

THE DRUG ENFORCEMENT ADMINISTRATION'S MANAGEMENT OF ENTERPRISE ARCHITECTURE AND INFORMATION TECHNOLOGY INVESTMENTS

EXECUTIVE SUMMARY

To properly manage its IT investments, the DEA is in the process of developing an Enterprise Architecture (EA) and an Information Technology Investment Management (ITIM) process. An EA establishes an agencywide roadmap to achieve an agency's mission through optimal performance of its core business processes within an efficient IT environment. ITIM involves implementing processes such as: identifying existing IT systems and projects, identifying the business needs for the projects, tracking and overseeing projects' costs and schedules, and selecting new projects rationally. Governmentwide reviews by the Government Accountability Office (GAO) and audits by the Office of the Inspector General (OIG) covering IT management in the DEA found weaknesses in aspects of EA, ITIM, and information security. Because of the importance of the DEA's management of its 38 IT systems, as listed in its current EA, we performed this audit to determine if the DEA is effectively managing its EA and its IT investments.

To perform the audit, we interviewed officials from the DEA, the DOJ, the GAO, and Bearing Point – the DEA contractor developing the EA. Additionally, we reviewed documents related to EA and IT management policies and procedures, project management guidance, strategic plans, IT project proposals, budgets, and organizational structures. To determine whether the DEA is effectively managing its EA, we requested that the DEA complete a survey originally developed by the GAO, to identify which core elements in the EA Management Framework have been implemented. We also used the GAO's ITIM Framework (Framework) and the associated assessment method to evaluate the management of the DEA's investments. As part of the Framework's assessment method, the DEA completed a self-assessment of its IT investment management activities.

The Information Technology Management Reform Act of 1996 (known as the Clinger-Cohen Act) requires the head of each federal agency to implement a process for maximizing the value of the agency's IT investments and for assessing and managing the risks of

its acquisitions. A key goal of the Clinger-Cohen Act is for agencies to have processes in place to ensure that IT projects are being implemented at acceptable costs and within reasonable timeframes, and that the projects are contributing to tangible, observable improvements in mission performance. In addition, the Clinger-Cohen Act requires the head of each agency to develop, maintain, and facilitate the implementation of architectures as a means of integrating business processes and agency goals with IT. The Office of Management and Budget (OMB) Circular A-130 requires each federal agency to establish and maintain a capital planning and investment control process for IT.

The DEA is effectively pursuing completion of both its EA and ITIM. Although the EA is still being developed and the DEA has not established a target date for completing its ITIM processes, the DEA is using many sound practices from both. The DEA will be more fully effective in managing its EA and IT investments once its EA and ITIM processes are completed and mature.

Enterprise Architecture (EA)

If completed in September 2004 as scheduled, the DEA EA should provide a blueprint that will enable the DEA to more effectively and efficiently manage its current and future IT infrastructure and applications. The DEA has completed much of its EA, with the exception of developing a target architecture and a transition plan to accomplish the target architecture. To date, the DEA has established a foundation consistent with the EA Management Framework to build its EA program. The DEA has assigned roles and responsibilities for developing the EA, committed resources, and established plans for completing the remaining stages. In addition, the DEA has developed a general, high-level description of its existing, or "as is," architecture. However, without a completed EA, any organization assumes some degree of risk that it might invest in IT that is duplicative, not well-integrated, costly, or not supportive of the agency's mission. In continuing to develop its EA, the DEA is taking steps to mitigate such risks. By completing its EA, the DEA will minimize the risks even further and provide a realistic vision of its future IT requirements.

As of April 2004, the DEA had completed nearly 90 percent of the EA Management Framework criteria for meeting the second of five levels of maturity. The DEA estimates that it will cost approximately \$2.7 million to complete the EA. In FY 2002, the DEA spent \$667,000 from its base appropriations for EA development. In FY 2003 the DEA

requested an additional \$400,000 to continue development, but the funding was not approved. According to the DEA's EA Chief Architect, approval of the requested amount would have allowed the DEA to complete a detailed description of the existing architecture more quickly.

The DEA has allocated 4.25 full time equivalent staff — but assigned 3.25 full time equivalent staff (.5 managers, .5 staff members, and 2.25 contractors) — in support of EA efforts and completion of the current EA. The Deputy Assistant Administrator of the DEA's Office of Information Systems, which is the office tasked with developing the DEA's EA, is currently serving as the Chairman of the Department's EA Committee. The Chief Architect, who established the foundation for the DEA's EA, had transferred to the DEA from the Department's Justice Management Division where she had dealt with technology issues. The DEA's Program Office has two senior analysts and one junior analyst assigned to work on completing the EA. Additionally, the DEA hired a contractor in October 2003 to aid in the completion of the EA.

In addition to funding and human resources, the DEA has acquired tools and technology to support its EA activities. The DEA uses the Popkin System Architect (Popkin) as its automated EA tool. According to the Chief Architect, one reason the DEA chose Popkin is that the Department is also using Popkin, and the future integration of the DEA's EA with the Department's EA may be more easily achieved. Because the DEA has just recently begun using the Popkin tool, we did not assess its effectiveness in clearly and completely documenting the DEA's EA, but we agree that using the same tool as the Department should aid in the future integration of the agency's EA with the Department's EA.

The DEA has established three governing committees, or investment boards: 1) the Executive Review Board, 2) the Business Council, and 3) the Compliance Council. Together, the three governing committees are responsible for ensuring that the DEA's EA meets all federal and Departmental requirements.

The Executive Review Board is responsible for providing leadership to implement a managed IT capital planning and investment control process. The IT capital planning and investment control process includes the development and maintenance of an agencywide EA.

The Business Council's primary responsibility is to ensure that projects and investments recommended by program managers are consistent with the DEA's mission, strategic plan, capital planning goals, EA, and security policy. Business Council members function as the working level experts for the ITIM process by providing business expertise specific to their respective business unit.

The Compliance Council is responsible for evaluating IT investments and the DEA's EA to ensure compliance with legislative regulations and DEA policy. The Compliance Council consists of members whose day-to-day responsibilities involve a compliance area. The members work to ensure compliance with such areas as the Federal Enterprise Architecture, the Government Performance and Results Act, and the Government Information Security Reform Act. The Chief of the Strategic Business Management Section, Office of Information Systems, chairs this committee.

The EA Management Framework states that EA development and maintenance should be managed as a formal program. Accordingly, the DEA reorganized its Office of Information Systems to include a Strategic Business Analysis Section as the EA Program Office (Program Office). The Program Office is responsible for the development and maintenance of the DEA EA. To accomplish its responsibility, the Program Office coordinates with offices throughout the DEA as well as external IT organizations. The Program Office assists DEA customers in developing their concepts and plans for the application of IT to their business processes, and also assists customers with the ITIM process.

The DEA's methodology to develop its EA is a three-phase approach.

Phase 1. Includes documenting, at a high-level, what currently exists within the DEA in terms of business areas, applications, data, and technology.

Phase 2. Includes 1) providing more detail to the current architecture, 2) goals and objectives stated in the Department and the DEA strategic plans, 3) performance measures, 4) aligning the DEA's architecture with the Federal Enterprise Architecture reference models, and 5) aligning the architecture with the DEA's capital planning process.

Phase 3. Includes the establishment of the target architecture, including security compliance and the development of a transition plan.

The DEA completed Phase 1 of the EA development in September 2002. In February 2003, the DEA's CIO submitted the high-level description of the DEA's current EA to the three DEA IT governing boards for inclusion in the budget process. The DEA stated that its contractors completed Phase 2, and as of February 2004 the DEA was in the process of reviewing the contractor's work for compliance with the Federal Enterprise Architecture Framework requirements. The DEA has not yet begun Phase 3 of the EA project.

The DEA has not yet established measures of EA progress, quality, compliance, and return on investment, which are necessary to ensure that the EA meets the targeted milestones and complies with the necessary regulatory requirements. Measuring return on investment would tell the DEA what benefits are realized by the development of the EA in relation to the cost of the EA development.

The DEA did not establish a formal written and approved policy for developing the EA. However, the DEA did establish the required elements of the EA development policy in different ways:

- established the IT governing boards with representation from all DEA business areas to ensure agencywide commitment to EA development;
- established the EA Program Office with responsibility for developing the EA;
- created the EA Program Management Plan, which outlines the scope of the architecture including a description of the current and target architecture, as well as the transition plan, and addresses EA oversight, control, review, and validation responsibilities; and
- outlined the value of the EA, its relationship to the organization's strategic vision and plans, and the capital planning process in the DEA's IT Strategic Plan.

Yet, consolidating the EA development information in the form of an organization policy allows any DEA staff member to consult one

document for information concerning the development and implementation of the DEA EA.

The DEA has developed one EA product, the high-level current architecture. In September 2002, the DEA documented its high-level current EA using DEA personnel assisted by a contractor. The high-level current EA provided the DEA with descriptions of its business processes, applications used to carry out the business processes, data used in accomplishing the business processes, technology used in implementing the business processes, and stakeholders affected by the business processes. The 2002 high-level current EA lacked the detail necessary to progress to the target architecture, but in April 2004 the contractor added the necessary detail, and the DEA accepted the product.

To complete its EA, the DEA must finish two additional products: 1) the target architecture, and 2) a transition plan from the current to the target architecture.

The DEA's target architecture will define the vision of the DEA's future business operations and supporting technology and will also describe the desired capability and structure of the business processes, information needs, and IT infrastructure at some point in the future. Just as the current architecture captured the existing business practices, functionality, and information flows, the target architecture will reflect what the DEA needs to evolve its information resources.

The DEA's transition plan will provide a step-by-step process for moving from a current architecture to a target architecture. Such a plan is the primary tool used for program management and investment decisions because the plan represents the current environment as well as any development programs that are planned or underway. To remain current and to support continued coordinated improvements across the DEA, the transition plan should be maintained and updated as time and circumstances dictate. In addition, the DEA must ensure that all EA products when completed undergo configuration management – a process of managing changes to IT systems or hardware – and that the target architecture addresses security as outlined in the EA program plan.

Information Technology Investment Management

The DEA manages its IT investments through agencywide replicable processes rather than through a single office. To illustrate the processes, the DEA created a graphic illustration called "The House" (see Appendix 5) showing how strategic planning, budgeting, procurement, ITIM, quality management, IT security, System-Development-Life-Cycle program management, and EA work together to accomplish the DEA's mission.

Most DEA divisions (Operations, Intelligence, Financial Management, Operational Support, and Inspection) manage major IT systems and initiatives. The Office of Information Systems is responsible for ensuring that the procedures and applications developed by DEA divisions and their offices are in compliance with the DEA-wide programs for IT strategic planning, IT capital planning and investment control, and the EA. The divisions are responsible for specific networks and applications supporting their respective missions.

