Office of the Chief Information Officer
Strategic Information Technology Plan
FY2003 - 2008

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CONTENTS

EXECUTIVE SUMMARY

The mission of the Office of the Chief Information Officer (OCIO), in support of the U.S. Patent and Trademark Office (USPTO), is *to provide quality information products and services for our customers*. In support of that mission, this Strategic Information Technology Plan (SITP) links the OCIO's goals and objectives to the USPTO's 21st Century Strategic Plan to assure that the OCIO meets customer business needs using agile, productive, and innovative approaches. Additionally, the SITP supports the USPTO's efforts to comply with the government-wide initiatives in the President's Management Agenda.

The **Introduction** to the SITP provides a broad view of the OCIO's mission, vision, and principles and how they position the USPTO to face key challenges, including the move to Carlyle, the growth in patent and trademark applications, increased business dependency on information technology, an increasingly remote workforce, and the need for international coordination. This section also provides an overview of the accomplishments to date and how the OCIO will build on these in the future.

The **Strategic Goals and Objectives** sections describe the five strategic goals along with the specific objectives and tasks that support each of them. Goal 1, *Enable USPTO to implement electronic government in its patent and trademark businesses to reduce paper handling and enhance business processes,* provides a focus for the development of innovative and agile services. Goal 2, *Support the relocation of the USPTO to the Carlyle campus in Alexandria, Virginia,* addresses the OCIO's challenge to sustain high quality service during the move to Carlyle. Goals 3, 4 and 5 summarize the OCIO's commitment to operational excellence and to a clear linkage between business processes and technology. Goal 3 is to *Provide and support a world-class information technology operation that meets or exceeds end-user needs.* Goal 4 is to *Leverage an enterprise architecture to improve information technology efficiency and effectiveness,* simplifying and unifying through initiatives such as high availability architecture. Goal 5 is to *Continuously improve the delivery of OCIO information products and services to meet USPTO business objectives.*

The OCIO strategic goals represent a blueprint for the USPTO's information technology activity, especially in the near-term. The **Conclusion** summarizes a longer-term vision of the USPTO as those plans come to fruition. In 2008, the OCIO's internal and external customers will interface with a quality-focused, highly productive, responsive organization meeting and exceeding customer requirements through continuous improvement of products and services. Initiatives in support of electronic government will have reduced reliance upon, and in some cases eliminated, inefficient paper processes. Electronic communication of applications and documents with applicants will occur seamlessly, facilitated by an integrated customer-facing government-to-business and government-to-citizen electronic government approach that brings the USPTO closer to its customers and stakeholders.

INTRODUCTION

The mission of the U.S. Patent and Trademark Office (USPTO) is to ensure that the intellectual property system contributes to a strong global economy, encourages investment in innovation, and fosters entrepreneurial spirit. The intellectual property climate is fast moving, complex, and increasingly international in nature. To meet these challenges, the USPTO's Office of the Chief Information Officer (OCIO) developed this Strategic Information Technology Plan (SITP) broadly focused on the themes set forth in the USPTO's 21st Century Strategic Plan – agility, capability, and productivity. In order to support the USPTO's 21st Century Strategic Plan, the OCIO, like the USPTO, must transform itself into *a quality-focused, highly productive, responsive organization supporting a market-driven intellectual property syste*m.

The USPTO recognizes that its products and services help to drive technological advancement, an engine of the economy. By protecting the rights of inventors and thereby encouraging investments in research and development, patents provide an incentive and stimulus for inventors, individual and corporate, to take risks with the hope of economic return. Registering trademarks and disseminating trademark information allows trademark owners to market products under protected names, thereby decreasing confusion for consumers and increasing equity for companies. Information contained in patents and trademarks represents an extraordinary collection of technological and business resources, much of which is available from no other source. Dissemination of this data allows researchers to understand and build on new technologies disclosed through the patent process and encourages the incorporation of patented inventions into commercially manufactured products. The USPTO is pursuing a strategic plan that supports economic growth by improving the delivery of intellectual property services that meet the business needs of internal and external customers through the use of increased technological capabilities.

A key purpose of this SITP is to tightly couple the OCIO's goals and objectives to the USPTO's strategic vision to assure that the OCIO meets customer business needs using agile, productive, and innovative approaches. This is a world in which market forces drive the OCIO's strategy via workforce management and a commitment to internal and external customers backed by service level agreements and service goals. Quality and cost control are achieved by the simplification and unification of processes and technology. A rigorous capital investment planning approach is followed, and operations are executed based on a business model that utilizes balanced scorecard performance management. As a result, the OCIO will support the rest of the USPTO in transforming itself into a quality-focused, highly productive, responsive organization supporting a market-driven intellectual property system.

INFORMATION TECHNOLOGY AND THE USPTO'S 21ST CENTURY STRATEGIC PLAN

The OCIO's SITP is focused on the themes set forth in the USPTO's 21st Century Strategic Plan and addresses the areas in which information technology will play either a primary or enabling role in carrying out the mission and vision for the USPTO.

Agility: Address the 21st Century Economy by Becoming a More Agile Organization
The OCIO will directly enable many of the aspects of the USPTO becoming a more agile organization, particularly through the implementation of a flexible enterprise architecture for application processing. These electronic government (e-Government) initiatives as a whole will provide secure and robust electronic end-to-end processing of both patents and trademarks. The OCIO will also play a major enabling role for flexible workforce environments by providing the necessary infrastructure and connectivity to key USPTO systems. Through technology sharing and joint development efforts, the OCIO will support the strategic effort to strengthen and simplify access to intellectual property rights around the world through international cooperation and electronic information dissemination.

Capability: Enhance Quality through Workforce and Process Improvements
As core competency needs evolve due to increased reliance on information technology and the outsourcing of services, as well as eventual workforce retirements, the federal government, including the USPTO, is placing greater emphasis on the need to recruit, retain, and train the right people. In response, the OCIO will support this evolving workforce by providing an advanced infrastructure and tools that support hiring. The OCIO will also continue to address quality through workforce and process improvements, such as streamlining life cycle management within the OCIO and a streamlined architecture to promote a high return on investments in information technology.

Productivity: Accelerate Processing Times through Focused Examination
Through the application of advanced information technology tools for internal and external customers, the OCIO will support increased productivity. The e-Government initiatives, as defined in the USPTO's 21st Century Strategic Plan, will be instrumental in reducing latency in the patent and trademark application pipeline, thereby helping to achieve the USPTO's aggressive business goal of reduced pendency.

OCIO MISSION, VISION, AND PRINCIPLES

The OCIO mission is *To provide quality information products and services for our customers*. In support of that mission, the OCIO pursues a clear vision: *We deliver information excellence that fuels the economy*. Our principles of *Commitment to Our Values*, *Simplification,* and *Results Oriented*, detailed below, are embedded in the activities that we perform in carrying out our mission.

Commitment to Our Values – The OCIO is committed to its values and seeks to continue to incorporate them into the culture of the organization. The OCIO values include the following.

- *Valuing Employees* – We support our employees' need to balance their personal and professional aspirations. We treat each other with dignity, respecting individual and cultural differences. We communicate frequently and with candor, listening to each other regardless of level or position.
- *Teamwork* – We are committed to working together and communicating with one another to live the mission and achieve the vision.
- *Integrity* – We are honest and ethical in all that we do. We keep our promises and learn from our mistakes.

- *Responsiveness* – We do what needs to be done, when it needs to be done.
- *Quality* – We focus on improving our process, products and services.

Simplification – The OCIO will seek to simplify its systems and processes through a streamlined enterprise architecture, revised life cycle management procedures for system development, enhanced world-class operations of information technology resources, and rigorous capital planning and investment control procedures and governance that will help identify project priorities and retire obsolete systems.

Results-Oriented – The OCIO will focus on results by understanding how information technology impacts business drivers, measuring the performance through a balanced scorecard model aligned with the USPTO's performance goals and measures, and managing the performance to meet service level agreements, service goals, and the overall agency goals. The OCIO is building a workforce program to improve management skills, provide adequate skills management, and instill performance management best practices.

CHALLENGES AND KEY DRIVERS FACING THE USPTO

In carrying out this mission, the USPTO faces a number of significant challenges. The major challenges and key drivers are summarized below.

Move to Carlyle – The Carlyle move presents significant information technology challenges as the move must appear as seamless as possible from a systems and infrastructure point of view to internal and external users of USPTO information technology. The move will occur incrementally for more than a year, requiring concurrent systems operations and access at both sites over that period.

Growth in Patent and Trademark Applications and Storage Requirements – The USPTO stores 30 million gigabytes of data, an amount that continues to rise steadily. Currently, the agency receives annually approximately 335,000 patent applications, some of which can run to millions of printed pages, and 135,000 trademark applications. The number of applications has been steadily increasing, averaging around 10 percent annually. As a result, the USPTO has seen storage needs grow between 25 percent and 40 percent in each of the past five years. As the business model changes to rely on image files as the official document for application prosecution, more information will need to be captured electronically and the storage requirements will rise even faster.

Increased Business Dependency on Information Technology – As the USPTO transitions to end-to-end electronic processing of patent and trademark applications, the digital representation of files become the document of record. This adds another element of importance to the underlying systems that store and process this information. With this operating model, system down time can cause serious disruptions to business operations and be very costly to the USPTO. To minimize this potential impact, a highly available information technology infrastructure, applications, and data are needed. In addition, security concerns such as privacy, data integrity, and non-repudiation of business transactions become critical to successfully executing end-to-end electronic application processing.

