity and Disaster Recovery (BC/DR) capabilities.** The USPTO now bunkers its data and configuration management files at its Boyers data center, and plans to expand its BC/DR capabilities by establishing an Internet point-of-presence at its Boyers data center in FY 2011. Additional expansion plans include failover capabilities for Email and other critical systems, while continuing to develop new systems and modernize certain legacy systems to operate in virtual environments that fully support failover. These efforts are aimed at reducing, and eventually eliminating, the risk of disruption in systems operations in the event of major failures or more catastrophic disaster.

The USPTO Data Network was Stabilized

The data network used by the USPTO was obsolete, causing problems such as slow speed and restrictions on attaching new devices. A multi-year effort to improve the USPTO network infrastructure culminated with the replacement of end-of-life network equipment and a major increase in network capacity and functionality. We greatly increased the speed of data transfers to desktop workstations, remote workstations, and servers in our data centers. We also improved monitoring and problem diagnosis, thereby greatly reducing agency vulnerabilities to cyber-security threats through implementation of advanced Firewall and Security equipment. Careful planning and close coordination between our infrastructure, applications software, and support teams paid off by minimizing the disruptions to our end users during these upgrades.

- **Stabilize Desktops.** The USPTO began migrating its desktop workstations to universal laptops with a fully-secure operating system in FY 2011. Standardizing on a universal laptop will reduce costs, provide more flexibility to support telework and hoteling, strengthen the security of end-user devices, make it easier to upgrade business applications software and underlying infrastructure systems, and provide for repairs and replacements.

- **Improve Cyber-security.** To further reduce its vulnerability to cyber-attacks, the USPTO continues to implement an aggressive patch management program, develop multi-token authentication systems, increase cyber-forensics, implement a risk management framework, and expand continuous monitoring to ensure that all systems are properly certified and accredited.

OCIO Office of Organizational Policy and Governance

The OCIO Office of Organizational Policy and Governance (OPG) provides the management and oversight of enterprise IT policies, strategies, processes, and cybersecurity:

- The **Policy and Standards Division** – implements and assesses the organization's compliance with enterprise IT processes and standards. The Division routinely works with other OCIO organizations to instrument systems for which performance data is not now collected, and uses that data to improve planning and performance measurement. The Division also continuously monitors the best practices and standards of the IT industry, federal government, and international intellectual property organizations to ensure that OCIO policies are current and appropriate. The highlights of its FY 2011 plans are to: complete the load of OCIO policies into the on-line Policy Repository that was initiated in FY 2010; establish enterprise access to industry policy and best practices resources; and align OCIO policies with administrative orders of the USPTO and DOC, and with OMB and other Federal laws, regulations, requirements, and policies. The Division will meet the long-tem goal of providing a "score card" for a comprehensive OCIO organizational assessment in phases: 80% complete in FY 2011, 90% in FY 2012 and 95% in FY 2013. It will also implement service level agreements for 60% of OCIO services in FY 2011, 80% in FY 2012, and 100% in FY 2013.

- The **Strategic and Investment Planning Division** – serves as the primary coordinator for the OCIO planning, prepares annual updates to the USPTO Information Technology Plan (ITP), and takes the lead on preparing investment status reports including the exhibits required by OMB. The highlights of its plans are to: begin the use of the ITP to "drive" IT budget formulation by FY 2011; complete the on-going re-engineering of the processes used to update the OMB exhibits by FY 2012; expand the portfolio management tools and processes to better support IT investment decision-making and reporting by FY 2013; and improve the performance metrics upon which investments are measured by FY 2014.

- The **Process Improvement Division** – performs reviews of OCIO processes and methods, and coordinates all review activity, translating findings and recommendations into action plans to improve quality. The highlights of its plans are to: adapt the System Development Life Cycle (SDLC) process to accommodate agile systems development methods by FY 2011; complete the on-going improvements of OCIO processes and procedures in service support to comply with best practices such as the Information Technology Infrastructure Library by FY 2012; publish on-line, self-directed training classes on the SDLC and prepare project improvement plans for the remaining service delivery by FY 2013; and migrate from "as-is" to "to-be" processes and tools for service delivery components and begin using the improved processes by FY 2014.