In December 2001, in an effort to improve its IT investment management practices and comply with the Department's and other statutory regulations, the DEA developed the "ITIM Process Guide and Transition Plan." The purpose of the plan is to better ensure that technological resources are linked to the DEA mission and IT Strategic Plan while providing a solid return on investment. According to the plan, the DEA would introduce ITIM over three years, in three phases. Each phase would correspond to one fiscal year: Phase 1 would focus on the business and budget side of ITIM, while Phases 2 and 3 would focus on the technical side. Also, in Phase 2, ITIM would integrate security activities, and in Phase 3 ITIM would integrate EA activities.

The DEA has attained a basic ITIM capability (Stage-2 maturity) to establish the foundation for effective and replicable IT project-level investment selection and control processes. Selection processes ensure that the DEA has an effective methodology for approving only those IT projects that are consistent with its needs and goals. Effective control processes ensure that deviations from cost and schedule baselines can be identified quickly.

To ensure that the select and control processes were carried out, the DEA chartered three investment boards: the Executive Review Board, Business Council, and Compliance Council. The DEA created a hierarchical approach to the operation of the investment

boards to ensure that no overlaps or gaps existed within the scope of the boards' authorities and responsibilities.

Before the boards become involved in the ITIM process, the Management Group works closely with the project and program managers to ensure the completeness of the IT investment proposals and monitor the performance of the investments after funding.¹ The proposals are first forwarded to the Business Council for review and scoring based on the DEA mission and goals. Based on the results of its review, the Business Council makes recommendations to the Executive Review Board on the IT projects for which funding has been requested. The Executive Review Board evaluates the recommendations to ensure that the DEA's mission and goals are being met through the investments and then makes final recommendations to the DEA Administrator. The Compliance Council ensures that IT investments comply with legislative regulations and DEA policy.

The DEA has completed one selection cycle within the ITIM process and as of March 2004 was in the process of completing a second cycle for the 2006 budget year. We reviewed the minutes of the Business Council meeting to determine if the DEA was actually using its prescribed selection process. According to the minutes, the program managers made presentations to the Business Council, which were ranked and prioritized based on how the projects met mission goals and objectives. The Business Council's decision was forwarded to the Executive Review Board for further evaluation and a funding recommendation.

To meet the requirement of the ITIM Framework, the DEA has required each project to have a Project Management Plan (PMP). The PMP documents the purpose, scope, and background of the project, the project organization, and the management and technical approach. The PMP also contains the project schedule and funding information. A number of supplemental exhibits are included with the PMP, for example: project sizing and documentation requirements, project questionnaires, staff roles and responsibilities, the work breakdown schedule, primary points of contacts, and a system risk matrix.

¹ The Management Group within the Strategic Business Analysis Section provides support, advice, and guidance on carrying out the ITIM process.

In addition, the OMB requires all major IT investment plans to be summarized and reported in the Exhibit 300.² The Exhibit 300 captures cost, schedule, and performance data along with earned-value, project assumptions, and risks. Further, the DEA Investment Guide states that after a project's concept proposal is approved, a business case must be developed for each project for further consideration. A business case consists of a project plan, feasibility study, cost-benefit analysis, and concept of operations. These documents are all part of the PMP.

Our review of the DEA PMP determined that the DEA includes a change control page to track all changes made to the project. We also found that the DEA Investment Guide requires that, during the control phase, investments are subject to periodic progress reviews to assess cost management, schedule variance, and the realization of planned benefits. According to the DEA, the investment boards' activities are evolving and will include more activities during the Control Phase in 2004. In addition, the DEA investment repository is to be updated to reflect all changes and the results of the reviews. The EA, including the investment repository, is made available to the investment boards as part of the budgetary process to aid in making funding decisions.

The development of the IT investment portfolio is an ongoing process that includes decision-making, prioritization, review, realignment, and reprioritization of projects that are competing for resources and funding. The process for creating the portfolio should ensure that each IT investment board manages investments according to an organizational, strategic-planning perspective. The boards should collectively analyze and compare all investments and proposals to select those that best fit with the strategic business direction, needs, and priorities of the entire organization.

The DEA has documented the processes for selecting an investment portfolio in its ITIM Process Guide. The ITIM Process Guide provides policies and procedures that supplement and support guidance from DOJ Order 2880.1A and OMB Circular A-11 regarding investment analysis. The ITIM Process Guide contains detailed processes for analyzing, selecting and maintaining the investment portfolio. In addition, the DEA requires program managers to develop an Exhibit 300, as explained in OMB Circular A-11, for all projects to be submitted for final funding approval.

² OMB Exhibit 300 is a format used to represent a strong business case, or purpose, for the proposed investment to agency management and the OMB.

We also found that the DEA has taken steps to ensure that information used to select, control, and evaluate the portfolio are captured and maintained for future reference. The DEA is maintaining the minutes and action items electronically from investment boards' meetings for retrieval at a later date. The DEA also uses an Information Technology Investment Portfolio System (ITIPS), which tracks the planning, acquisition, and operations of Automated Information Systems and IT investments. The ITIPS also complies with federal requirements such as the Government Performance and Results Act, the Paperwork Reduction Act, and the Clinger-Cohen Act. The DEA is assessing other tools to better capture the required information about IT investments. The DEA's ability to effectively capture investment information on past and present IT decisions in one system can translate into better decisions on IT investments during control phase activities, as well as during the evaluation and selection processes. The ITIM Framework states that IT information systems that deliver information that is up-to-date, encompassing, and presented in a useful format will enhance the decision process.

In an effort to streamline the Business Council's and the Executive Review Board's access to current information on the status of DEA IT investments, the DEA is working to adopt a Departmental database that would provide the Department's CIO, component CIOs, and project managers with current status information on major and other highly visible IT systems in the Department's portfolio. Once implemented, the Business Council, Executive Review Board members, and project managers may use the database to gain a quick reference to determine the cost, schedule, and risks for investments contained in the DEA IT portfolio.

The DEA has made progress toward obtaining a mature ITIM process. However, the DEA has not established a schedule for completing the remaining stages of the ITIM process. Also, the DEA has not provided formal training for investment board members to ensure that they are familiar with portfolio evaluation and improvement procedures. However, at the beginning of the meeting, the DEA ITIM Management Group outlines for the Business Council the process to be used for IT investment review. A formal training session would enable board members to become more familiar with the ranking categories and to understand what each category entails and how each category is important to the evaluation of each IT investment.

For the DEA to attain a mature ITIM process as described by the ITIM Framework, the DEA must: 1) evaluate the performance of the portfolio and use the information gained from the evaluation to improve both current IT investment processes and the future performance of the investment portfolio, 2) manage the succession of information systems by replacing low-value systems with higher-value systems, 3) optimize the investment process by ensuring that best practices of other organizations are captured and incorporated within the DEA's IT investment process, and 4) use IT to strategically transform work processes, while exploring new and more effective ways of executing the DEA's mission.

The recommendations we made to the DEA are to:

1. apply metrics to measure EA progress, quality, compliance, and return on investment;
2. establish an organization policy for EA development and maintenance that meets the requirements of the EA Management Framework;
3. ensure that the completed EA undergoes configuration management;
4. ensure that the target architecture addresses security as outlined in the EA Program Plan;
5. complete and implement the remaining EA stages to ensure that IT investments are not duplicative, are well integrated, are cost effective, and support the DEA's mission;
6. train members of the investment boards on the criteria for evaluating IT investments; and
7. establish a schedule for completing the remaining stages of the ITIM process to control and evaluate DEA's IT investments.

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BACKGROUND

Authorities

The United States' efforts to control drugs and narcotics, through a number of offices and agencies, date back to 1915. In July 1973, the President established the Drug Enforcement Administration (DEA) within the Department of Justice (Department) as the successor to the Bureau of Narcotics and Dangerous Drugs.

The DEA's mission is to: 1) enforce the controlled substances laws and regulations of the United States; 2) bring to justice those individuals or organizations involved in the growing, manufacturing, or distributing of controlled substances destined for illicit traffic in the United States; and 3) reduce the availability of illicit controlled substances in the domestic and international markets. The DEA's primary responsibilities include the:

- investigation of major violators of controlled substance laws for prosecution;
- management of a national drug intelligence program in cooperation with federal, state, local, and foreign officials to collect, analyze, and disseminate strategic and operational drug intelligence information;
- seizure and forfeiture of assets derived from or used in illicit drug trafficking;
- enforcement of the Controlled Substances Act pertaining to the manufacture, distribution, and dispensation of legally produced controlled substances;³
- coordination and cooperation with federal, state, and local law enforcement officials on mutual efforts for drug enforcement and reduction of illicit drug availability in the United States; and

³ The Controlled Substances Act Title, II of the Comprehensive Drug Abuse Prevention and Control Act of 1970, is the legal foundation of the government's fight against the abuse of drugs and other substances. This law is a consolidation of numerous laws regulating the manufacture and distribution of narcotics, stimulants, depressants, hallucinogens, anabolic steroids, and chemicals used in the illicit production of controlled substances.

- management of programs associated with drug law enforcement counterparts in foreign countries and liaison with the United Nations, Interpol, and other organizations on international drug control programs.

To accomplish its mission, the DEA's headquarters in Arlington, Virginia, oversees 237 domestic offices and 80 foreign offices in 58 countries. As of FY 2003, the DEA had approximately 4,680 special agents and 4,949 support staff. From FY 2003 to FY 2004, the DEA's budget increased from \$1.660 billion to \$1.677 billion.⁴ Information technology (IT) is essential to the DEA's ability to properly manage its operations and administrative functions. Funding for the DEA's IT-related projects increased from \$201 million in FY 2003 to \$224 million in FY 2004.

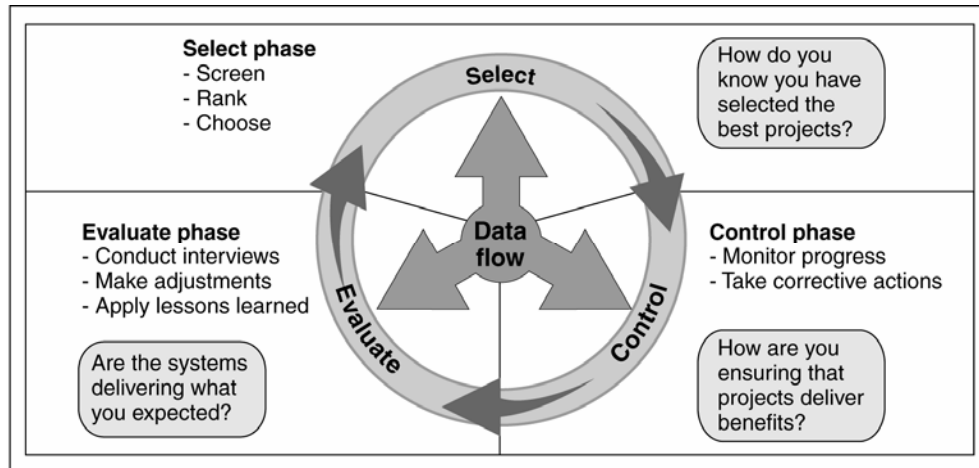
The Information Technology Management Reform Act of 1996 (known as the Clinger-Cohen Act) requires the head of each federal agency to implement a process for maximizing the value of the agency's IT investments and for assessing and managing the risks of its acquisitions. A key goal of the Clinger-Cohen Act is for agencies to have processes in place to ensure that IT projects are being implemented at acceptable costs and within reasonable timeframes, and that the projects are contributing to tangible, observable improvements in mission performance. In addition, the Clinger-Cohen Act requires the head of each agency to develop, maintain, and facilitate the implementation of architectures as a means of integrating business processes and agency goals with IT.