International Coordination – Due to the global scope of the intellectual property issues, the USPTO, unlike many government agencies, has made a strategic decision to coordinate with international intellectual property offices to support its customers and stakeholders. This is becoming more important as the economy becomes more global and intellectual property rights are increasingly established and defended internationally. The challenges include establishing data standards to promote electronic information sharing and aligning technology with evolving legal frameworks and business models. The USPTO will coordinate and facilitate the sharing of patent data among its global intellectual property office partners and the World Intellectual Property Organization to ensure consistency of standards and global interoperability of patent systems. International coordination will also be obtained to support the eventual development of a trademark e-filing system that leverages the USPTO's experience with this technology. In addition, the complexity of these issues is increased by not only geographical separation, but also the existence of multiple systems development contractors and the need to consolidate on a common solution.

Increasingly Remote Workforce – The work-at-home initiatives and other flexible work schedules are causing the workforce to be increasingly remote and creating further challenges in providing information technology infrastructure support. The primary issue is that much of the remote workforce requires access to complex applications across a wide area network. Even with high-bandwidth remote access, wide area network speeds can be as low as 10% of a local area network, which presents complications when running applications across a wide area network. In addition, issues such as security, access control, and end user support all become more difficult to manage as more users are operating outside the physical network.

Technology Obsolescence Cycles – The fast pace of information technology advances often shortens the life cycle of systems, requiring updates that are more frequent. Examples of this include:

- Continuous software upgrades;
- Replacement of servers, desktops, network devices, and storage equipment to minimize total cost of ownership; and
- Continually training and retraining personnel to keep up with the rapid evolution of technology.

OVERVIEW OF STRATEGIC INFORMATION TECHNOLOGY PLAN FRAMEWORK

The OCIO has identified the following goals as the major strategic directions to support the information technology vision for the USPTO. The OCIO has also identified the objectives and specific tasks necessary to implement each of these goals listed below in order of importance.

Goal 1 is to ***Enable USPTO to implement electronic government in its patent and trademark businesses to reduce paper handling and enhance business processes***. E-Government is important to USPTO, not only because it has been federally mandated, but more importantly because it promises to bring USPTO closer to its customers and stakeholders and improve operational efficiency.

Goal 2 is to ***Support the relocation of the USPTO to the Carlyle campus in Alexandria, Virginia,*** by providing for the transition of information technology resources with continuous services to internal and external customers.

Goal 3 summarizes our commitment to operational excellence: ***Provide and support a world-class information technology operation that meets or exceeds end-user needs*** based on a balance between service level and cost**.**

Goal 4 summarizes our strategic imperative to improve the linkage between business processes and technology: ***Leverage an enterprise architecture to improve information technology efficiency and effectiveness***, simplifying and unifying through initiatives such as a high availability service architecture**.**

Goal 5 is to ***Continuously improve the delivery of OCIO information products and services to meet USPTO business objectives.*** This goal focuses on long-range improvements in execution of the OCIO operations.

ACHIEVEMENTS TOWARD THE STRATEGIC GOALS

Recently the OCIO has made significant achievements toward realizing the strategic goals outlined above. Many of these successes are described in the paragraphs below with an identification of the SITP goals that each one supports.

Migration to E-Government (supporting Goal 1) – The USPTO has been a leader in the federal government in providing customer service through the Internet, as evidenced by the recent #1 ranking of the *uspto.gov* website[1]. Some of the key systems implemented for the Patents business unit are the Electronic Filing System, the Patent Application Information Retrieval system, the Examiner's Automated Search Tool, the Web-based Examiner Search Tool, and the Office Action Capture System. The Trademark business unit has had particular success with the Trademark Electronic Application Submission system, the Trademark Application and Registration Retrieval system, and the Trademark Electronic Search System. The Trademark Trial and Appeal Board has implemented the Trademark Trial and Appeal Board Information System, which enables electronic end-to-end workflow document processing. To support each of the businesses, the Revenue Accounting and Management system facilitates online payment of customer fees.

ePHOENIX Pilot (supporting Goal 1) - In a major cooperative effort with the European Patent Office, the USPTO is developing and testing a prototype of the ePHOENIX system, much of which is in use at the European Patent Office, to enable electronic processing of patent applications. A prototype of this system is being tested and refined by three examining units, representing approximately 50 users. The movement toward complete processing of patent applications electronically has provided the OCIO with a major opportunity to pursue collaborative information technology development with its Trilateral Partners, the European and the Japanese Patent Offices.

[1] Based on the PriceWaterhouseCoopers Endowment for the Business of Government Report

First Action System for Trademarks (supporting Goal 1) – This system, which is currently prepared for deployment, will enable trademark examiners to electronically retrieve and examine new trademark application data from the Trademark Reporting and Monitoring system and the Trademark Image Capture and Retrieval System. Examiners can then reassign to other examiners, create validation reports, and perform first actions. It establishes a front-end tool for initial examiner actions on new trademark applications.

Trademark Work-at-Home (supporting Goal 1) – This program, implemented in 1997, supports 110 examining attorneys. Each attorney works at home three days a week and shares an office with another work-at-home attorney. With the necessary software and telecommunications capability, the attorneys are provided with remote access to numerous trademark business applications including Automated Trademark Searching, Trademark Reporting and Monitoring system production data, creation of prosecution history updates, and office automation functions including word processing and electronic mail. Productivity of work-at-home participants has been measured, and the quality of those employees' work has been as good or better than that of the general trademark workforce. This program will be used as the model for future expansion of flexible work initiatives at the USPTO. Additionally, Congress has suggested using this program as a model for expansion of other federal government telecommuting initiatives.

Information Technology Security (supporting Goal 1) – USPTO has made substantial investments in assuring information systems, including use of firewalls, public key infrastructure, and encryption on local network segments. The major ongoing information technology security programs include certification and accreditation of USPTO systems, compliance testing, capability self-assessments, infrastructure protection, operations and maintenance, and information technology security training. These program improvements have been designed to bring the USPTO into full compliance with the Federal Information Security Management Act.

Enterprise Architecture (supporting Goal 4) – The OCIO has developed plans for a target enterprise architecture that will help to simplify and unify the USPTO's information technology systems and that aligns with the Federal Enterprise Architecture. Recent milestones include the development of an enhanced Concept of Operations, updated Technical Reference Model, Enterprise Data Model, Application Architecture, Security Architecture, Business Reference Model, Service Reference Model and establishment of the Architecture Review Board. To help promote and achieve the enterprise architecture, the OCIO has restructured to include technical and design staff on the architecture teams. Strategies within the enterprise architecture that are currently being implemented include automated network storage, high availability systems architecture, consolidated development environment, and enterprise application integration, which form the foundation of an agile, efficient architecture that is flexible to support changing business needs.

Integrated Development Environment (supporting Goal 4) – The USPTO has established an integrated development environment that will facilitate software component, architecture, and engineering reuse for the USPTO and its business partners. Moreover, it will support the

USPTO e-Government strategy by providing an opportunity to unify a number of development environments that are currently deployed in support of independent automated information systems.

Enterprise Application Integration (supporting Goal 4) – In FY 2002 the USPTO selected and is now implementing a comprehensive enterprise application integration solution. The progressive use of this enterprise application integration technology will provide the USPTO with substantial benefits including reduced costs for system interfaces, risk mitigation for technology upgrades, facilitation of electronic transactions between international intellectual property offices, and potentially extending the life of current systems. The enterprise application integration routing hub was implemented in December 2002, providing integration between the Electronic Filing System and the Patent Application Location Monitoring system, resulting in a more streamlined business process and reduced manual data entry.

Capital Planning Approach (supporting Goal 5) – The OCIO has implemented improvements to its capital planning and investment control process to better allocate resources, plan for expenditures, and comply with federal mandates. Additional ongoing improvements include a revised governance structure, streamlined documentation development, and a more formal review processes tightly coupled with the budget process.

With these initial achievements as a foundation for USPTO's efforts to support economic growth by improving the delivery of intellectual property services, the OCIO is well positioned to meet the technical and organizational challenges it currently faces, and deliver on its strategic goals and objectives. In the long term, the strategic goals will come together to implement a vision of continuously improving operations supporting a comprehensive enterprise architecture. The result will be an OCIO that is quality-focused, highly productive, responsive organization, supporting the USPTO's vision in the 21st Century Strategic Plan. This is an ambitious agenda requiring the focused energy and talents of the OCIO personnel, aligned toward achieving the strategic goals outlined in this plan.

STRATEGIC GOALS AND OBJECTIVES

The goals and objectives of the Office of the Chief Information Officer (OCIO) outlined in this Strategic Information Technology Plan (SITP) describe the strategies employed by the U.S. Patent and Trademark Office (USPTO) to address 21st century business needs. These goals are as follows:

- Strategic Goal 1: Enable USPTO to implement electronic government in its patent and trademark businesses to reduce paper handling and enhance business processes.
- Strategic Goal 2: Support the relocation of the USPTO to the Carlyle campus in Alexandria, VA.
- Strategic Goal 3: Provide and support a world-class information technology operation that meets or exceeds end-user needs.
- Strategic Goal 4: Leverage an enterprise architecture to improve information technology efficiency and effectiveness.
- Strategic Goal 5: Continuously improve the delivery of OCIO information products and services to meet USPTO business objectives.

These goals and the supporting objectives are focused on enhancing business efficiency and effectiveness, as well as improving service and communication with internal and external end users.

STRATEGIC GOAL 1: ENABLE USPTO TO IMPLEMENT ELECTRONIC GOVERNMENT IN ITS PATENT AND TRADEMARK BUSINESSES TO REDUCE PAPER HANDLING AND ENHANCE BUSINESS PROCESSES.