- The **Cybersecurity Division** – serves as the focal point for IT security and ensures USPTO adherence to United States laws and policies. The Division routinely responds to security incidents and reports them to a federal repository. The Division also strives to reduce the "false positive" alerts and make the information about the alerts more useful. The Division's plans for FY 2011 include: deploying more-secure operating systems to all USPTO desktops, laptops, and servers; developing a charter for a Cybersecurity Roundtable; and revising the Remediation Information Technology Security Standards to include the new requirements for continuous monitoring and associated management of identified security risks. FY 2012 plans include developing a "Charter for the Risk Execution" and a "Risk Management Strategy" in accordance with recent federal guidance (NIST SP 800-53 revision 3). Plans for FY 2013 include performing an audit of the Internal Public Key Infrastructure system.

OCIO Office of Program Administration Organization

The Office of Program Administration Organization (PAO) serves as the primary point of contact for OCIO customers. In addition to supervising the PAO, the PAO Director serves as the OCIO representative to international intellectual property organizations coordinating international agreements in support of Patent work-sharing, information dissemination, and standards developments.

- The *Program Management Division* is responsible for registering work requests, project planning, coordination and monitoring, updating the project repository and tracking issues and risks, recommending or directly applying corrective actions when necessary to enforce OCIO processes and standards, addressing status issues, and responding to customer concerns. The highlights of its plans are to: ensure that all OCIO Projects are base-lined and tracked using the project management system, develop the project management system to include portfolio management capabilities, enhance the portfolio management tools to support electronic input and/or interfaces of financial data, provide output to OMB report systems, and ensure that all program managers are properly certified.

- The *Financial Resources Management Division* develops, maintains, and oversees the formulation and execution of OCIO budgets, and ensures compliance with guiding fiscal regulations, policies, and procedures. The highlights of its plans are to: expand the use of cost accounting information as it relates to IT resource management; strengthen the relationship between IT planning and budget formulation; improve OCIO resource management capability by incorporating the use of expenditure data in analyses and decision-making; and implement a project estimating methodology to support agile development and to provide useful metrics for monitoring agile projects.

- The *Acquisitions Management Division* ensures that appropriate contractual resources are in place to support the planned OCIO investments. The highlights of its plans are to: administer all contracts efficiently, improve the quality and value of contract status and cost reports, re-compete preferred source contracts for hardware, software, and support services as they expire, and establish new contracts as needed to meet the challenges of on-going major modernization programs such as the Patent End-to-End Processing, Trademarks Next Generation, and Fee Processing Next Generation systems.

- The *Workforce Management Division* ensures that appropriate human capital resources are in place to support the planned OCIO investments. The highlights of its plans are to: continue to refine Position Descriptions for OCIO offices/divisions, refine Performance Appraisal Plans to better reflect functional duties, establish a definitive competency model for all OCIO positions, and establish Individual Development Plans for all OCIO employees.

OCIO Office of Infrastructure Engineering and Operations

The Office of Infrastructure Engineering and Operations (IEO) provides day-to-day operational support for the USPTO automated information systems by leading in 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.

- The **Technical Services Division** provides technical operating services for both the production devices and systems in the Production Data Center, and in the development/testing lab. Highlights of its plans are to: establish environments for the development, testing, and operations of new systems, expand the virtual server environments and storage capacity to handle legacy systems and growth, assist with the adaptation of new and legacy systems to run in virtual environments, and replace aging hardware through a capital hardware replacement program.

- The **Network Technologies Division** is responsible for all voice, video, and data communication infrastructure systems. Highlights of its plans are to: upgrade the PBX, Voice over Internet Protocol (VoIP) systems, and video teleconferencing systems, secure remote access capabilities, monitor and report on network activities and performance, and manage the vendors that provide telecommunications products and services.

- The **Infrastructure Services Division** provides facility management services for all USPTO computer facilities to include physical environment and electrical support, as well as equipment management and tracking for all hardware devices in these facilities. Highlights of its plans are to: upgrade the Facilities Management System; increase data center capacity, most likely in consolidated facilities; manage day-to-day operations; and migrate to IT Infrastructure Library (ITIL) based service practices and tools.

- The **Infrastructure Systems Engineering Division** manages infrastructure projects, including those portions of projects within other Divisions that relate to infrastructure; leads the development and implementation of infrastructure architectural standards; represents the organization externally; and manages the coordination of internal standards. Highlights of its plans are to: take the lead in coordinating and managing the development of standard infrastructure project solutions, and conduct reviews of project architectures to ensure compliance with existing infrastructure standards.