The Office of Management and Budget (OMB) Circular A-130 requires each federal agency to establish and maintain a capital planning and investment control process for IT (also known as Information Technology Investment Management, or ITIM). As described more fully in Appendix 3, the ITIM process has three components: select, control, and evaluate. The process integrates the agency's strategic and financial management plans and its acquisition and budget processes. Further, the process helps shape the agency's Enterprise Architecture (EA), which provides a strategy that will enable the agency to support its current state and also act as the roadmap for transition to its target environment.

The following chart describes the fundamental phases of this IT investment approach.

⁴ The budget excluded Federal Retirees and Health Benefit Costs.

Fundamental Phases of the IT Investment Approach



Source: The U.S. Government Accountability Office (GAO).

In August 2001, the *Department of Justice Information Technology Investment Management Process (Guide)* was issued to implement the Clinger-Cohen Act, OMB Circular A-130, and other IT management requirements. The *Guide* is intended to help make measurable improvements in mission performance and service delivery to the public through the strategic application of IT.

In doing so, the *Guide* uses the select/control/evaluate methodology to implement the strategic and performance directives of the Clinger-Cohen Act and other requirements affecting IT investments. The *Guide* is also intended to promote a process that builds on existing structures to provide maximum benefit across the Department and with other federal agencies. This process is intended to allow the Department to focus IT management on the Department's strategic missions. Further, the process establishes investment review procedures that drive budget formulation and execution for IT systems, and it provides the methods, structures, disciplines, and management framework that govern the way IT is deployed throughout the Department. The *Guide* applies to all IT projects in all of the Department's components, and requires each Departmental component to:

- designate a component Chief Information Officer (CIO);
- establish an Executive Review Board that will approve the entire component IT portfolio and oversee the decisions made about specific investments; and

- establish a component ITIM process that incorporates the Department's ITIM process but is customized to function within the component's unique environment.

By January 2002, each component was required to submit to the Department an ITIM plan incorporating the above items. The DEA submitted its ITIM plan in December 2001. The JMD officially approved the DEA's Plan in March 2002. The 2002 approval letter states that the DEA ITIM process conforms to the guidelines defined by the GAO, the OMB, and the Department. It also states that the plan is clear and comprehensive in its statement of the ITIM policy and its definition of organizational roles, responsibilities, and deliverables.

To date, the Department has not issued any formal guidance on EA. However, according to the Assistant Director of the Department's Policy and Planning Staff within the Office of the Chief Information Officer, the order providing such guidance should be released in the first quarter of FY 2005. To begin developing its EA, the DEA used guidance from the OMB, the Federal Chief Information Officer's Council, and the DEA's Strategic IT Plan to develop its EA program.

Prior Reports

We identified and reviewed six IT-related reports issued since May 2000 by the GAO and the OIG that are applicable to aspects of this audit.

In May 2000, the GAO reported that although almost all federal agencies had created some type of ITIM process, none had implemented stable processes that address all three phases of the select/control/evaluate approach.⁵ According to the GAO, one barrier to implementing reliable ITIM has been the lack of specific guidance on the required processes. The GAO further stated that the select/control/evaluate approach provides sound advice, but does not describe the organizational processes involved.

In February 2002, the GAO reported that the federal government as a whole had not reached a mature state of EA management.⁶ In

⁵ The report is entitled *Information Technology Investment Management: An Overview of GAO's Assessment Framework* (GAO/AIMD-00-155) dated May 2000.

⁶ The report is entitled *Information Technology, Enterprise Architecture Use Across the Federal Government Can Be Improved* (GAO-02-6) dated February 2002.

particular, about 52 percent of federal agencies reported having at least the management foundation that is needed to begin successfully developing, implementing, and maintaining an EA, and about 48 percent of agencies have not yet advanced to this basic stage of maturity. Specifically, the GAO determined that the DEA had achieved Stage-2 maturity. At Stage-2 maturity, the DEA established a sound EA management foundation with the assignment of roles and responsibilities and the establishment of plans for developing EA products.

In March 2002, pursuant to the FY 2001 Government Information Security Reform Act, the OIG issued three reports on three of the DEA's administrative and investigative IT systems.⁷ The reports identified vulnerabilities with management, operational, and technical controls. Significant vulnerabilities were noted in the following areas:

- security policies, procedures, standards, and guidelines;
- system and network backup and restoration controls;
- password management;
- log-on management;
- account integrity management;
- system auditing management;
- physical controls;
- software upgrading procedures;
- personnel controls;
- contingency planning; and
- system configuration.

The reports also stated that these vulnerabilities occurred because the DEA either lacked sufficient guidance, did not fully enforce compliance with existing security policies, did not develop a complete set of policies to effectively secure the systems, or lacked timely and

⁷ The three systems audited were the El Paso Intelligence Center Information System (02-09), Merlin System (02-13), and Firebird System (02-10).

effective oversight from the Department and DEA management in addressing known problems.

In February 2004, pursuant to the Federal Information Security Management Act (FISMA), the OIG issued a report on the DEA's system used to access and analyze classified information. The report assessed the system's compliance with FISMA and related information security policies, procedures, standards, and guidelines. The report identified weaknesses in the areas of management, operational, and technical controls. The report also identified high-risk vulnerabilities from unauthorized use, loss, or modification of data.

The report stated that the vulnerabilities occurred because the DEA did not always enforce its policies in accordance with current Department policies and procedures for the system. Furthermore, many of the vulnerabilities identified during this audit could have been prevented if the DEA had followed up on and applied corrective actions for similar vulnerabilities identified by the DEA and OIG in previous years and applied them to the system.

This report dealt primarily with the DEA's management of information security and not the agency's handling of IT investments or its EA. However, according to the *CIO Practical Guide*, an agency is required to address information security within its EA. The DEA has documented in its EA Program Plan that information security will be addressed as a separate layer within the target architecture, which has not yet been developed.

Framework for Assessing IT Investment Management

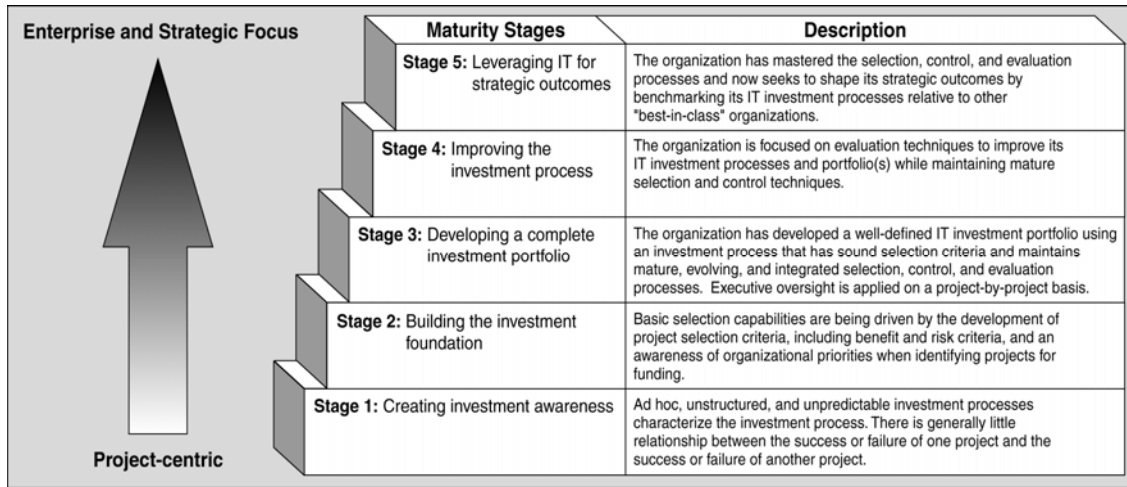
To address the lack of guidance as reported in its May 2000 report, the GAO developed the IT Investment Management Framework (ITIM Framework) to provide a common methodology for discussing and assessing IT capital planning and investment management practices at federal agencies.

According to the GAO, the ITIM Framework enhances previous federal IT investment management guidance by embedding the select/control/evaluate approach within a framework that explicitly describes the organizational processes required to implement sound ITIM. Based on the best practices of leading organizations, the ITIM Framework is a hierarchical model comprised of five maturity stages, which represent steps toward achieving stable and mature investment management processes. Each stage builds upon the lower stages and enhances the organization's ability to manage its investments. As an

agency advances through these stages, the agency’s capability to effectively manage IT increases. In March 2004, the GAO revised the ITIM Framework to reflect the incorporation of EA into all five maturity stages. Our assessment of the DEA’s IT investment management was done using the revised framework.

The following chart describes the five maturity stages of the IT Framework.

The Five Stages of Maturity Within ITIM



Source: The U.S. Government Accountability Office.

With the exception of the first stage, each maturity stage is comprised of critical processes that must be implemented and institutionalized for the organization to satisfy the requirements of that stage. These critical processes are further broken down into key practices that describe the types of activities in which an agency should be engaged to successfully implement each critical process. An organization that has these critical processes in place is in a better position to successfully invest in IT. The following chart describes the ITIM Framework’s five stages and associated critical processes.