Strategic Goal 1 - Objectives
1.1. Develop a Trademark electronic file management system, including support for the Madrid Protocol, and begin electronic government operations [E-Government 1].
1.2. Deliver an operational system to process patent applications electronically [E-Government 2].
1.3. Outsource the development and support for patent application authoring and application submission tools to private sector concerns.
1.4. Establish an information technology security program for fully certifying and accrediting the security of every automated information system [E-Government 4].
1.5. Continue to enhance technology capabilities in support of business efforts to encourage alternative work arrangements, such as Trademarks Work-at-Home and Hoteling.
1.6. Develop an automated information system to support a post-grant patent review process [E-Government 3].

The workload of the USPTO has been growing steadily due to the increased number and complexity of applications and is expected to continue increasing in the future. In response, business processes must evolve from paper-based to e-Government interactions to be cost-effective and time-efficient for both internal and external users of information technology. Facilitating the transition to an e-Government environment is the top OCIO priority and includes the planning, design, development, maintenance, oversight, and management of web-based business applications. Implementing e-Government is focused on addressing the technological needs of USPTO patent and trademark businesses, including all business areas touching patent and trademark applications, to facilitate decreased reliance on paper-based, physical processing and review of application file contents to streamline operations. As the USPTO enhances its e-Government systems, the OCIO will continue to

provide a secure environment for conducting business with the USPTO and enhance technological capabilities to encourage alternative work arrangements.

Objective 1.1 Develop a trademark electronic file management system, including support for the Madrid Protocol and begin electronic government operations [E-Government 1].

The Trademarks business unit, supported by the OCIO, has been implementing e-Government systems and processes for the last 10 years as part of a business-reengineering plan aimed at moving away from paper-based processes. Recent successes include the development of the First Action System for Trademarks (FAST) to automate initial examiner actions on applications, the electronic publication of the *Official Gazette: Trademarks*, the implementation and upgrade of the Trademark Image Capture and Retrieval System for electronic file wrappers and the implementation and upgrade of the Trademark Electronic Application Submission system to facilitate online filing. The new Trademark Trial and Appeal Board electronic filing system, known as ESTTA and presently in pilot, is integrated with the workflow system and will meet Madrid Protocol requirements. The move to fully electronic operations will culminate at the beginning of FY 2004 with the deployment of the Trademark Information System (TIS) on November 2, 2003. TIS will enable all examiner-applicant communication to occur electronically. With the implementation of e-Government, the Trademarks business unit anticipates a reduction in pendency for first actions to two months and disposal pendency to 12 months by 2006.

This effort will be implemented concurrently with the Madrid Protocol, which requires that all international applications contain three sets of data, including all information from the basic application or registration that must be certified by the USPTO, the list of member countries designated by the applicant to obtain an extension or protection, and information concerning fees. It is the USPTO's goal to leverage this Madrid-compliant e-filing capability to promote the sharing of the e-filing system with its global partners, thereby supporting the re-use of this application. The modifications required to implement the Madrid Protocol will affect seven trademark automated information systems. The Madrid Protocol requires that trademark systems are able to exchange data with the International Bureau. This requires the creation of the Trademark Madrid System to facilitate text and image data exchange and the full implementation of the Trademark Trial and Appeal Board Information System (TTABIS) to create a completely electronic workflow at the Trademark Trial and Appeal Board (TTAB) in compliance with the tracking, reporting, and communication requirements of the Madrid Protocol.

The tasks that support this objective are as follows:

Tasks for Objective 1.1	Status
- Validate user requirements.	*Completed*
- Develop high-level architecture.	*Completed*
- Develop detailed design.	*Completed*
- Code, integrate, and test system.	*In Process*
- Production deployment of TIS/Madrid/TTABIS.	*Planned*
- Operate and maintain system	*Planned*

Objective 1.2 Deliver an operational system to process patent applications electronically [E-Government 2].

The OCIO has begun to implement an end-to-end electronic pipeline for the processing of patent applications that will eliminate inefficient paper-based processes as detailed in the USPTO's 21st Century Strategic Plan. The Patent business unit, in coordination with the OCIO, has developed an implementation plan that will provide a document management and workflow system to electronically process patent applications by October 1, 2004. This plan will ensure an operational pipeline to process patent applications electronically, using the European Patent Offices's (EPO) ePHOENIX system, and will enable the USPTO to pursue collaborative information technology development with the EPO. The ePHOENIX system will store images of file contents, which will be integrated with legacy applications to allow for electronic processing of applications, as well as provide image management technology and workflow capability.

This initiative is important in managing file contents during the move to the Carlyle facility (Strategic Goal 2). To facilitate the move, pending paper patent applications will be captured in ePHOENIX after initial integration with USPTO legacy systems. The image file wrapper contained in ePHOENIX will serve as the office copy and legal record of the application beginning in FY 2003, which increases file wrapper integrity, eliminates lost paper files, and eliminates the need to move paper files to the new campus. The electronic processing pipeline will be expanded to integrate eXtensible Markup Language (XML) and World International Property Organization (WIPO)-approved document type definitions into the application processing chain, which will enhance system capabilities to provide end-to-end electronic processing of applications from authoring to filing to publication while ensuring global interoperability of the system. Future enhancements include the scanning of documents in color and further integration with legacy systems such as the Patent Application Location Monitoring (PALM) system, the Revenue Accounting and Management (RAM) system, and the Patent Application Information Retrieval (PAIR) system. The system will provide the ability for U.S. patent applicants to safely submit international Patent Cooperation Treaty (PCT) patent applications to the USPTO via a secure Internet link using PCT-SAFE (WIPO e-filing system), further illustrating USPTO cooperation with WIPO and EPO to provide optimal system capability for end users.

The ePHOENIX system functionality will also increase customer access to patent information, including enabling applicants to file patent applications and other correspondence electronically. It also provides a means for examiners to send outgoing correspondence to applicants electronically, provides the public with secure access to electronic file wrappers via PAIR, and facilitates walk-up public access.

The tasks that support this objective are as follows:

Tasks for Objective 1.2	Status
- Develop and test ePHOENIX prototype.	*Completed*
- Assess skills needs and risks for patent examiners.	*Completed*
- Provide user's system requirements to EPO.	*Completed*
- Test and deploy production version of ePHOENIX.	*In Process*
- Develop and deploy high-availability version of ePHOENIX.	*Planned*
- Operate and maintain the system.	*Planned*
- Test EPO's PatXML software for use in ePHOENIX system.	*In Process*
- Design a software interface and integrate the ability to receive PCT applications electronically at USPTO.	*In Process*
- Design US national software plug-in for ***epoline***® and provide integration support.	*Planned*

Objective 1.3 Outsource the development and support for patent application authoring and application submission tools to private sector concerns.

The OCIO is working with five vendors, collectively known as the Electronic Filing Partnerships (EFP), to develop patent application authoring and submission software that will be used to file documents in compliance with WIPO XML-based document standards. The desired outcome is to provide the mechanisms to companies, independent inventors, patent practitioners, and other information exchange partners to file applications, make payments, record assignments of patents, exchange office actions and other correspondence, and retrieve forms, publications, and other information from the USPTO with a minimum reliance on paper by utilizing the capabilities of private sector software development firms. This initiative will substantially reduce application filing processing costs by encouraging applicants to file electronically, increasing user acceptance through thorough product testing, and migrating all electronic filing to an XML-based standard. The patent application authoring and submission tool(s) will be PCT compliant with the technical standard specified in PCT Annex F, "Standard for the eFiling and Processing of International Applications."

The tasks that support this objective are as follows:

Tasks for Objective 1.3	Status
- Receive and test first Electronic Filing Partnership (EFP) product.	*In Process*
- Complete the Electronic Filing System (EFS) server build.	*In Process*
- Develop proof of concept to receive expanded filing formats in the EFS server.	*Planned*
- Expand EFP to include additional/replacement filing partners.	*Planned*

Objective 1.4 Establish an information technology security program for fully certifying and accrediting the security of every automated information system [E-Government 4].

As the OCIO further develops the USPTO e-Government environment, it is imperative that internal and external users of USPTO systems be confident that the information contained in AIS's and information in transit is secure. The need to conduct business transactions electronically and the availability of patent and trademark information electronically greatly increase the risk of attack and intrusion into the USPTO's architecture, network, databases, and data repositories. It is because of these risks that a strong IT security program is of central importance to ensuring that there is minimal disruption to business operations. To strengthen IT security, the OCIO has developed an enterprise-wide IT security program that focuses on the certification and accreditation of all USPTO AIS's at a minimum of every three years, in conjunction with compliance testing and self-assessments of AIS's and security training for managers.

The criticality of this effort has increased following a determination by the Office of the Inspector General that the USPTO is not fully compliant with the Federal Information Security Management Act (FISMA). The OCIO will use independent resources to assure that all AIS's are certified and accredited in a timely manner. Successful implementation of firewalls, public key infrastructure (PKI), and encryption on local network segments testify to the OCIO's commitment to information system security.