- The **Enterprise Architecture Division** manages the USPTO Enterprise Architecture (UEA) Program. Highlights of its plans are to: provide architectural oversight of USPTO investments and IT projects; administer and refine the UEA governance framework; continue to integrate the UEA into systems development, capital investment, and related USPTO processes; update UEA for business units; define UEA target states and transition strategies; research new and emerging technologies; and analyze, study, and prototype new and emerging technologies such as cloud computing.

- The **Production Verification Testing Division** serves as a gatekeeper for all automated information systems (AIS) and infrastructure projects prior to allowing their implementation into the live, production operations. Highlights of its plans are to: implement a dedicated test facility that permits extensive testing of new or modified systems in a realistic environment that is separate from, and without negative impact to, the operational environment; extend independent testing to all systems, including infrastructure; incorporate automated testing to the maximum extent practical as a routine part of the development process; conduct routine automated regression testing.

OCIO 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.

- The **Public Information Services Group** 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. Highlights of its plans are to: transition the Patent and Trademark Depository Library Program to totally online data access and a more comprehensive metric-based program by FY 2011; implement the full-document download of patent documents and phase out searchable optical disc products by FY 2012; and maintain high quality service for all customer responses.

- The **Data Management Division** provides agency-wide support for records management and information collection. Highlights of its plans are to: update the USPTO Comprehensive Records Schedule by FY 2011; respond to requests for Resource Management (RM) assistance from business units in one day by FY 2012; complete the effort to publish on the USPTO Web site all Federal Register Notices of information collection actions by FY 2013; publish Federal Register Notices to the USPTO Web site by FY 2014; and achieve Electronic Records Management Compliance across the enterprise by FY 2015.

- The **Customer Support and Monitoring Division** 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. Highlights of its FY 2011 plans are to: test, evaluate, package, and deploy the next generation office automation software suite; continue to replace obsolete desktop workstations, laptops, and printers; and upgrade all desktop workstations and laptops to the latest production version of the Windows operating system. Highlights of out-year plans are to: begin to replace or update Auto Discovery Tools by FY 2012; implement radio frequency identification barricades, and gain access to all event messages from all enterprise systems by FY 2013; deploy the next generation desktop operating system by FY 2014; and finish replacing desktops, laptops and printers by FY 2015.

- The **Enterprise Configuration Management (ECM) Division** maintains the content and context Configuration Item (CI) data of the Agency's information technology infrastructure assets and services.

All USPTO Data Bunkered On-Line at Off-Site Data Center

The USPTO has long maintained off-site copies of its data on tape in a warehouse, but recovery of operations after a disaster could have taken years because the data is so voluminous and complex. A Disaster Recovery program was undertaken to reduce the recovery time. Over the past two years, we successfully upgraded our hardened, off-site data and the network that connects it to our primary data centers; and began electronically sending copies of data to a disk-based "data bunker," which will reduce recovery time from years to months. We are now expanding the Failover capabilities of our systems, aimed at cutting recovery time to weeks or days, and eventually for our most critical systems to hours or minutes. Although we have come a long way, we still have a long road ahead of us, and will continue to expand our Disaster Recovery capabilities in the coming years!

Highlights of its plans are to: develop processes and procedures to implement ECM Policy by FY 2011; implement Integrated License Management for COTS software products by FY 2012; have all agency configuration items identified and maintained in configuration management repositories by FY 2013; start implementing the new IT Configuration Management System (CMS) by FY 2014; and have the new CMS fully functional and operational by FY 2015.

- The **Collaborative Services Division** collaborates throughout OCIO on areas of common processes and services to meet business customer commitments. Highlights of its plans are to: manage Intranet pages using the enterprise document collaboration tool, and implement a "MyUSPTO" functionality by FY 2011; deploy a capability to distribute webcasts to over 1,000 concurrent users and deploy a new Web search system by FY 2012; establish an Extranet capability by FY 2013; migrate OCIO Intranet pages to the enterprise document collaboration tool and upgrade other collaboration tool servers by FY 2014; and complete the upgrade of the collaboration tool servers by FY 2015.

OCIO Office of Applications Engineering and Development

The Office of Application Engineering and Development (AED) designs, develops the systems, and validates that the business areas' functional and performance requirements are met prior to delivery of the system for production testing and deployment. Three of the office's five divisions oversee the operations and maintenance of legacy systems, and the development of new systems for all business areas and for enterprise shared services. The two other divisions provide software architecture and engineering, and functional testing for the business area systems.