The ITIM Stages of Maturity With Critical Processes

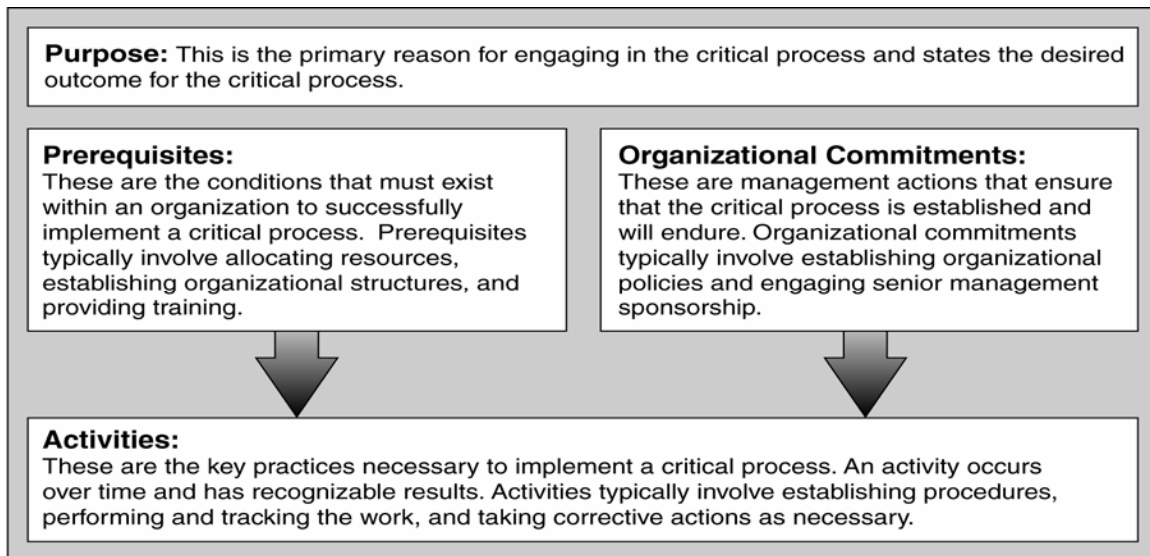
Maturity stages	Critical processes
Stage 5: Leveraging IT for strategic outcomes	<ul style="list-style-type: none"> - Optimizing the investment process - Using IT to drive strategic business change
Stage 4: Improving the investment process	<ul style="list-style-type: none"> - Improving the portfolio's performance - Managing the succession of information systems
Stage 3: Developing a complete investment portfolio	<ul style="list-style-type: none"> - Defining the portfolio criteria - Creating the portfolio - Evaluating the portfolio - Conducting postimplementation reviews
Stage 2: Building the investment foundation	<ul style="list-style-type: none"> - Instituting the investment board - Meeting business needs - Selecting an investment - Providing investment oversight - Capturing investment information
Stage 1: Creating investment awareness	<ul style="list-style-type: none"> - IT spending without disciplined investment processes

Source: The U.S. Government Accountability Office.

As established by the ITIM Framework, each critical process is comprised of five core elements that indicate whether the implementation and institutionalization of a process can be effective and replicated. The five core elements are: 1) purpose, 2) organizational commitment, 3) prerequisites, 4) activities, and 5) evidence of performance.

With the exception of the “purpose” core element, each of the other core elements contains key practices. The key practices are the attributes and activities that contribute most to the effective implementation and institutionalization of a critical process. The following chart summarizes the inter-relationships of components in an ITIM critical process.

Components of an ITIM Critical Process



Source: The U.S. Government Accountability Office.

Framework for Assessing and Improving Enterprise Architecture Management

Enterprise Architectures provide a clear and comprehensive picture of an entity, whether an organization or a functional or mission area that crosscuts more than one organizational unit. According to the GAO, investing in IT without defining these investments in the context of an EA often results in systems that are duplicative, not well integrated, and unnecessarily costly to maintain and interface.

An EA is made up of four components: Business Architecture, Applications Architecture, Data Architecture, and Technical Architecture. Together, these components provide a clear picture of how an organization accomplishes its mission, goals, and objectives. It also provides the baseline from which initiatives are planned and later compared.

Business Architecture focuses on “what” is done as opposed to “who” does it. It captures the business itself, independent of any technology, by describing the business areas and processes including common information requirements. Business Architecture is based on an agency’s strategic plan and is linked to the application, data, and technology layers of the EA.

Applications Architecture is the means by which the agency and its personnel create, reference, update, or delete data acquired

and collected by an agency. In essence, Application Architecture provides the link between the data and the entities required to perform the business functions, allowing an agency to fulfill its mission.

Data Architecture describes the data an agency needs for business operations and provides a data-related viewpoint. Data Architecture consists of universally accepted definitions that an agency uses to describe data. Completed Data Architecture provides an overall picture of the information an agency collects, manipulates, and stores in order to accomplish its mission.

Technical Architecture provides the platform for many business operations, the applications, and the enterprise data. Technical Architecture is what allows the entities performing business functions to use applications to manipulate the data necessary for an agency to accomplish its mission.

Since the late 1980s, EA Management Frameworks have emerged within the federal government, beginning with the publication of the National Institute of Standards and Technology framework in 1989. In 1992, the GAO issued EA guidance entitled *Strategic Information Planning: Framework for Designing and Developing System Architecture*. This EA Management Framework was intended to:

- provide a basis for systematically determining information needs,
- identify and analyze information and data needs and relationships,
- identify and analyze alternative ways to satisfy information needs, and
- provide factors to be considered in arriving at the best way to satisfy information needs.

Since 1992, other federal entities have issued EA Management Frameworks, including the Department of Defense, the Department of the Treasury, and the Federal Chief Information Officers Council (CIO Council). Although the various frameworks use different structures, the frameworks are fundamentally consistent in purpose and content, and are being used today to varying degrees by many federal agencies.

In April 2003, the GAO, in collaboration with the OMB and the CIO Council, published a new EA Management Framework.⁸ The new EA Management Framework provides measures for management to assess progress toward the desired end and to take corrective action to address unacceptable deviations.

The GAO EA Management Framework consists of three basic components: 1) five hierarchical stages of management maturity, 2) categories of attributes that are critical to the success in managing any endeavor, and 3) elements of EA management that form the core of the CIO Council's *Practical Guide*.⁹

Consistent with the ITIM Framework, the EA Management Framework outlines five maturity stages. These stages include steps toward achieving a stable and mature process for managing the development, maintenance, and implementation of an agency's EA. As an organization improves its EA management capabilities, its EA management maturity increases.

With the exception of the first stage, each maturity stage is composed of four critical success attributes that are critical to the successful performance of any management function. They are:

- **Demonstrates Commitment** by the head of the enterprise providing support and sponsorship to achieve the success of the EA effort.
- **Provides the Capability to Meet Commitment** by developing, maintaining, and implementing EA through adequate resources, clear definitions of roles and responsibilities, and implementing organizational structures and process management controls that promote accountability and effective project execution.

⁸ The framework is entitled *Information Technology, A Framework for Assessing and Improving Enterprise Architecture Management*, Version 1.1, (GAO-03-584G) dated April 2003.

⁹ Federal Chief Information Officers (CIO) Council. *A Practical Guide to Federal Enterprise Architecture*, Version 1.0, February 2001. This publication is also known as the *CIO Council's Practical Guide*, which is a step-by-step process guide intended to assist agencies in defining, maintaining, and implementing EAs by providing a disciplined and rigorous approach to EA management.

- **Demonstrates Satisfaction of Commitment** to develop, maintain, and implement EA by producing EA plans and products.
- **Verifies Satisfaction of Commitment** by measuring and disclosing the extent to which efforts to develop, maintain, and implement the EA have fulfilled stated goals or commitments. Measuring performance allows for tracking progress toward stated goals, allows appropriate actions to be taken when performance deviates significantly from goals, and creates incentives to influence both institutional and individual behaviors.

Collectively, these attributes form the basis by which an organization can institutionalize management of any given function or program, such as EA management. Each attribute contains core elements that contribute to the effective implementation and institutionalization of a critical success attribute. Appendix 4 summarizes the interrelationships of components in the EA management process.

The DEA's Management of IT Infrastructure

The DEA seeks to manage its IT investments through agencywide repeatable processes rather than a single office. To illustrate the processes, the DEA has created a graphic illustration called "The House" (see Appendix 5) showing how strategic planning, budgeting, procurement, ITIM, quality management, IT security, System-Development Life-Cycle program management, and EA work together to accomplish the DEA's mission. In reference to ITIM and EA, The House shows how each phase of the ITIM process relates to one or more of the architectural models. For example, by consulting The House, a DEA staff member can see that in the Control Phase of ITIM, the Data, Application, and Technology architectures should be reviewed before making a decision about the status of the project.

Reflecting the DEA's decentralized ITIM, several divisions manage major IT initiatives: the Operations Division, the Intelligence Division, the Financial Management Division, the Operational Support Division, and the Inspection Division. These divisions are responsible for specific networks and applications supporting their respective missions.

The Office of Diversion Control, within the DEA's Operations Division, manages the design, development, and operation of the

infrastructure and applications supporting DEA programs with the medical community and the chemical and pharmaceutical industries. The DEA's Intelligence Division manages the classified network and the associated applications. The El Paso Intelligence Center, within the Intelligence Division, develops and manages infrastructure and applications that support customers at the federal, state, and local levels. The Financial Management Division is responsible for managing the DEA's financial management systems.¹⁰

The DEA Chief Information Officer is the Assistant Administrator for the Operational Support Division, and reports to the DEA Administrator. The Deputy CIO is the Deputy Assistant Administrator for the Office of Information Systems and reports to the CIO. The Deputy CIO is responsible for the design, deployment, and operation of DEA's general support networks, the majority of application systems supporting DEA's mission, and the supporting quality management program. Staff in the Office of Information Systems work closely with customers from virtually all DEA offices, both in headquarters and the field (domestically and internationally). The Deputy CIO also manages the DEA-wide programs for IT strategic planning, IT capital planning and investment control, and EA.

The Office of Information Systems coordinates with each office to ensure that the procedures and applications developed by these offices are in compliance with the DEA-wide programs for IT strategic planning, IT capital planning and investment control, and the EA. The Office of Investigative Technology is responsible for the systems that support telecommunications intercepts.

The Office of Security Programs in the Inspection Division is responsible for DEA's IT security program. This includes development of policies and procedures, management of system certification and accreditation, coordination with the Department of Justice, reporting as required by the FISMA, and security monitoring of DEA networks.

Recent Efforts

The DEA has established three governing committees to facilitate its EA and ITIM development processes: 1) the Executive Review Board, 2) the Business Council, and 3) the Compliance Council. Together, the three governing committees are responsible for ensuring that the DEA's EA and ITIM meet all federal and Departmental requirements.

¹⁰ For a further breakdown of how DEA divisions are laid out, see the DEA Organization Chart in Appendix 6.

The Executive Review Board is responsible for providing leadership to implement a managed IT capital planning and investment control process. The IT capital planning and investment process includes the development and maintenance of an agencywide EA. The DEA's CIO and the DEA's Chief Financial Officer (CFO) jointly chair the Executive Review Board.

The Business Council is responsible for ensuring that projects and investments recommended by program managers are consistent with the DEA's mission, strategic plan, capital planning goals, EA, and security policy. The Deputy Assistant Administrator, Office of Information Systems, chairs the Business Council.

The Compliance Council is responsible for evaluating IT investments and the DEA's EA to ensure compliance with legislative regulations and DEA policy. The Chief of the Strategic Business Management Section, Office of Information Systems, who is also the Chief Architect, chairs this committee.

In accordance with OMB guidance and best practices as outlined by the Federal CIO Council, the DEA has begun the construction of an EA. At the time of our audit, the DEA had completed a high-level "as is" EA. A high-level "as is" EA is a representation of current capabilities and technologies and is expanded as additional segments are defined.

The DEA's high-level "as is" EA defines four architectural layers: 1) the business processes to accomplish the mission, 2) the information, 3) the software applications supporting the business, and 4) the technology necessary to perform the mission. The DEA's CIO has approved the DEA's high-level "as is" EA.