The tasks that support this objective are as follows:

Tasks for Objective 1.4	Status
- Update OCIO Technology Standards and Guidelines (TSG's) for IT security. Each document provides guidance (how security requirements are generated, tracked, incorporated and tested) for managers to utilize in preparing security planning documents (sensitivity assessment, risk assessment, system contingency information, and accreditation) for AIS projects. The updated TSG's build IT security features and controls into all AIS projects.	*In Process*
- Complete IT Security Agency Administrative Order and Program Plan.	*In Process*
- Develop IT Security training plan.	*Completed*
- Develop and implement IT Security training program; Complete user awareness training. The IT Security training program focuses on three competencies: management, technical, and user awareness. There are different levels of training and responsibility assigned to different user groups (i.e. managers, IT administrators, general USPTO personnel). User awareness training is completed by all USPTO employees on a yearly basis.	*In Process*
- Certify and accredit AIS's. Certification and accreditation (C&A) of the IT security of all USPTO AIS's is an ongoing measure of system security, and will be incorporated into the system life cycle for all AIS's. The USPTO has acquired contractor resources to assist in the C&A of all operational AIS's. The OCIO has already completed C&A activities for the USPTO perimeter network.	*In Process*
- Develop and improve C&A procedures.	*In Process*
- Complete National Institute for Standards and Technology self-assessments.	*In Process*
- Develop compliance testing plan. Compliance testing is conducted to provide evidence of compliance with IT security requirements. The plan includes Security Test and Evaluation methods, system audits, and vulnerability testing, and is part of the certification and accreditation work stream.	*In Process*
- Test AIS's for compliance.	*Planned*

Objective 1.5 Continue to enhance technology capabilities in support of business efforts to encourage alternative work arrangements, such as Trademark Work-at-Home and Hoteling.

Alternative work arrangements allow the USPTO to provide its employees with telecommuting options as required by Public Law 106-346 while simultaneously managing the workforce within space constraints at USPTO facilities. The USPTO's nationally recognized Trademark Work-at-Home (TW@H) program has provided tangible benefits, such as increased employee satisfaction and retention through telecommuting opportunities. The Trademark Hoteling program has

provided cost savings from workspace sharing arrangements for those who primarily work from home.

Information technology provides employees with the capability to work from home when paperless processes exist. The OCIO supports those paperless environments by providing access to seven major trademark systems and PTOnet on home computers, enabling those who work from home to be productive, and achieving economies of scale by providing systems that are scaleable to allow new users to participate in alternative work arrangements at a lower cost per user. The upgraded TW@H II system allows users to connect from workstations at home to PTOnet using either a primary link (high-speed broadband connection) or a backup link (dial-in Public Switched Telephone Network (PSTN)). One of the greatest challenges to enhancing the work-at-home environment is that most applications used by TW@H participants must be accessed across the wide area network, as opposed to office access to applications through the faster local area network. Therefore, even the upgraded primary link provided by TW@H II cannot compensate for the decreased speed of data transmission provided across the wide area network.

The tasks that support this objective are as follows:

Tasks for Objective 1.5	Status
- Analyze TW@H requirements with product consulting support.	*Completed*
- Simulate anticipated work volumes using new applications (Trademark Information System (TIS), First Action System for Trademarks (FAST)) on server clusters.	*In Process*
- Develop and deploy server cluster; Migrate current users to new server cluster. The deployment and migration to a new server cluster for TW@H will enable the OCIO to increase data availability and download speed by creating a "data farm" for data that must be accessed by TW@H participants.	*In Process*
- Design replacement hotel reservation system; Prototype roaming profiles and user customized configurations; Enhance backup for user data with network attached storage; Expand hotel capability to additional users. The replacement hotel reservation system will allow participants to reserve office space at the USPTO over the Intranet. Hoteling enhances the ability of customers to communicate with hoteling participants using dedicated phone lines, roaming profiles, and custom desktop configurations for both office and home locations. The replacement hotel reservation system will provide greater system scalability to facilitate the addition of new users to the program.	*In Process*
- Deploy laptops or roaming profiles to TW@H users.	*In Process*

Objective 1.6 Develop an automated information system to support a post-grant patent review process [E-Government 3].

In preparation for the expected passage of patent post-grant review legislation requiring that the Board of Patent Appeals and Interferences decide all inter-partes proceedings in one calendar

year, the OCIO plans to address the need for electronic review files using an AIS. It is anticipated that the demand for inter-partes proceedings will substantially increase upon the passage of this legislation, thereby intensifying the need for the development of an AIS to manage the workload. The goal of the AIS, to be called the Board of Patent Appeals and Interferences Information System (BPAIIS), is to realize significant cost and labor savings by eliminating inefficient paper processes that currently require contractor support and the rental of storage space for files. All necessary review files would be consolidated into an electronic filing system, which will enable the USPTO to promote its flexi-place (work-at-home) program for Administrative Patent Judges and enhance its commitment to the retention of senior staff. A similar AIS, the Trademark Trial and Appeal Board Information System (TTABIS), is currently in use by the Trademark Trial and Appeal Board (TTAB). The likely release date for the new patent AIS would be in 2005, concurrent with the anticipated implementation of patent post-grant review proceedings.

The tasks that support this objective are as follows:

Tasks for Objective 1.6	Status
- Develop concept.	*Planned*
- Define business requirements.	*Planned*
- Define Board of Patent Appeals and Interferences Information System (BPAIIS) requirements.	*Planned*
- Design, build and test the Board of Patent Appeals and Interferences Information System (BPAIIS).	*Planned*
- Enhance the Revenue Accounting and Management (RAM) system	*Planned*
- Enhance Patent Application Location Monitoring (PALM) system	*Planned*

STRATEGIC GOAL 2: SUPPORT THE RELOCATION OF THE USPTO TO THE CARLYLE CAMPUS IN ALEXANDRIA, VA.

Strategic Goal 2 - Objectives
2.1. Relocate USPTO desktops and peripheral equipment.
2.2. Relocate the systems development environment and OCIO organization.
2.3. Relocate and consolidate the public search facilities into a single electronic search facility.
2.4. Relocate the USPTO data center.
2.5. Support network, telecommunications, and IT infrastructure relocation.

The USPTO is quickly moving into the implementation phase of the relocation of its facilities from 18 buildings spread throughout Crystal City to a consolidated campus on the Carlyle site in Alexandria, Virginia. This consolidation is expected to save the USPTO $72 million over the 20-year term of the lease and at the same time provide a more efficient work facility.

Also, in conjunction with the move and as part of the transformation to a fully electronic workplace, the agency plans to eliminate paper files in both internal processes and public search areas to the maximum extent possible. However, the USPTO will face numerous logistical and operational challenges in executing the move to Carlyle. Dual operations will be required during the phased implementation of the relocation, because the space will be delivered over a protracted period. Supporting employees and customers at geographically separate locations will require careful planning.

Objective 2.1 Relocate USPTO desktops and peripheral equipment.

The relocation of desktops and associated equipment to the Carlyle facility will be essential to maintaining the productivity of USPTO employees who are transitioning from their Crystal City-based office space to their new space at Carlyle. The ability of employees to work productively at the new location depends largely on their access to computer-based programs and to technical support for troubleshooting. This objective includes the successful relocation of desktop workstations (with connected peripherals) and networked equipment. This is a complex effort that is occurring within a tight timeframe so as to minimize any disruptions to employee production. This relocation process will also require close coordination and integration with the USPTO's existing asset management process. This effort will be governed by four major relocation plans (Transition and Relocation Plan, Carlyle Housing Plan, Crystal City Exit Strategy, and Carlyle Computer Relocation Plan).

The tasks that support this objective are as follows:

Tasks for Objective 2.1	Status
- Complete relocation procurement.	*In Process*
- Complete USPTO Transition and Relocation Plan.	*In Process*
- Determine Carlyle Housing Plan.	*In Process*
- Complete computer relocation plan.	*In Process*
- Relocate computers to Remsen and Jefferson buildings.	*Planned*
- Relocate computers to Madison building.	*Planned*
- Relocate computers to Randolph building.	*Planned*
- Relocate computers to Knox building.	*Planned*

Objective 2.2 Relocate and consolidate the public search facilities into a single electronic search facility.

The relocation of the patent and trademark public search facilities to the new campus provides the USPTO with the opportunity to consolidate the operations of the public search facilities into a single electronic facility. Search facility consolidation will enable more effective use of human and technology resources through process efficiencies generated by consolidation of resources. The move will also enable the search facilities to reduce reliance on many paper search processes by focusing on the further development and maintenance of universal public workstations with the capabilities to perform document searches. The Carlyle Public Search Facility is being designed with the goal of effective and efficient access to resources for both first time and frequent users. However, it is anticipated that the facility will be used primarily by routine and professional searchers, as are the current public search facilities.

The tasks that support this objective are as follows:

Tasks for Objective 2.2	Status
- Design Public Search Facility.	*In Process*
- Award contract for relocation of Public Search Facility.	*In Process*
- Procure universal public workstations.	*Planned*
- Notify customers.	*Planned*
- Relocate Public Search Facility to new Carlyle facility.	*Planned*

Objective 2.3 Relocate the Emerging Technology Center.

The USPTO's Emerging Technology Center (ETC) provides a laboratory for AIS development that simulates the production data center environment for formal qualification testing, as well as meeting and training facilities for USPTO use. The relocation of the ETC will occur over a one-week period during which the entire center will be considered "off-line" throughout the

relocation. During that time, all laboratory systems will be shut down at the Crystal City locations, transported, and reinstalled at the Carlyle facility. The move date for the ETC will occur approximately 30 days prior to the data center move to enable time for "lessons learned" to be applied towards the data center relocation, which is currently scheduled for the fall of 2003. The ETC move should not be detrimental to business productivity due to the quick turnaround time for relocating to Carlyle.

The tasks that support this objective are as follows:

Tasks for Objective 2.3	Status
- Design Carlyle Emerging Technology Center (ETC).	*In Process*
- Test-fit Carlyle ETC.	*In Process*
- Develop detailed plans.	*In Process*
- Commission Carlyle ETC.	*Planned*
- Relocate equipment to Carlyle ETC.	*Planned*

Objective 2.4 Relocate the USPTO data center.