The majority of AED resources are, and will continue to be, dedicated to the following recurring activities:

- *Operate and maintain legacy systems.* This includes "level of effort" activities such as responding to problems that are causing system outages, performance degradation, and similar problems; and resolving problems or concerns that arise when errors such as incorrect data are identified.

- *Adapt legacy systems to accommodate infrastructure and other mandatory changes.* This includes on-going modifications to legacy systems to accommodate such changes as the new Universal Laptop standard workstation, modifications to accommodate new server and workstation operating systems as they are released, upgrades of commercial products used by these legacy systems, and new time-sensitive business requirements.

- *Adhere to the standard System Development Life Cycle (SDLC).* There is constant pressure to get new systems and enhancements to legacy systems deployed quickly, which typically causes quality problems that later cause disruptions and require costly repairs. AED plans to more rigorously enforce adherence to the standard SDLC, while working with other OCIO offices to streamline the process.

AED will take the lead on developing the software needed to modernize and make major enhancements to business systems including the PE2E, TMNG, and FPNG systems described on previous pages. Among the highlights of the common strategies for these plans are to:

- *Evolve to Agile Development Methodologies.* AED plans to adopt new "adaptive" agile methods for the three major modernization efforts; evolve to more agile methods for major enhancements to legacy systems; and generally rely on the traditional SDLC for minor enhancements to legacy systems.

The PALM System was Modified to Handle Major New Requirements

While PE2E is being developed, certain operational systems will be enhanced to meet new business requirements. For example, the Patent Application and Locator Management (PALM) system is used to track the workflow of Patent operations. The PALM team adapted the system to handle changes to accommodate new business processes involving how workload is counted. The enhancements were completed within a very tight deadline and budget, and are expected to help increase productivity of patent examiners.

- *Virtualize systems.* Nearly all of the legacy systems were designed to run on dedicated physical servers. AED will oversee the development of the software for the major new systems and will convert legacy systems to run in a virtual environment as a first step toward migration of the systems to cloud computing environments.

- *Migrate to the Cloud.* The AED will oversee the migration of business systems to cloud computing, focusing on developing software capabilities to support high-availability and failover.

- *Separate Trademarks legacy systems.* Once they are virtualized, AED will provide the software support needed to separate Trademarks systems from the servers that they now share with Patents and Corporate systems.

- *Adapt systems to work on the Universal Laptop.* All business and shared services software must be tested, and in many cases adapted, to ensure it works on the new USPTO "universal laptop." Among the benefits of the universal laptop are that it will provide better end-user security, cost less to maintain than the aging desktop workstations now used, and better support the expanding telework program.

Financial Summary

As a production-based organization, the USPTO relies heavily upon information technology and the capabilities it brings to processing application and disseminating data. In the past, the USPTO approached IT planning and resource management as a blend of operations and maintenance, and capital improvements. As a result, IT funding was sporadic and inconsistent as a percentage of the USPTO's overall budget.

Recently, and for the foreseeable future, the USPTO has established two sets of plans – Operational Plans and Capital Improvement Plans. As such, it is easy to see the cost of "keeping the current trains running" and the major factors to consider when establishing Operations and Maintenance (O&M) plans and O&M budgets. In addition, through such a rigorous planning and budgeting process, the major plans and dollars associated with various capital improvements are clearly evident. The net result is a more stable IT funding model, where tradeoffs can be better evaluated and planned as they relate to operations and maintenance versus capital improvements.

USPTO IT Spending
(Dollars in Millions)

Legend: Ops & Maint | Capital Improvements

Categories: FY 2010 Projected, FY 2011 Planned, FY 2012 Planned, FY 2013 Planned, FY 2014 Planned, FY 2015 Planned, FY 2016 Planned

IT Spending as % of USPTO Budget
FY 2005 thru FY 2016
(Dollars in Billions)

Legend: Total Agency Budget | Total OCIO Budget | OCIO % of Agency Budget

Categories: FY 2005 Actual Spent, FY 2006 Actual Spent, FY 2007 Actual Spent, FY 2008 Actual Spent, FY 2009 Actual Spent, FY 2010 Projected Spending, FY 2011 Projected Spending, FY 2012 Projected Spending, FY 2013 Projected Spending, FY 2014 Projected Spending, FY 2015 Projected Spending, FY 2016 Projected Spending

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