As stated previously, in December 2001 the DEA developed the "ITIM Process and Transition Plan" in an effort to improve its IT investment management practices and comply with the Department's and other statutory regulations. The purpose of the plan is to better ensure that technological resources are linked to the DEA mission and IT Strategic Plan while providing a solid return on investment. According to the plan, the DEA would phase in ITIM over three years, in three phases ending in FY 2004. Each phase would correspond to one fiscal year. Phase 1 would focus on the business and budget side of ITIM, while Phases 2 and 3 would focus on the technical side. Also, in Phase 2 ITIM would integrate security activities, and in Phase 3 ITIM would integrate EA activities.

The following excerpts from the plan provide an overview of how the DEA's select, control, and evaluate processes for ITIM are intended to operate.

Select

During the Select Phase, new projects are introduced to the Executive Review Board for consideration. A program manager prepares a Concept Proposal for funding consideration by the Executive Review Board.¹¹ When completed, the program manager sends the Concept Proposal to the ITIM Management Group to be processed through the Business Council and the Executive Review Board. If the Executive Review Board determines that the concept has merit, then the program manager may spend an initial amount of money to prepare a business case for inclusion in the budget process.¹²

Control

During the Control Phase, funded investments are under development. A program manager submits monthly status reports to the ITIM Management Group for analysis. These reports include expenditures and work completed to date. The ITIM Management Group collects this information for the entire portfolio, analyzes the data, and identifies investments that might be at risk. The ITIM Management Group follows up with at-risk investments to determine if problems exist and how the problems should be solved.

Evaluate

During the Evaluate Phase, all IT investments currently in operation or maintenance and in need of continued funding are monitored to ensure that the investment is appropriately managed and continues to produce expected results and mission benefits. Periodic progress reviews are conducted to evaluate the investment's continued value to mission benefits and alignment with EA direction. The Business Council

¹¹ The Concept Proposal is a 2- to 5- page document that presents a high- level concept for a new investment. At this stage, the document represents an idea that the program manager wishes to bring to the attention of the Executive Review Board for funding consideration.

¹² The funding for preparing the business case is not included as a line item within the DEA's approved budget. The program manager must find alternative resources to produce the business case.

predetermines which investments are candidates for retirement or upgrade, and passes this recommendation to the Executive Review Board, which uses this information for funding decisions.

The JMD officially approved the DEA's Plan in March 2002. The March 2002 approval letter states that the DEA ITIM process conforms to the guidelines defined by the GAO, the OMB, and the Department. Further, it states that the Plan is clear and comprehensive in its statement of the ITIM policy and its definition of organizational roles, responsibilities, and deliverables.

FINDINGS AND RECOMMENDATIONS

Finding 1: Enterprise Architecture

The DEA is in the process of developing its EA, scheduled to be completed in September 2004, that should provide a blueprint that will enable the DEA to more effectively and efficiently manage its current and future IT infrastructure and applications. The DEA has completed much of its EA, with the exception of developing a target architecture and a transition plan to accomplish the target architecture. The DEA has established a foundation consistent with the EA Management Framework to build its EA program. The DEA has assigned roles and responsibilities for developing the EA, committed resources, and established plans for completing the remaining EA stages. In addition, the DEA has developed a general, high-level description of its existing, or "as is," architecture. The DEA is effectively managing its EA under the structure completed to date. However, without a completed EA, any organization assumes some degree of risk that it might invest in IT that is duplicative, not well-integrated, costly, or not supportive of the agency's mission. In continuing to develop its EA, the DEA is taking steps to mitigate such risks. By completing its EA, the DEA will minimize the risks even further and provide a realistic vision of its future IT requirements.

Synopsis of the Five Stages of the EA Management Framework

To implement the five stages of the EA Management Framework, the DEA must also complete four critical success attributes: 1) demonstrates commitment, 2) provides the capability to meet the commitment, 3) demonstrates satisfaction of commitment, and 4) verifies satisfaction of commitment. Each attribute contains core elements that contribute to the effective implementation and institutionalization of the critical success attribute. Collectively, these attributes form the basis by which an organization can institutionalize management of any given function or program.

Stage 1. At this stage, there are no core elements to be completed. However, the DEA must create an awareness of the value of developing and using an EA by providing the management

foundation necessary for successful EA development as defined in Stage 2.¹³

Stage 2. To complete this stage, the DEA needs to: 1) assign EA management roles and responsibilities; 2) commit the resources – people, processes, and tools – necessary to develop an architecture; and 3) establish plans to develop EA products and measure program progress and EA product quality. As of April 2004, the DEA had completed about 90 percent of the EA Management Framework criteria for meeting the Stage-2 level of maturity.

Stage 3. The DEA is moving from building the EA management foundation to developing EA products for Stage 3. To complete Stage 3, the DEA must: 1) establish organization policy for the EA development; 2) ensure that EA products are under configuration management; 3) ensure that EA products describe both the current and target environments of the agency; and 4) ensure that progress against EA plans is measured and reported.¹⁴ As of April 2004, the DEA had completed one EA product – the current architecture.

Stage 4. Additional work must be completed before the EA is used as intended in Stage 4 – to drive sound IT investments that are consistent with the DEA's goals and missions. To complete the stage, the DEA needs to: 1) establish policy for maintaining the EA, and 2) complete the EA including the current and target architectures along with the transition plan to get from the current to the targeted environments. The completed EA must be described in terms of business, data, application, and technology and the descriptions must address security; and it must be approved by the DEA's CIO and the Executive Review Board. The DEA is working on adding more detail to the high-level description of its current EA and developing the target architecture, for a completion date by September 2004.

Stage 5. To reach Stage 5 maturity, an agency is using the EA as intended – to drive IT investments and ensure systems' interoperability. The DEA has not completed the EA Management Framework criteria for Stage 5, however, once Stage 4 has been completed in September 2004, the DEA will then be in a position to

¹³ See Appendix 7 for a table showing DEA's EA progress through Stage 3 of the EA Management Framework.

¹⁴ Configuration management is the process of managing changes to IT systems or hardware.

implement its EA as required in Stage 5. The status of each EA Management Framework stage in the DEA follows.

Stage 1 Completed

The DEA has created an awareness of the value of developing and using the EA by providing the management foundation necessary for successful EA development as defined in Stage 2. Specifics about how the DEA accomplished this are discussed in detail in Stage 2.

Stage 2 Ninety-Percent Completed

The DEA has completed eight of the nine core elements required by the EA Management Framework and has achieved three of the four critical attributes. The remaining attribute to be completed is verifying that management's commitment to the establishment of the EA has been satisfied through the development of measures for EA progress, quality, compliance, and return on investment.

Critical Attribute 1: Demonstrates Commitment

To complete the first critical attribute for Stage 2 of the EA Management Framework, the DEA demonstrated its commitment to building an EA management foundation by establishing two core elements:

- 1) to ensure the existence of adequate resources, and
- 2) to establish DEA-wide committees responsible for directing, overseeing, and approving the EA.

Adequate Resources. According to the EA Management Framework, obtaining adequate resources includes: 1) identifying and securing the funding necessary to support EA activities; 2) hiring and retaining the right people with the proper knowledge, skills, and abilities to plan and execute the EA program; and 3) selecting and acquiring the right tools and technology to support EA activities.

The DEA initiated the development of an EA program in 2002 and estimates that it will cost approximately \$2.7 million to complete the EA by September 2004. The following table shows the DEA's expenditures as of FY 2003 to develop an EA and the estimated cost to complete the EA to Stage 5, or full maturity.

EA Development Cost

Cost Element	Actual Cost Through FY 03	Estimated Remaining Cost	Estimated Total Cost
Agency Personnel	\$188,000	\$417,000	\$605,000
Development Contractor	\$345,000	\$1,727,000	\$2,072,000
Tools	\$0	\$30,000	\$30,000
Training	\$3,500	\$10,000	\$13,500
Total	\$536,500	\$2,184,000	\$2,720,500

Source: The Drug Enforcement Administration.

In FY 2002, the DEA spent \$667,000 from its base appropriations for EA development. In FY 2003 the DEA requested an additional \$400,000 to continue developing EA, but the funding was not approved. According to the DEA's EA Chief Architect, approval of the requested amount would have allowed the DEA to complete a detailed description of the existing architecture more quickly.¹⁵ She also stated that the DEA was able to contract out the EA development project using funds from other sources.

The DEA has allocated 4.25 full time equivalent staff — but assigned 3.25 full time equivalent staff (.5 managers, .5 staff members, and 2.25 contractors) — in support of EA efforts and completion of the current EA. The Deputy Assistant Administrator of the DEA's Office of Information Systems, which is the office responsible for developing the DEA's EA, is currently serving as the Chairman of the Department's EA committee. The Chief Architect, who established the foundation for the DEA's EA, had transferred to the DEA from the Department's Justice Management Division where she had dealt with technology issues. The DEA's Program Office has two senior analysts and one junior analyst assigned to work on completing the EA.¹⁶ Additionally, the DEA hired a contractor in October 2003 to aid in the completion of the EA.

¹⁵ The Chief Architect retired in March 2004, and an Acting Chief Architect was designated.

¹⁶ The Program Office was established within the Office of Information Systems to oversee the development and maintenance of the EA.

In addition to funding and human resources, the DEA has acquired tools and technology to support its EA activities. The DEA uses the Popkin System Architect (Popkin) as its automated EA tool.¹⁷ According to the Chief Architect, one reason the DEA chose Popkin is that the Department is also using Popkin and the future integration of the DEA's EA with the Department's EA may be more easily achieved. Because the DEA has just recently begun using the Popkin tool, we did not assess its effectiveness in clearly and completely documenting the DEA's EA, but we agree that using the same tool as the Department should aid in the future integration of the agency's EA with the Department's EA.

EA Governing Committees. The EA Management Framework states that an agency should assign responsibility for directing, overseeing, and approving architectures to a committee or group with cross-representation from throughout the enterprise. Establishing agencywide responsibility and accountability is important to demonstrate the agency's commitment to building a management foundation for the EA and obtaining buy-in from across the agency. Accordingly, the committee or group should include executive-level representatives from each line of the business, and these executive representatives should have the authority to commit resources and enforce decisions within their respective organizational units.

To meet the requirements of the EA Management Framework, the DEA established three governing committees: 1) the Executive Review Board, 2) the Business Council, and 3) the Compliance Council. Together, the three governing committees are responsible for ensuring that the DEA's EA meets all federal and Departmental requirements.

The Executive Review Board is responsible for providing leadership to implement a managed IT capital planning and investment control process. The IT capital planning and investment process includes the development and maintenance of an agencywide EA. The Executive Review Board has the authority to recommend or approve:

- the continuation, modification, or termination of funding for IT investments;
- the delay of a subsequent activity in a project plan;
- corrective action based on the results of the board's review;

¹⁷ The Popkin System Architect is an enterprise architecture tool that stores and organizes the agency's overall EA information.

- members of the Business Council; and
- changes to the DEA's EA and its ITIM process.