The USPTO data center runs critical systems that form the IT infrastructure, which supports all AIS's and core networking equipment at the USPTO. This relocation effort must attempt to minimize business impact while allowing adequate time for testing and contingency activities once the data center equipment is relocated. Therefore, one plan being discussed is for a majority of the data center application servers to be relocated over a three-day Federal holiday weekend, beginning on a Friday evening and concluding sometime on the following Monday. The relocation of other equipment outside of the move weekend – such as mass storage devices, office automation servers and tape silos – will enable the entire relocation process to occur more smoothly. Precise planning for the data center move will provide the framework to enable the USPTO to transition to the Carlyle facility with minimal business interruption.

The tasks that support this objective are as follows:

Tasks for Objective 2.4	Status
- Design Carlyle data center and Network Operations Center.	*In Process*
- Test-fit Carlyle data center and Network Operations Control Center (NOCC).	*In Process*
- Develop detailed plans incorporating lessons learned from ETC relocation.	*In Process*
- Commission Carlyle data center and NOCC.	*Planned*
- Relocate equipment to Carlyle data center.	*Planned*

Objective 2.5 Support Network, Telecommunications, and IT Infrastructure Relocation.

Support for the IT infrastructure relocation involves connecting the Crystal City facilities to the Carlyle campus through networking and telecommunications services. Activities that support the IT infrastructure relocation include the design/development, installation, and testing of:

- Fiber Connection - A redundant network path between the two campuses to provide connectivity between separate locations.
- Cable Plant - The cable backbone, which supports the installation of network electronics (e.g. data switches and Private Branch Exchange (PBX) switches).
- Data Switches - Procure a minimal number of new data switches and relocate existing switches to enable the sharing of data between devices (e.g. printers, serial devices).
- Telecommunications – Procure a new PBX switch and establish new phone service at Carlyle.

Each of these activities provides connectivity between the Crystal City and Carlyle facility and/or connectivity of floors and buildings at the new Carlyle campus. Connectivity through telecommunications will also be important during the move as new phone and fax numbers are implemented and old numbers are phased out. Telecommunications services will include the PSTN for voice and data telecommunications needs and a new PBX switch. Other Carlyle IT capabilities will be deployed to address move-related concerns including meeting room reservation capabilities, electronic building directories, a facilities help desk and facility management system, security access control system, and modifications to the existing OCIO help desk.

The tasks that support this objective are as follows:

Tasks for Objective 2.5	Status
- Procure and Install Temporary Connectivity	*In Process*
- Procure and Install Cable Plant	*In Process*
- Procure and Install Telecom Services	*In Process*
- Procure and Install Data Services	*In Process*
- Procure and Install New Carlyle IT Capability	*In Process*
- Relocate OCIO Organization	*In Process*

STRATEGIC GOAL 3: PROVIDE AND SUPPORT A WORLD-CLASS INFORMATION TECHNOLOGY OPERATION THAT MEETS OR EXCEEDS END-USER NEEDS.

Strategic Goal 3 - Objectives
3.1. Establish a world-class IT operation and customer support capability.
3.2. Decrease the potential for system outages and other errors, thereby reducing negative impacts to the business operations due to such problems.
3.3. Minimize the impact to business operations when system outages and other errors occur.
3.4. Efficiently and effectively operate the USPTO technical environment.

In the increasingly electronic environment in which the USPTO functions, the provision and support of USPTO's world-class information technology systems is of high business importance. The OCIO's effort to establish a world-class IT operation and customer support capability focuses on providing timely service, high-quality products, and a level of excellence that continually surpasses customer expectations. To achieve this outcome, the automated information systems and supporting networks that drive business processes must be consistently operating with minimal system outages and other errors. The effort to ensure that these processes are meeting end-user needs is three-fold, consisting of preventative maintenance, communications, and system operations. The USPTO maintains and operates the production technical environment to minimize lost productivity due to system downtime, provide high availability, maintain the current business production environment, and improve and enhance current business and technology infrastructure. Communications and support are provided to assist users in resolving AIS and other technology problems and to educate users on the proper use of those systems.

Objective 3.1 Establish a world-class IT operation and customer support capability.

The OCIO will establish a world-class IT operation defined as one that meets or exceeds all of its internal and external customers' requirements detailed in service level agreements and developed through personal customer relationships, as evidenced by unsolicited appreciation, survey instrument feedback, and independent validation and verification evaluations. Additionally, the determination and use of supporting metrics and best practice comparisons are other means by which the OCIO will gauge operational effectiveness and efficiency.

The insight gained by the OCIO assessing its services and products is critical for making informed decisions related to improving IT operations business processes. Specifically, this review is integral for managing a world-class data center that takes full advantage of available technology for disaster recovery, continuity of operations, data replication, and data transfer.

The tasks that support this objective are as follows:

Tasks for Objective 3.1	Status
- Conduct independent study of current services and customer satisfaction.	*Completed*
- Develop improvement plan based on study results.	*In Process*
- Implement improvements.	*In Process*
- Improve documentation, analysis, usage of critical problem notices, and root cause analysis data.	*In Process*
- Develop operational reports for analysis and ongoing focus.	*Completed*
- Establish website content management methodology and improve website server statistics program.	*In Process*
- Provide customers with electronic access to user guides and change notifications.	*In Process*

Objective 3.2 Decrease the potential for system outages and other errors, thereby reducing negative impacts to the business operations due to such problems.

As user requirements for USPTO systems become more complex, requiring greater functionality and 24x7 system performance, it is imperative that the technical environment support more complex business needs. The OCIO will support continual monitoring of system performance and preventative maintenance of system functionality that is essential to minimizing system downtime and other errors. The OCIO will also focus on decreasing the potential for system outages and errors for automated information systems, which support core business processes. In addition, the OCIO will focus on network management to ensure that PTOnet is operating at optimum level and is restored to acceptable service levels when an outage or degraded service level is detected. This dual focus will help minimize lost productivity since these operations impact most business operations. The OCIO will also continue to support database administration since it is vital to ensuring that end-users have the needed information. This will involve keeping current information systems operating through the design, installation, configuration, management, and maintenance of all database management software. The OCIO will also focus on the reduction and eventual elimination of all single points of failure in production systems and IT infrastructure to decrease the potential for system outages.

The tasks that support this objective are as follows:

Tasks for Objective 3.2	Status
- Perform preventative maintenance on Automated Information Systems (AIS's).	*Ongoing*
- Perform preventative maintenance on the PTOnet network.	*Ongoing*
- Perform database administration services.	*Ongoing*
- Reduce/eliminate all single points of failure in all production systems and within IT infrastructure components.	*In Process*
- Implement disaster recovery and continuity of operations for all USPTO AIS's and associated IT infrastructure.	*In Process*

Objective 3.3 Minimize the impact to business operations when system outages and other errors occur.

The OCIO will support end-user needs when system outages or other errors occur through timely, reliable, innovative, and cost-effective communications. Communications will focus on informing end users of system outages and expected time for restoration of services. The timely restoration of services is of high importance in minimizing the impact that service outages could have on business operations. To achieve this objective, the OCIO provides 24x7 operations and systems support coverage to address systems outages and other errors.

Support during system downtime and other assistance for end-users with technological difficulties are addressed with OCIO services including Help Desk, desktop, and other problem resolution services. Increased reliance on information technology has amplified demand for Help Desk services to trouble-shoot and either resolve or reassign problems. Demand for desktop services such as resolving desktop problems, moving, deploying, and surplusing desktop hardware, and repairing or replacing failed hardware has also increased. The level of service provided for these problem resolution services is stringently measured against best-practice service level agreements. The use of an asset and configuration management system enables the USPTO to manage its AIS-related assets in an optimal way by providing information on what and where specific assets are, which is vital to minimizing time required to resolve problems. To accomplish the performance measures outlined in the service level agreements, the OCIO focuses on minimal system downtime, quick restoration of services, a responsive Help Desk, highly capable desktop workstations, remote diagnosis and repair of software problems, quick resolution of hardware problems, reliable network service, utilization of an effective asset and configuration management system, and 24x7 operations and systems support coverage.

The tasks that support this objective are as follows:

Tasks for Objective 3.3	Status
- Provide help desk services.	*Ongoing*
- Provide desktop services.	*Ongoing*
- Provide problem resolution services.	*Ongoing*
- Provide system services.	*Ongoing*
- Implement an asset and configuration management system.	*In Process*
- Implement 24/7 operations and systems support coverage.	*Ongoing*

Objective 3.4 Efficiently and effectively operate the USPTO technical environment.

Continuous, consistent operation of key information technology systems and environments provides the third facet of the OCIO's goal to provide a production technical environment that meets end user needs. This objective focuses on "keeping the trains running," which has always been a priority. Key operations that require continual monitoring include:

- *PTOnet* – Includes PKI operations support, firewall operations, enterprise-wide login services, domain services, file and network services, and the operation of servers that house commercial off-the-shelf (COTS) applications.
- *USPTO data center* – The data center provides information technology products and services to all USPTO employees, including a wide technological range of servers and related data storage systems that are available 24x7.
- *USPTO web services, Intranet, and Internet* – Provides support services such as web page design and creation, troubleshooting, recovery, and maintenance strategies for COTS applications designed to operate websites, and content management services.

These operations are supported by the OCIO with user administration services (such as password and login setup) and operational documentation (such as user guides). The USPTO intends to provide a high level of support for the continual operation of the production technical environment so that user needs are met, including high availability of USPTO systems and the provision of current information to users.

The tasks that support this objective are as follows:

Tasks for Objective 3.4	Status
- Operate PTOnet.	*Ongoing*
- Operate the USPTO data center.	*Ongoing*
- Provide user-administration services.	*Ongoing*
- Operate USPTO Web Services, Intranet, and Internet.	*Ongoing*
- Provide user guides and other documentation.	*Ongoing*

STRATEGIC GOAL 4: LEVERAGE AN ENTERPRISE ARCHITECTURE TO IMPROVE INFORMATION TECHNOLOGY EFFICIENCY AND EFFECTIVENESS.

Strategic Goal 4 - Objectives
4.1. Develop a viable Enterprise Architecture program based on industry best practices and reusable components, compliant with the Federal Enterprise Architecture.
4.2. Provide maximum availability of computer systems to examiners, attorneys, the public, and other patent and trademark offices in the event of an outage [E-Government 5].
4.3. Enhance and simplify the technology infrastructure to support business operations in an electronic government environment (i.e., simplify and unify).

The Enterprise Architecture (EA) describes the relationships between the work the USPTO does, the information the agency uses, and the information technology (IT) the agency employs. Consequently, the EA provides the blueprints that form a master plan for ensuring the integrity and effectiveness of IT solutions. By aligning the requirements for IT with the USPTO's business processes, the OCIO will use the EA to make it easier to share information internally and to reduce the complexity of information systems required to operate e-Government solutions and services.

The USPTO EA will provide established standards that guide the design of new systems and set a strategic direction for critical enterprise-wide technologies and solutions. Some EA initiatives that are underway include a high-availability server architecture that uses load balancing to maximize continuity of operations, and an enterprise storage management strategy that provides for optimal use of storage resources via a Storage Area Network (SAN). Leveraging the EA to ensure that critical technology meets IT security, backup and recovery, and distributed computing requirements will improve scalability, reliability, and interoperability of OCIO solutions. For example, IT security solutions are critical to protecting the confidentiality, integrity, and availability of USPTO IT resources. The EA also guides resource decisions to reduce costs and improve business area performance by documenting the complexity of the enterprise, identifying improvement opportunities, and simplifying options.

Objective 4.1 Develop a viable Enterprise Architecture program based on industry best practices and reusable components, compliant with the Federal Enterprise Architecture.

The Federal Enterprise Architecture (FEA) is being developed by the Office of Management and Budget (OMB) using interrelated "reference models" – e.g., Performance Reference Model (PRM), Business Reference Model (BRM), Data Reference Model (DRM), Service Component Reference Model (SRM), Technical Reference Model (TRM) – designed to facilitate cross-agency analysis and the identification of duplicative investments, gaps, and opportunities for collaboration within and across federal agencies. While all federal agencies regardless of size and resources are encouraged to use the FEA, the intent of the FEA is to illustrate "best practices" currently employed in several federal agencies and private corporations.

In the spirit of the FEA, the OCIO will implement an EA program that will:

- Find ways to eliminate barriers for complying with the FEA (e.g., the PRM, BRM, DRM, SRM, TRM, Concept Applications Architecture, and associated TSG's),
- Provide a framework for leveraging existing standards,
- Develop "As-Is" and "To-Be" sequencing architecture plan,
- Identify those EA components that must remain,
- Identify opportunities for internal Enterprise Application Integration (EAI) and external business-to-business integration,
- Leverage the reuse of standard "best practices" patterns, and
- Identify opportunities for optimizing the IT infrastructure.

The OCIO will use the EA for evolving information systems and developing new systems that optimize mission value. This is accomplished in logical and/or business perspectives (e.g., mission, business functions, information flows, and systems environments) and technical terms (e.g., software, hardware, and communications). This also includes a sequencing plan for transitioning from the baseline environment to the target environment. These EA blueprints form a master plan to assist in optimizing the interdependencies and interrelationships among USPTO's business operations and the underlying IT that supports operations.

The tasks that support this objective are as follows:

Tasks for Objective 4.1	Status
- Develop an Enterprise Architecture (EA) Concept of Operations (CONOPS). The EA establishes the USPTO-wide roadmap to achieve an Office's mission through optimal performance of its core business processes within an efficient information technology environment. This CONOPS offers an end-to-end process to initiate, implement, and sustain the EA program, and describes the necessary roles and associated responsibilities for a successful EA program.	*Complete*
- Develop an Enterprise Application Integration (EAI) Strategy This document establishes the USPTO's high-level strategy for leveraging legacy information systems via EAI technologies.	*Complete*
- Develop an Enterprise Application Integration (EAI) Architecture Implementation Guide The document provides comprehensive guidance for integrating USPTO information systems via EAI technologies. The recently completed EAI Hub is an example of leveraging EAI technologies.	*Complete*
- Develop a Concept Applications Architecture for the USPTO. The Concept Applications Architecture establishes key principles, practices, procedures and standards for new application development that will comply with the USPTO's Enterprise Architecture.	*Complete*

Tasks for Objective 4.1 (continued)	Status
- Develop a Concept Applications Architecture Implementation Guide This guide provides detailed instructions for developing new systems that comply with the Concept Applications Architecture	*Complete*
- Establish an Architecture Review Board (ARB). The CIO has chartered and appointed an ARB to manage the review of candidate projects and assess project alignment with the EA. The ARB works hand-in-hand with the USPTO Enterprise Architecture Program Management Office on architectural compliance and solutions initiatives. The ARB reports their conclusions and provides recommendations to the Performance Review Board and the Investment Review Board (IRB).	*In Process*
- Revise the High-Level Architecture Technical Standards and Guidelines (HLA TSG). The OCIO maintains a HLA TSG that defines standards for describing the relationship of the AIS within the operational environment by providing textual and graphical descriptions of AIS hardware, software, and network components, and by illustrating the interconnections among these components. The HLA TSG also identifies interfaces with other systems and information technology (IT) infrastructure components, and documents any modifications and upgrades that are needed to support the AIS.	*In Process*
- Update the Technical Reference Model (TRM). The TRM, and its associated standards and product profiles, and the architectural patterns are integral components of enterprise architecture. The TRM provides layers and interrelated set of models that allow for organizing, planning, and building an integrated set of information technology architectures. The updated TRM will customize and establish the reusable architectural patterns for standardized high-level architecture development and is aligned with the FEA. It will also incorporate a technical life cycle that supports the containment and retirement of products and standards based on various conditions (e.g., obsolescence, non-supported technology).	*Complete*
- Develop a Concept Technology Architecture The Concept Technology Architecture establishes key principles, practices, procedures and engineering standards for a target IT Infrastructure that will comply with the USPTO's Enterprise Architecture.	*Complete*
- Develop the target Enterprise Architecture (EA) The target EA will define a vision of future business operations and supporting technology through five-core sub-architectures (business, data, applications, technology and IT security architectures). It will represent enhancements to an existing baseline architecture that will be necessary when adding new functionality to support new business operations as well as providing enhanced support for existing business operations. The realities of rapid technological changes necessitate flexibility and capacity for change in the target architectures.	*In Process*

Objective 4.2 Provide maximum availability of computer systems to examiners, attorneys, the public, and other patent and trademark offices in the event of an outage [E-Government 5].

The OCIO will establish a dual load-balanced data center operation that will provide high-availability services and continuity of operations solutions for the USPTO's mission critical systems. Specifically, the OCIO will set up two data centers where technical workload is shared with the second data center picking up the workload and operations to ensure continuity as necessary. The objective of the OCIO is to maximize the availability of patent and trademark data to patent examiners, trademark attorneys, the general public and foreign patent and trademark offices in the event of a disaster resulting in the complete or partial destruction of the USPTO's primary data center.

The OCIO proposes utilizing all information technology assets and resources in its daily operations as opposed to preparing a disaster recovery site (cold site) that would only be used in the event of a failure at the primary site. The USPTO would have full utilization of all of its assets while having full confidence in its recovery capabilities in the event of a system failure or a catastrophic event affecting the data center facilities. From the business and financial perspectives, this provides a much lower cost of operations while allowing the immediate recognition and correction of problems.

The tasks that support this objective are as follows:

Tasks for Objective 4.2	Status
- Develop office automation high-availability architecture and plans; Develop high-availability architecture and plans for trademark systems; Develop high-availability architecture and plans for patent systems; Deploy server clusters for office automation systems; Deploy server clusters for trademark systems; Deploy server clusters for patent systems. The USPTO is proposing a phased implementation of dual load-balanced data center operations that will provide high availability services and continuity of operations. This dual load-balanced data center solution will enable the USPTO to start with protecting its most critical assets – patent and trademark data. Through an evolutionary process, this phased implementation will support disaster recovery capabilities in the event of a disaster at the USPTO primary data center and eventually dual load-balanced data center operations. The benefit of this solution to the USPTO employees and customers is an operational infrastructure across two geographically separated data centers that are both active and providing services. In the event of a system failure or a catastrophic event at either of the two data centers, service for business critical applications would continue functioning.	*In Process*

Tasks for Objective 4.2 (continued)	Status
- Migrate office automation data to Storage Area Network (SAN); Migrate trademark data to SAN; Migrate patent data to SAN. SANs are an emerging technology for improving access to and management of mass storage resources. The SAN solution will (1) consolidate USPTO's existing storage resources in a powerful, intelligent storage structure to improve manageability and control management costs, (2) integrate stored data and allow maximum data sharing across diverse USPTO business applications, servers, and segments of the organization, (3) improve service levels to end users by improving the accessibility of information, (4) scale storage capacity and ensure high availability and throughput performance, (5) provide high-performance database access and transactional processing, ensuring business continuity for disaster recovery and moving data between locations, and (6) achieve maximum protection of stored data. The USPTO is proposing a phased implementation of dual load-balanced data center operations that will provide high availability services and continuity of operations. This dual load-balanced data center solution will be deployed in four phases. The phases would enable the USPTO to start with protecting its most critical assets. Phase 1 will identify and procure a second data center, establish network connectivity between the two data centers, and procure data storage to support the replication of all data for critical applications. Phase 2 will establish secure data center communications between the two data centers and complete replication of all critical USPTO data on a physically separate set of storage devices (secondary storage), transparent to users, applications, databases, and host processors. Phase 3 will support the deployment of critical application servers at the secondary data center. Phase 4 will recognize the achievement of the final goal of dual, load-balanced data center operations and services for the USPTO.	*In Process*
- Prototype data replication capability. The USPTO data replication proof of concept will demonstrate the disaster recovery capabilities that will be leveraged by the OCIO to deliver a high availability infrastructure. A database from a live application will be replicated (real time) to storage at a secondary site. A failure of the primary site will be simulated to review the success of the application run from the secondary site.	*In Process*

Objective 4.3 Enhance and simplify the technology infrastructure to support business operations in an electronic government environment (i.e., simplify and unify).