The Executive Review Board's responsibility to the EA development consists of approving the completed EA and any subsequent changes. Consequently, it would not meet until the EA is completed. At this point of the EA development process, the EA Program Office is responsible for ensuring the integrity of the EA in meeting the DEA's mission and goals.

The DEA's Chief Information Officer and the DEA's CFO jointly chair the Executive Review Board. In our judgment, the membership of the Executive Review Board demonstrates an agencywide leadership commitment to the EA process.¹⁸ The Executive Review Board membership consists of the following:

- Assistant Administrator, Operational Support Division, and CIO.
- Chief Counsel, Office of the Chief Counsel.
- Deputy Assistant Administrator, Office of Diversion Control.
- Chief Financial Officer, Financial Management Division.
- Assistant Administrator, Human Resources.
- Assistant Administrator, Intelligence Division.
- Chief Inspector, Inspections Division.
- Chief, Office of Congressional and Public Affairs.
- Special Agent-in-Charge, Office of Training; and
- Special Agent-in-Charge, Advisory Council.

The Business Council's primary responsibility is to ensure that projects and investments recommended by program managers are consistent with the DEA's mission, strategic plan, capital planning goals, EA, and security policy. The Business Council members function

¹⁸ For a further breakdown of how DEA divisions are laid out, see the DEA Organization Chart in Appendix 5.

as the working level experts for the ITIM process by providing business expertise specific to their respective business unit. The Business Council's membership is at the Grade-15 level and includes a representative from every organizational unit within the DEA. The Deputy Assistant Administrator, Office of Information Systems, chairs the Business Council.

The Compliance Council is responsible for evaluating IT investments and the DEA's EA to ensure compliance with legislative regulations and DEA policy. The Compliance Council consists of members whose day-to-day responsibilities involve a compliance area. The members work to ensure compliance with such areas as the Federal Enterprise Architecture, the Government Performance and Results Act, and the Government Information Security Reform Act. The Chief of the Strategic Business Management Section, Office of Information Systems chairs this committee.

Critical Attribute 2: Provides Capability to Meet Commitment

The completion of the second critical attribute for achieving Stage 2 requires the DEA to establish three core elements:

- 1) to establish a program office responsible for EA development and maintenance;
- 2) to appoint a Chief Architect; and
- 3) to develop the EA using a framework, methodology, and automated tool.

The DEA has implemented the three core elements above to achieve Critical Attribute 2.

EA Program Office. The EA Management Framework states that EA development and maintenance should be managed as a formal program. Accordingly, responsibility for EA management should be assigned to an organizational unit and not an individual. The *CIO Practical Guide*, discussed in the Background section of this report, states that the primary responsibility of the EA Program Office is to ensure the success of the EA program.

In response to the Framework and the *CIO Practical Guide*, the DEA reorganized its Office of Information Systems to include a Strategic Business Analysis Section as the EA Program Office

(Program Office). The Program Office is responsible for the development and maintenance of the DEA EA.

To accomplish its responsibility, the Program Office coordinates with offices throughout the DEA as well as external IT organizations; assists DEA customers in developing their concepts and plans for the application of IT to their business processes; and also assists customers with the ITIM process. Further, the Office of Information Systems proposed a staffing level that would enable the Program Office to complete its work. The following table shows the Strategic Business Analysis Section's proposed staffing level, and the staffing level as of February 2004.

**Proposed Staffing for the
Strategic Business Analysis Section**

Title	Series/Grade	Proposed Staffing Level	Staffing Level As Of 2/04
Section Chief Supervisory Computer Specialist	GS-2210/15	1	1
Unit Chief Supervisory Computer Specialist	GS-2210/14	2	1
Computer Specialist	GS-2210/13	4	2
Management Analyst	GS-0301/9/11/12	2	1
Contractors		7	4
Total		16	9

Source: The Drug Enforcement Administration.

As the above table shows, the section's staff consists of a chief, three computer specialists, and one management analyst. Two of the three computer specialists on board were assigned to help complete the EA. As of April 2004, seven contractor personnel were allocated to the section, but only four had completed the security clearance process and were on board.

Even though the proposed staffing level for the section was not fully achieved, the DEA began developing the EA and implementing the ITIM process.¹⁹ As stated previously, the DEA has documented its

¹⁹ The DEA's progress in the implementation of the ITIM process is discussed in Finding 2 of this report.

high-level current architecture outlining the agency's business areas, applications, data, and technology. According to the DEA's Chief Architect, not having the full complement of staff slowed progress toward completing the EA.

Chief Architect. The *CIO Practical Guide* and the EA Management Framework state that an agency should appoint an executive as Chief Architect, who is responsible and accountable for the EA, and whose background and qualifications include both the business and technology areas of the organization. Additionally, the Chief Architect is responsible for ensuring the integrity of the EA development process and for the content of the EA products.

The DEA appointed the head of the Strategic Business Analysis Section as the Chief Architect. As discussed previously, this person transferred from the Department's Justice Management Division where she participated in business (including budgeting) and technology issues. The Chief Architect is responsible for:

- developing, implementing, and managing the DEA's EA;
- planning the transition from the current to the future EA, and monitoring the implementation of the transition plan;
- monitoring and evaluating whether IT investments are consistent with the current and the future EA; and
- developing processes, procedures, guidance, tools, and templates to carry out the DEA's EA program.

Framework, Methodology, and Automated Tool. The DEA uses a combination of two frameworks to develop its EA. One framework is known as the Federal Enterprise Architecture Framework (FEAF), and the other is the Zachman Framework – named after John Zachman, a recognized leader in the EA field.

The FEAF is intended to provide federal agencies with a common way of constructing their respective architectures.²⁰ According to the GAO, the FEAF facilitates the coordination of common business processes, technology insertion, information flows, and system

²⁰ The federal CIO Council published the *Federal Enterprise Architecture Framework* in September 1999. See Appendix 8 for a graphic illustration of the FEAF.

investments among federal agencies. The FEAF describes an approach, including models and definitions, for developing and documenting architecture descriptions for different segments of the federal government. Similar to the Zachman Framework, the FEAF's proposed model describes an entity's business, data necessary to conduct the business, applications to manage the data, and technology to support the applications.

The Zachman Framework provides six perspectives, or viewpoints, on how an agency operates: 1) the strategic planner, 2) the system user, 3) the system designer, 4) the system developer, 5) the subcontractor, and 6) the system itself. The Zachman Framework also provides six models associated with each of the six viewpoints: 1) how the agency operates, 2) what the agency uses to operate, 3) where the agency operates, 4) who operates the agency, 5) when the agency's operations occur, and 6) why the agency operates.

The DEA saw benefits in both frameworks and combined these two concepts in developing its EA. However, the DEA has been more concerned about ensuring that the EA aligns with the FEAF since that framework will eventually be used by the entire federal government.

The DEA's methodology to develop its EA is a three-phase approach.

Phase 1. Includes documenting, at a high-level, what currently exists within the DEA in terms of business areas, applications, data, and technology.

Phase 2. Includes 1) providing more detail to the current architecture, 2) goals and objectives stated in the Department and the DEA strategic plans, 3) performance measures, 4) aligning the DEA's architecture with the Federal Enterprise Architecture reference models, and 5) aligning the architecture with the DEA's capital planning process.

Phase 3. Includes the establishment of the target architecture, including security compliance and the development of a transition plan.

The DEA completed Phase 1 of the EA development in December 2002. In February 2003, the DEA's CIO submitted the high-level description of the DEA's current EA to the three DEA IT governing boards for inclusion in the budget process. In March 2004,

the DEA told us that its contractor completed Phase 2, and the DEA was in the process of reviewing the contractor's work for compliance with the FEAF requirements. As of April 2004, the DEA had not begun Phase 3 of the EA project.

An EA automated tool serves as the storehouse of the architecture products. Architecture products include the current and target architectures and the transition plan. The choice of tool is based on the agency's needs and the size and complexity of the architecture. As stated previously, the DEA has chosen the Popkin automated tool to store its architecture products. The DEA chose Popkin because the Department is also using Popkin and the future integration of the DEA's EA with the Department's EA may be more easily achieved. Because the DEA has just recently begun using the Popkin tool, we did not assess its effectiveness in clearly and completely documenting the DEA's EA, but we agree that using the same tool as the Department should aid in the future integration of both EAs.

Critical Attribute 3: Demonstrates Satisfaction of Commitment

The completion of the third critical attribute for achieving Stage 2 requires the DEA to establish an EA Program Plan that includes the following core elements:

- 1) describes both the current and the target architectures as well as a transition plan;
- 2) describes the current and target architectures in terms of business, performance, information, application, and technology; and
- 3) determines the application of security within each architectural area.

We evaluated the DEA's EA Program Plan and found that the plan complies with the criteria established in the framework, and demonstrates completion of the third critical attribute.

Current and Target Architectures, and Transition Plan. The CIO Council requires that agencies have a written EA Program Plan. The plan should describe the steps to be taken and the tasks to be performed in managing the EA program. The plan should also make provision for the development of architectural descriptions of how the organization currently operates (the current), how it intends to operate

in the future (the target), and how it will transition from the current to the target environment (the transition).

The DEA has developed a plan in accordance with the CIO Council's guidelines. According to the DEA Program Plan, the DEA will:

- establish a DEA-wide current architecture that is consistent with the OMB EA reference models and the Department's EA program,
- develop a component-based target architecture focused on the delivery of enterprise-wide and business-process level IT solutions,
- establish a target architecture-driven ITIM and IT Strategic Planning process, and
- establish a transition plan.

Security. In the Program Plan, the DEA states that the requirements associated with information security are guided by legislation, including the Federal Information Security Management Act. As a result, the security elements of the EA will be embedded within the target EA as a specific EA layer.

The plan requires the DEA's EA to comply with EA regulations and guidance available to federal agencies. The DEA is using various guidance to complete the EA including: Annual Performance Plan, Strategic Plan, IT Strategic Planning, IT Capital Planning, EA Analyses Reports, Communications Plan, IT Governance Plan, and Transition Plan. According to the DEA, the guidance is used in establishing a balance between the detail of the architecture and cost constraints of the architecture program.

Detailed analyses of the current architecture will allow the DEA to identify areas in which applications could be combined and where future investments are necessary. The results of these analyses form the basis for the target architecture. As stated previously, the DEA has completed a high-level description of its current architecture and is working on adding more detail to the current architecture and beginning to develop the high-level target architecture. The current architecture describes to the DEA the current state of business operations and information exchange within and across the organization, but it does not show where the DEA wants to go in the future.

Critical Attribute 4: Verifies Satisfaction of Commitment

The completion of the fourth critical attribute to achieve Stage 2 requires the DEA to ensure that the Program Plan calls for the following core element:

- 1) developing metrics for measuring EA progress, quality, compliance, and return on investment.

The measurement of EA progress, quality, and compliance is necessary to ensure that the EA meets the targeted milestones and is compliant with the necessary regulatory requirements. Measuring return on investment would tell the DEA what benefits are realized by the development of the EA in relation to the cost of the EA development.

Developing Metrics for Measuring EA Progress. The DEA has not yet established metrics for measuring EA progress, quality, compliance, and return on investment. The DEA Chief Architect told us that these metrics would be developed at a later unspecified date.

EA Stage 2 Summary

The DEA has completed nearly 90 percent of Stage 2 and has made progress toward attaining Stage 3 as required by the EA Management Framework.

Stage 3 Progress

In Stage 3, the DEA must implement six core elements within the four critical attributes required by the EA Management Framework. The DEA has partially completed one of the four critical attributes, critical attribute 3, which requires the DEA to ensure that the current and target architectures are described in terms of business, data, application, and technology.

Critical Attribute 1: Demonstrate Commitment

To complete the first critical attribute for Stage 3 of the EA Management Framework, the DEA must establish the following core element:

- 1) develop a written and approved organization policy for the EA development.

According to the EA Management Framework, an organization policy is an important means for ensuring agencywide commitment to developing the EA and for clearly assigning responsibility for doing so. The architecture policy should define the scope of the architecture as including a description of the current and target architecture, as well as a transition plan that supports the move from the current to the target architecture. Additionally, the policy should provide for having processes for EA oversight and control, review, and validation. The policy should also address the purpose and value of an EA; its relationship to the organization's strategic vision and plans; and its relationship to capital planning process.

The DEA has not established a formal written and approved organization policy for the EA development. However, the DEA has established the required elements of the EA development policy in different ways.

As described in Stage 2, the DEA established the IT governing boards with representation from all DEA business areas to ensure agencywide commitment to EA development. The DEA also established the EA Program Office with responsibility for developing the EA. In addition, the EA Program Management Plan – discussed in Stage 2 – outlines the scope of the architecture including a description of the current and target architecture, as well as the transition plan. The EA Program Management Plan also addresses EA oversight, control, review, and validation responsibilities. Further, the DEA's CIO outlined the value of the EA, its relationship to the organization's strategic vision and plans, and the capital-planning process in the DEA's IT Strategic Plan. However, having the EA development information together in the form of an organization policy will allow any DEA staff member to consult one document for information concerning the development and implementation of the DEA EA.

Critical Attribute 2: Provides Capability to Meet Commitment

The completion of the second critical attribute for achieving Stage 3 maturity requires the DEA to establish the following core element:

- 1) ensure that EA products are under configuration management.²¹

²¹ Configuration management is the process of managing changes to IT systems or hardware.

As of May 2004, the DEA current architecture had not met this standard. The DEA's Chief Architect told us that configuration management within the DEA is evolving and the DEA is moving toward establishing an office to manage it.

At the time of our audit, the DEA was in the process of establishing a Quality Management Unit within the Office of Information Systems. The Quality Management Unit will be responsible for configuration management of the DEA IT infrastructure including the EA. The EA is intended to reflect the impact of ongoing changes in business function and technology on the agency, and support capital planning and investment management in keeping up with these changes. Consequently, the completed EA – current architecture, target architecture, and transition plan – need to be kept accurate and current.

Critical Attribute 3: Demonstrates Satisfaction of Commitment

The completion of the third critical attribute for achieving Stage 3 maturity requires the DEA establish three core elements:

- 1) ensure that EA products describe or will describe the current and target agency environments, as well as the transition plan;
- 2) ensure that the current and target environments are described in terms of business, data, application, and technology; and
- 3) ensure that the business, data, application, and technology descriptions address or will address security.

Current and Target Architectures, and Transition Plan. According to the EA Program Plan, EA products will describe the current and target agency environments as well as the transition plan. As stated earlier, the DEA has not completed all components of the EA. However, it has completed a high-level description of its existing architecture and has plans to complete the target architecture and transition plan by September 2004.

The EA Program Plan also states that EA products – current and target architectures and the transition plan – will be described in terms of business, data, application, and technology. To show its commitment to the plans outlined in the EA Program Plan, the DEA's

high-level description of the existing architecture was described in terms of business, data, application, and technology.

Security. In the EA Program Plan, the DEA stated that security would be addressed as a specific layer within the target architecture.

Critical Attribute 4: Verifies Satisfaction of Commitment

The completion of the fourth critical attribute to achieve Stage 3 maturity requires the DEA to establish the following core element:

- 1) ensure that progress against EA plans is measured and reported.

As stated in Stage 2, the DEA has not established metrics for measuring EA progress. The measurement of such progress against EA development plans is necessary to ensure that the development meets targeted milestones.

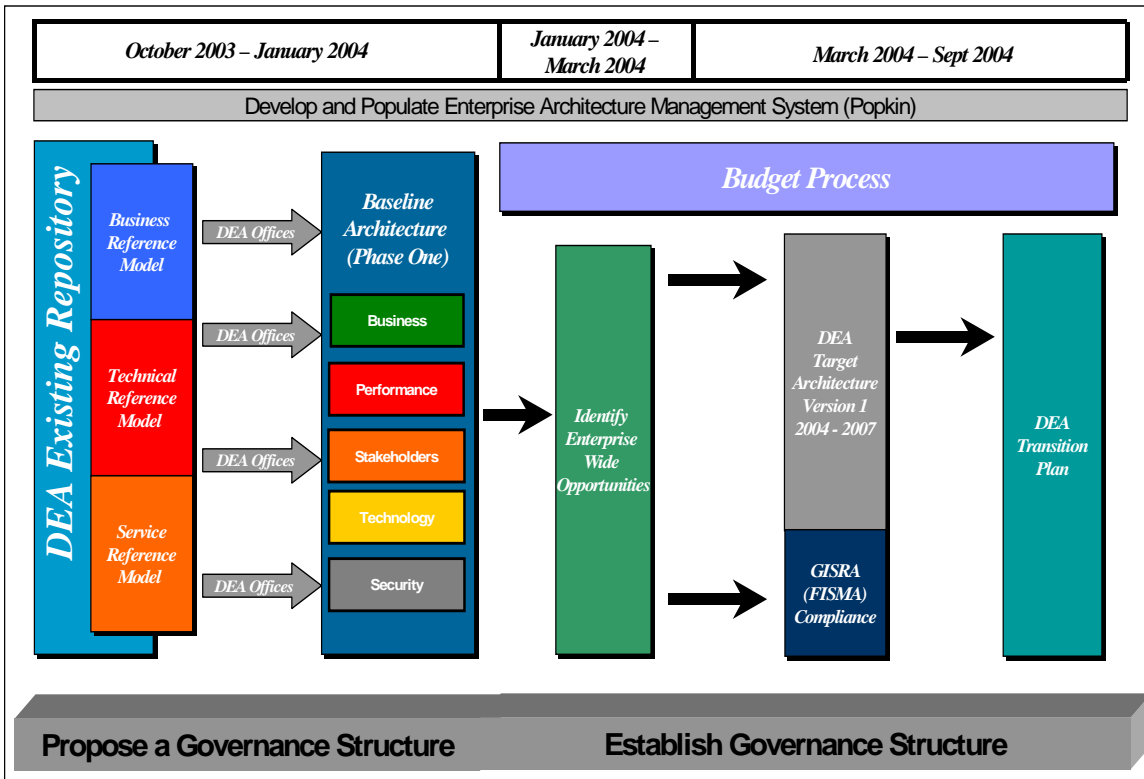
EA Stage 3 Summary

The DEA has made limited progress toward attaining Stage 3 maturity of the EA Management Framework. The DEA has developed one EA product, the high-level current architecture. The high-level current architecture meets the requirements of the EA Management Framework in terms of the business, data, application, and technology areas. However, the DEA lacks a written and approved policy for EA development, implementation, and maintenance. In addition, the DEA must ensure that when completed, all EA products undergo configuration management and that the target architecture addresses security as outlined in the EA program plan.

Attaining Stage 4 Maturity

To complete Stage 4, an agency must: 1) establish policy for maintaining the EA, and 2) complete the EA including the current and target architectures along with the transition plan to get from the current to the targeted environments. The completed EA must be described in terms of business, data, application, and technology; and the descriptions must address security and be approved by the agency CIO and the committee or group representing the agency or the investment review board. The DEA has not established a formal written organization policy for maintaining the EA. However, the document creating the EA Program Management Office outlines the procedures for maintaining the EA.

To attain Stage 4 maturity, additional work must be completed before the EA is used as intended – to drive sound IT investments that are consistent with the DEA’s goals and missions. Currently, the DEA is working on adding more detail to the high-level description of its EA and developing the target architecture. The following chart shows the DEA’s timeline for completing its EA by September 2004.



Source: The Drug Enforcement Administration.

Target Architecture

The DEA’s target architecture will define the vision of the DEA’s future business operations and supporting technology and will also describe the desired capability and structure of the business processes, information needs, and IT infrastructure at some point in the future. Just as the current architecture captured the existing business practices, functionality, and information flows, the target architecture will reflect what the DEA needs to evolve its information resources.

The target architecture, when completed, will identify the:

- strategic business objectives of the DEA,
- information needed to support the business,

- applications needed to provide the information, and
- technology needed to support the applications.

According to the CIO Council, a target architecture should:

- reflect the EA team's judgment about the future uses and characteristics of information within the agency,
- reflect the organization's business area review requirements for identifying opportunities to automate aspects of work,
- incorporate technology forecasts,
- specify the level of interoperability needed between data sources and the users of the data,
- identify the IT needed to support the agency's objective as stated in the IT Strategic Plan, and
- reflect concerns with the budget and geographical locations.

The DEA's Chief Architect told us that the development of a target architecture is the most time-consuming and costly portion of the EA development. However, a target architecture is necessary to evaluate whether current IT investments are capable of taking the DEA into the technology future.

Transition Plan

According to the CIO Council, the process of evolving from an existing architecture to a target architecture is complex and requires multiple inter-related activities. The best way to understand and control such a complex process is to develop and maintain a systems migration roadmap, or transition plan.

A transition plan provides a step-by-step process for moving from a current architecture to a target architecture. Such a plan is the primary tool used for program management and investment decisions because the plan represents the current environment as well as any development programs that are planned or underway. To remain current and to support continued coordinated improvements across an agency, a transition plan should be maintained and updated as time and circumstances dictate.

In addition to specific development requirements for the new components in a target architecture, a transition plan should consider including a wide variety of inputs such as:

- sustaining operations during a transition,
- the existing technical assets and contractual agreements,
- anticipated management and organizational changes,
- business goals and operational priorities, and
- budgetary priorities and constraints.

A transition plan defines and differentiates between legacy, migration, and new systems. The legacy systems and their applications are those in current operation and usually are phased out during the deployment of a target architecture. Migration systems and applications may be in current operation, but certainly will be in operation when the transition begins and for some time into the future. New systems and applications are those that are being acquired, are under development, or are being deployed. The new systems and applications are expected to be operational as part of the target environment.

A transition plan should form the basis for the DEA's annual IT capital investment plan, which is a key ITIM component. Until the DEA develops a transition plan, there is a risk that it may invest in technology that does not meet the DEA's missions and goals.