The USPTO e-Government strategy has been progressing for a number of years with the deployment of several business enhancing capabilities, including searching, office action creation, application capture, and electronic filing. Progress to date has made it possible for trademarks business processes to be completed on-line by customers from start to finish. The trademarks and patents businesses will achieve end-to-end electronic business process integration both internally and externally by early November 2003 and by the end of October

2004, respectively. Achieving these goals requires a comprehensive e-Government strategy as outlined in Goal 1.

The tasks that support this objective are as follows:

Tasks for Objective 4.3	Status
- Configure and deploy an Integrated Development Environment (IDE); Develop IDE migration plan to consolidate development environments. The USPTO has established an IDE that can support 18 concurrent Java based development efforts with the ability to scale up if necessary. The IDE will facilitate software component, architecture, and engineering reuse for the USPTO and its business partners. Moreover, it will support the USPTO e-Government strategy by providing an opportunity to unify a number of development environments that are currently deployed in support of independent AIS's. The USPTO anticipates that this unification will improve the quality of finished software products by improving the use of configuration management and testing best practices inherent in the planned deployment of the IDE.	*In Process*
- Develop "simplify and unify" plan to include server consolidation, storage consolidation, virtual private network consolidation, etc. The USPTO will simplify and unify its technology infrastructure by reducing complexity to ensure adequate availability and performance in support of business operations in an e-Government environment. Additionally, this plan will support high availability and disaster recovery, storage consolidation, database instance consolidation, and firewall design simplification.	*In Process*
- Prototype Linux cluster servers and blade servers. Linux is emerging as the operating system of the future. To reduce costs and improve security, USPTO will pilot the use of Linux based servers for network infrastructure utility functions. Mail routing, newsgroup services, and web services will be tested on lower cost Intel-based Linux servers. If the initial uses are successful and indicate a potential ability to reduce recurring operational costs while improving availability, scalability, and performance, the clustered Linux servers will be deployed to the USPTO production environment.	*In Process*

STRATEGIC GOAL 5: CONTINUOUSLY IMPROVE THE DELIVERY OF OCIO INFORMATION PRODUCTS AND SERVICES TO MEET USPTO BUSINESS OBJECTIVES.

Strategic Goal 5 - Objectives
5.1. Provide high quality customer service that distinguishes the USPTO and OCIO from other organizations.
5.2. Strategically manage our OCIO workforce to meet the challenges of today and tomorrow.
5.3. Improve USPTO capital planning and investment practices to ensure the delivery of business value from information technology investments.
5.4. Streamline LCM practices for improved performance.

The USPTO's 21st Century Strategic Plan emphasizes the importance of enhancing quality through process and workforce improvements. A capable OCIO workforce is a critical element of this effort and must be retained, recruited, trained, and rewarded to ably support the USPTO. Strengthening IT capital planning and investment practices is another important facet of the OCIO's continuous improvement efforts to not only meet established federal mandates, but to derive maximum business value from all IT investments. Finally, streamlining life cycle management (LCM) practices offers a valuable opportunity for improved performance.

Objective 5.1 Provide high quality customer service that distinguishes the USPTO and OCIO from other organizations.

The OCIO will focus on developing the capability to meet customer business needs for patent and trademark information dissemination using agile, productive, and innovative approaches. These underlying approaches focus on providing data to meet customer needs, enabling customer access to information, focusing resources on an integrated highly capable web infrastructure, and partnering with external entities to provide efficient and effective customer service.

This shift is occurring to respond to market forces driving change to the OCIO's business model, resulting in the following actions:

- Provide customers with a single entry point (portal) to conduct business and tailor content to their needs;
- Leverage Customer Information Services (CIS) staff's expert knowledge of documents and research products through advanced tools for customer interaction management;
- Begin to consolidate order entry and product delivery means; and
- Increase emphasis toward service center model, broadening the scope of the traditional depository library program to support the independent inventors and outreach programs.

The tasks that support this objective are as follows:

Tasks for Objective 5.1	Status
- Conduct study of current Customer Information Services (CIS) operations and customer satisfaction.	*Completed*
- Develop and publish CIS strategic plan.	*In Process*
- Develop and initiate implementation plan for CIS strategy.	*Planned*
- Develop plans and implement call center technologies.	*In Process*
- Develop and implement streamlined information dissemination strategy.	*In Process*
- Transform and enhance Patent and Trademark Depository Library (PTDL) services.	*In Process*

Objective 5.2 Strategically manage our OCIO workforce to meet the challenges of today and tomorrow.

The USPTO's ability to leverage information technology to meet its business commitments rests not only on the OCIO's ability to recruit and retain qualified workers, but also on its ability to establish an inviting career path and a positive, energized work environment. The OCIO will strategically manage IT human capital to meet current and future business objectives by employing effective workforce planning and creative approaches to recruitment, retention, development, and succession planning. The OCIO is implementing a plan to address these workforce approaches, recognizing that employee retention problems may exist for numerous reasons including federal salary limitations, quality of work environment, increased workload, too few skilled workers to balance the workload, and lack of adequate employee recognition. The OCIO will address these challenges through effective management training, increased employee accountability, and more emphasis on rewards and recognition.

Additionally, the OCIO will lead efforts in the federal community by actively contributing to government-wide initiatives. Strategies will be developed to address skill gaps, attract new talent, and provide a desirable work environment for IT employees. The OCIO will seek efficient enterprise training solutions utilizing a technical training approach (e.g., e-learning) to achieve efficiencies in development and training activities.

The tasks that support this objective are as follows:

Tasks for Objective 5.2	Status
- Pilot and rollout OCIO leadership competency model.	*In Process*
- Develop, pilot, and rollout management training program.	*In Process*
- Develop, pilot, and rollout results-based rewards and recognition.	*In Process*
- Identify and address high-priority OCIO training needs.	*In Process*
- Conduct skills baseline and determine skills management strategies.	*In Process*
- Implement skills management strategies.	*Planned*
- Develop and run pilot certification program.	*Planned*
- Expand certification pilot program throughout OCIO.	*Planned*

Objective 5.3 Improve USPTO capital planning and investment practices to ensure the delivery of business value from information technology investments.

The OCIO will lead the USPTO in its IT Capital Planning and Investment Control (CPIC) practices to ensure that planning, selection, execution, and evaluation activities are in compliance with federal IT investment requirements and conducted in an open and well-documented manner. In this role, the OCIO will develop and maintain the SITP and the Operational IT Plan. The OCIO will also act as a resource to the business units, guiding and fulfilling their requests for IT products. At the same time, the OCIO will maintain the framework on which all USPTO technology functions, positioning itself as an efficient and effective service provider as measured by the OCIO balanced scorecard.

The OCIO will continue to refine its IT CPIC to support USPTO's mission and comply with its enterprise architecture. As part of the IT CPIC process, we will formalize an IT investment review structure to ensure that IT investment planning, selection, execution, and evaluation activities of the USPTO are in compliance with federal IT investment requirements (e.g., Clinger-Cohen Act) and conducted in an open and well-documented manner. This will result in a more formal review process tightly coupled with the USPTO budget and performance review process. The review process will be based on an objective criterion and will result in identification of project priorities. Another aim behind the investment review structure is to fully engage the user communities in development of IT investment documentation, including business cases for proposed IT investments. User responsibility and accountability for IT investment documentation and justification is a precursor to an effective investment control process.

The tasks that support this objective are as follows:

Tasks for Objective 5.3	Status
- Revise OCIO SITP format and validate with business areas.	*In Process*
- Update OCIO SITP content.	*In Process*
- Develop and update OCIO Operational IT Plan.	*Planned*
- Develop OCIO balanced scorecard.	*In Process*
- Develop Investment Review Board (IRB) charter and formalize investment control process.	*In Process*
- Develop plan for improving program management capabilities.	*In Process*

Objective 5.4 Streamline LCM practices for improved performance.

A USPTO standard and tailorable system development life cycle management process has been implemented through the adoption of the life cycle management (LCM) for automated information systems. The Automated Information System Life Cycle Process Tailoring Technical Standard and Guideline, IT-212.2-03 has significantly contributed to the success and flexibility of the LCM. The LCM processes include formal mechanisms throughout the AIS life cycle to monitor interim results of information technology projects and tailor the life cycle accordingly. The end goal is to deliver quality software products when promised and within cost estimates.

The OCIO will work to streamline the LCM policies, procedures, roles, and responsibilities governing the initiation, definition, design, development, deployment, operation, maintenance, management, and retirement of AIS. The OCIO will use the LCM approach to deliver quality systems that: 1) meet or exceed customer expectations, 2) work effectively and efficiently within the current and planned information technology infrastructure, and 3) are inexpensive to maintain and cost-effective to enhance.

The OCIO focus is to extend LCM to provide project managers and system development managers with a decision point whereby the system development life cycle is selected that best fits the particular needs. The LCM phases may be tailored to accommodate the unique aspects of an AIS or infrastructure system project as long as the resulting approach will deliver a quality system. This flexibility has led to LCM's long term usage and success at USPTO.

The tasks that support this objective are as follows:

Tasks for Objective 5.4	Status
- Revise Requirements TSG.	*In Process*
- Revise High Level Architecture TSG.	*In Process*
- Develop LCM "Chapters in a Book".	*In Process*
- Complete phased rollout of Enterprise Asset Management System training for change records.	*In Process*
- Revise LCM process to support iterative development and to reflect more pictures than words and relaunch LCM.	*In Process*
- Expand Change Control Board pilot and refine.	*In Process*
- Develop trademark and patent data management plans and begin implementation.	*In Process*
- Pilot metrics program for select AIS's.	*In Process*
- Revise LCM training.	*In Process*
- Revise LCM work products (TSG's and Tech Notes).	*In Process*
- Align LCM practices with new IDE environments.	*In Process*
- Enhance training for LCM.	*Planned*

CONCLUSION

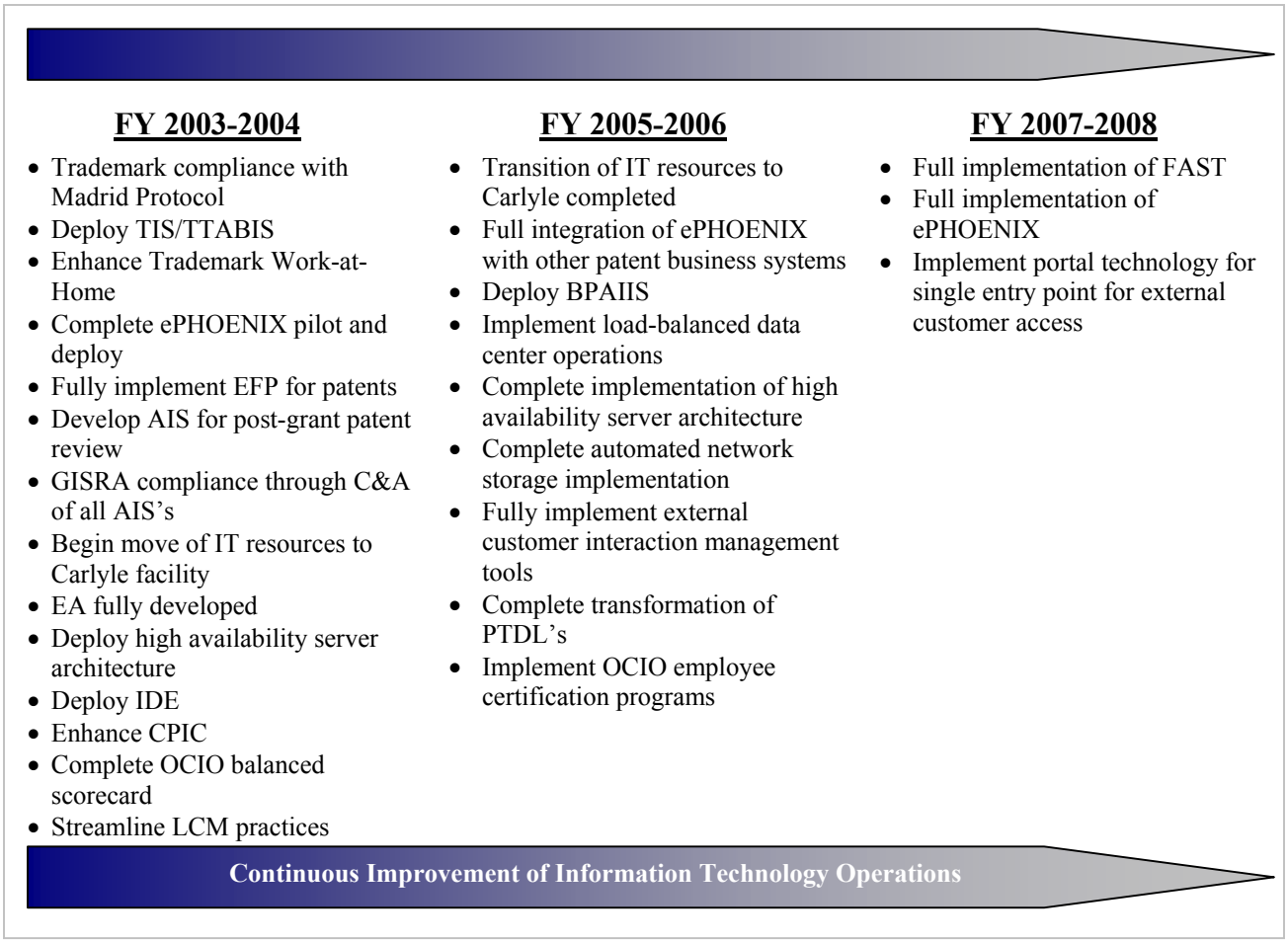
The next five years will be a period of significant technological advancement in the economy, challenging the USPTO to deliver services that meet the evolving business needs of its customers. The Strategic Information Technology Plan provides the broad roadmap for meeting that challenge via specific information technology activities from fiscal years 2003 to 2008. By the end of this period, the OCIO's internal and external customers will interface with a quality-focused, highly productive, responsive organization meeting and exceeding customer requirements through continuous operational improvement.

In the near-term, FY 2003 and FY 2004, the OCIO will continue to develop and deploy e-Government applications including ePHOENIX, Electronic Filing Partnerships, Trademark Trial and Appeal Board Information System, and the Trademark Information System, reducing reliance upon, and in some cases eliminating, inefficient paper processes. The OCIO will fully develop the USPTO Enterprise Architecture planning documents, and implement key initiatives within the target architecture, to simplify and achieve greater efficiencies. The OCIO will also conduct the transition of information technology resources during the move the Carlyle providing ongoing services to internal and external customers.

During FY 2005 and FY 2006, the OCIO will further implement and enhance e-Government applications with a focus on improved internal operations and systems integration. Over this period, the OCIO will have implemented much of the infrastructure changes dictated by the Enterprise Architecture, particularly relating to data storage and the high availability architecture.

In the long-term, FY 2007 and FY 2008, the OCIO will fully integrate e-Government applications with internal business systems, while eliminating redundancy and overlap, and maximizing system and business process efficiency. This will result in an integrated customer-facing government-to-business and government-to-citizen e-Government approach that brings the USPTO closer to its customers and stakeholders.

Like any long term strategic plan, the OCIO SITP will need to be reviewed and enhanced as results are achieved and new challenges are presented. The graphic below provides a summary of the planned accomplishments, and a broad scenario of the time-phasing for achieving the strategic evolution of information technology at the USPTO toward this end-state vision.


FY 2003-2004
Trademark compliance with Madrid Protocol
Deploy TIS/TTABIS
Enhance Trademark Work-at-Home
Complete ePHOENIX pilot and deploy
Fully implement EFP for patents
Develop AIS for post-grant patent review
GISRA compliance through C&A of all AIS's
Begin move of IT resources to Carlyle facility
EA fully developed
Deploy high availability server architecture
Deploy IDE
Enhance CPIC
Complete OCIO balanced scorecard
Streamline LCM practices
FY 2005-2006
Transition of IT resources to Carlyle completed
Full integration of ePHOENIX with other patent business systems
Deploy BPAIIS
Implement load-balanced data center operations
Complete implementation of high availability server architecture
Complete automated network storage implementation
Fully implement external customer interaction management tools
Complete transformation of PTDL's
Implement OCIO employee certification programs
FY 2007-2008
Full implementation of FAST
Full implementation of ePHOENIX
Implement portal technology for single entry point for external customer access
Continuous Improvement of Information Technology Operations

APPENDIX – ACRONYMS

Acronym	Meaning
AIS	Automated Information System
ARB	Architecture Review Board
BPAIIS	Board of Patent Appeals and Interferences Information System
BRM	Business Reference Model
C&A	Certification and Accreditation
CIS	Customer Information Services
CONOPS	Concept of Operations
COTS	Commercial Off-the-Shelf (applications)
CPIC	Capital Planning and Investment Control
DRM	Data Reference Model
EA	Enterprise Architecture
EAI	Enterprise Application Integration
EFP	Electronic Filing Partnership
EFS	Electronic Filing System
e-Government	Electronic Government
EPO	European Patent Office
ETC	Emerging Technology Center
FAST	First Action System for Trademarks
FEA	Federal Enterprise Architecture
FISMA	Federal Information Security Management Act
HLA TSG	High Level Architecture Technical Standards and Guidelines
IDE	Integrated Development Environment
IRB	Investment Review Board
IT	Information Technology
LCM	Life Cycle Management
NOCC	Network Operations Control Center
OCIO	Office of the Chief Information Officer
PAIR	Patent Application Information Retrieval system
PALM	Patent Application Location Monitoring system
PBX	Private Branch Exchange
PCT	Patent Cooperation Treaty
PCT-SAFE	Patent Cooperation Treaty - Secure Application Filed Electronically
PKI	Public Key Infrastructure
PSTN	Public Switched Telephone Network
PTDL	Patent and Trademark Depository Library
RAM	Revenue Accounting and Management System
SAFE	Secure Application Filed Electronically
SAN	Storage Area Network
SITP	Strategic Information Technology Plan
SRM	Service Reference Model

APPENDIX – ACRONYMS

Acronym	Meaning
TIS	Trademark Information System
TRM	Technical Reference Model
TSG	Technology Standard and Guideline
TTAB	Trademark Trial and Appeal Board
TTABIS	Trademark Trial and Appeal Board Information System
TW@H	Trademark Work-at-Home
USPTO	United States Patent and Trademark Office
WIPO	World International Property Organization
XML	eXtensible Markup Language