EA Stage 4 Summary

To complete its EA, the DEA must develop the target architecture and a transition plan to allow the EA to do as intended – to drive IT investments.

Attaining Stage 5 Maturity

According to the EA Management Framework, an organization at Stage 5 maturity has: 1) completed the EA, and 2) secured senior leadership approval of it. In addition, at Stage 5 decision-makers are using the architecture to identify and address ongoing and proposed IT investments that are conflicting, overlapping, not strategically linked, or redundant. Thus, Stage 5 agencies are able to avoid unwarranted overlap across investments and ensure maximum systems

interoperability, which in turn ensures the selection and funding of IT investments with manageable risks and returns. In essence, an agency at Stage 5 maturity is using the EA as intended – to drive IT investments and ensure systems interoperability.

EA Stage 5 Summary

The DEA cannot meet Stage-5 requirements of the EA Management Framework until it completes the EA.

Conclusion

The DEA continues to make progress toward completing an EA in accordance with available guidance and frameworks and has begun to effectively manage its EA with the aspects completed to date. As of April 2004, the DEA had completed nearly 90 percent of the EA Management Framework criteria for meeting the Stage 2 level of maturity. The DEA has completed eight of the nine core elements for Stage 2 required by the EA Management Framework and thereby has achieved three of the four critical attributes.

The DEA has demonstrated its commitment to complete the EA by: 1) obtaining senior management buy-in through the EA governing committees; 2) reorganizing its Office of Information Technology Systems to include an office focused on the development, implementation, and maintenance of the EA; and 3) appointing a Chief Architect to ensure the integrity of the EA development process, and by selecting a framework, methodology, and automated tool to aid in completing the EA.

The DEA has made limited progress toward attaining Stage 3 maturity of the EA Management Framework. The DEA has developed one EA product, the high-level current architecture, which meets the requirements of the EA Management Framework in terms of the business, data, application, and technology areas.

In September 2002, the DEA documented a high-level description of its “as is,” or current, EA using DEA personnel who were assisted by a contractor. The development of the current EA is required to achieve Stage 3 of the EA Management Framework. The high-level current EA provided the DEA with descriptions of its business processes, applications used to carry them out, data used in accomplishing them, technology used in implementing them, and stakeholders affected by them.

However, the high-level "as is" EA lacked the detail necessary for the DEA to progress to a "to be," or target architecture. In April 2004, the contractor added the necessary detail, and the DEA accepted the product after reviewing it to ensure consistency with the Federal Enterprise Architecture Framework.

To attain Stage 3 maturity, the DEA must establish a written and approved policy for EA development, implementation, and maintenance, and ensure that EA products undergo configuration management. In addition, the DEA must ensure that the target architecture addresses security as outlined in the EA program plan.

To attain Stage 4 and 5 levels of maturity as described by EA Management Framework, the DEA must complete and begin implementing the EA. To build on its accomplishments, the DEA needs to press forward with completing its target architecture and transition plan. Without those plans, the DEA cannot ensure that technology proposals will meet future IT requirements.

Recommendations:

We recommend that the DEA:

1. apply metrics to measure EA progress, quality, compliance, and return on investment;
2. establish an organization policy for EA development and maintenance that meets the requirements of the EA Management Framework;
3. ensure that the completed EA undergoes configuration management;
4. ensure that the target architecture addresses security as outlined in the EA Program Plan; and
5. complete and implement the remaining EA stages to ensure that IT investments are not duplicative, are well-integrated, are cost effective, and support the DEA's mission.

Finding 2: Information Technology Investment Management

The DEA has improved the effectiveness of its IT investment management (ITIM) by advancing its level of maturity from Stage 1 to Stage 2 in the five-stage ITIM Framework.²² The DEA has created an awareness of the importance of an IT investment process and has instituted the processes necessary to build an IT investment foundation. The DEA has also established investment boards to ensure that policies for selecting, controlling, and evaluating IT investments are developed and consistently followed throughout the organization. The DEA also has completed about one-third of Stage 3 required by the ITIM Framework, including documenting policies and procedures for creating and modifying IT portfolio selection criteria and ensuring that the investment board has approved the IT portfolio selection criteria. In addition, the DEA has implemented the select phase of the ITIM process and has plans to implement the control and evaluate phases in 2004. By advancing to Stage 2 of the ITIM Framework, the DEA has begun to mitigate the risk of basing its IT decisions on judgment, intuition, and partial data rather than on objective, systematic, IT-related information that is routinely collected and analyzed within the ITIM process. Institutionalizing the entire ITIM process will further reduce such risks to the DEA.

Synopsis of the Five Stages of the ITIM Process

To implement the five stages of the ITIM process, the DEA must also complete five core elements for each critical process listed below. The five core elements are: 1) purpose, 2) organizational commitment, 3) prerequisites, 4) activities, and 5) evidence of performance. With the exception of the "purpose" core element, each of the other core elements also contain key practices, which are the attributes and activities that contribute most to the effective implementation and institutionalization of a critical process.²³

²² In Stage 1 an organization has created an IT investment awareness by characterizing its IT investment process through unstructured processes. In Stage 2 an organization builds the foundation for current and future investment success by establishing basic IT selection and control processes.

²³ See Appendix 9 for a table showing DEA's progress through Stage 3 of the ITIM Framework.

Stage 1. To complete this stage, the DEA needs to create investment awareness, using the following critical process: using a disciplined investment process for IT spending. The DEA has created an IT investment awareness within the agency.

Stage 2. The second stage – building the investment foundation needs – consists of the following critical processes within the ITIM Framework: instituting the investment board, meeting business needs, selecting an investment, providing investment oversight, and capturing investment information. The DEA has completed the stage entirely.

Stage 3. Developing a complete investment portfolio is the objective of this stage. Critical processes include: defining the portfolio criteria, creating the portfolio, evaluating the portfolio, and conducting post- implementation reviews. The DEA has made progress in completing this stage.

Stage 4. This stage consists of improving the investment process and uses the following critical processes: improve the portfolio's performance and manage the succession of information systems. As the DEA's selection and control processes mature, the DEA will begin focusing on improving the established evaluation processes for this stage.

Stage 5. Leveraging IT for strategic outcomes is the final stage in the ITIM maturity process. The critical processes for this stage are: optimizing the investment process and using IT to drive strategic business change. The DEA will attain Stage 5 maturity when its selection, control, and evaluation processes operate together to produce IT outcomes. The status of the DEA's ITIM stages follows.

Stage 2 Completed

The DEA has attained a basic ITIM capability (Stage-2 maturity) to establish the foundation for effective and replicable IT project-level investment selection and control processes. Selection processes ensure that the DEA has an effective methodology for approving only those IT projects that are consistent with its needs and goals. Effective control processes ensure that deviations from cost and schedule baselines can be identified quickly.

Critical Process #1: Instituting the Investment Boards

According to the ITIM Framework, the purpose of investment boards is to ensure that basic policies for selecting, controlling, and evaluating IT investments are developed, institutionalized, and consistently followed throughout the organization. Depending on its size, structure, and culture, an organization may have more than one IT investment review board. The organization may choose to make the same board responsible for executive guidance and support for the EA. Such an overlap of responsibilities may enhance the ability of the boards to ensure that investment decisions are consistent with the EA and that the EA reflects the needs of the organization.

In establishing three agencywide IT Investment Boards – the Executive Review Board, the Business Council, and the Compliance Council – the DEA implemented the following key practices as stated in the ITIM Framework:

- established and appointed members to agencywide IT investment boards responsible for defining and implementing the DEA's IT investment process,
- established an IT investment process for directing the investment boards' operations,
- provided resources to support the operations of the IT boards,
- ensured that the boards' members understand the organization's ITIM policies and the procedures used in the decision-making process,
- ensured that the boards' spans of authority and responsibilities were defined to minimize overlaps or gaps,
- ensured that the agencywide investment boards have oversight responsibilities for the development and maintenance of the organization's documented IT investment process,
- ensured that the investment boards operate in accordance with assigned authority and responsibility, and
- established management controls to ensure that the investment boards' decisions are carried out.

Investment Boards. The DEA has established three IT investment boards: 1) the Executive Review Board, 2) the Business Council, and 3) the Compliance Council. These three boards are also responsible for executive guidance and support for the EA. The boards' EA responsibilities are discussed in detail in Finding 1 of this report.

The Executive Review Board's primary responsibility is to provide leadership to enable the implementation of a managed information technology, capital planning, and investment control process. The Executive Review Board also recommends the continuation, modification, or termination of funding for IT projects. The DEA's Chief Information Officer and Chief Financial Officer jointly chair the Executive Review Board. Additional members of the board include three DEA Assistant Administrators, the Chief Counsel, the Chief Inspector, the Chief of the Office of Congressional and Public Affairs, and two Special Agents in Charge.²⁴

The Business Council's primary responsibility is to ensure that recommended projects and investments are consistent with the DEA mission, strategic plan, capital planning goals, EA, and security policy. Business Council members function as working-level experts for the ITIM process by providing business expertise specific to the business units that each member represents. The Deputy Assistant Administrator of the Office of Information Systems chairs the Business Council, and the members are GS-15 level staff members from every organizational unit within the DEA.

The Compliance Council is responsible for evaluating IT investments to ensure compliance with legislative regulations and DEA policy. The Chief of the Strategic Business Analysis Group, Office of Information Systems, chairs the Compliance Council. The Compliance Council's members include individuals whose day-to-day responsibilities involve a compliance area. The members of the Compliance Council work to ensure compliance with such areas as the Federal Enterprise Architecture, the Government Performance and Results Act, and the Government Information Security Reform Act.

IT Investment Process. The DEA's IT Investment Process Guide and Transition Plan (Investment Guide), dated December 2001, documents the agency's IT investment process. The Investment Plan contains all the elements prescribed by the ITIM Framework including:

²⁴ The Assistant Administrators are from the Office of Diversion, Human Resources Division, and the Intelligence Division.

- a description of the roles of the key people within the DEA investment process,
- an outline of the significant events and decision points within the process,
- an identification of the external and environmental factors that influence the process, and
- the manner in which the IT investment process will be coordinated with the annual budget cycle.

Adequate Resources. According to the ITIM Framework, executive management is typically responsible for creating investment boards, defining their scope and resources, and specifying their membership. Establishing an investment management working group can benefit both the investment boards and IT project managers by coordinating requests for information providing responses.

The Chief of the DEA's Strategic Business Analysis Section told us that the DEA has secured the necessary resources, including staff and funding, to support the operations of the three investment boards. Top management support for the operation of the investment boards is demonstrated by the assignment of senior DEA personnel to the Executive Review Board and the Business Council. In addition, the DEA has established an ITIM Management Group within the Strategic Business Analysis Section of the Office of Information Systems. The Management Group provides support, advice, and guidance on carrying out the ITIM process. The Management Group facilitates access to IT experts. The Management Group operates as an investment management center staffed with DEA and contractor personnel. The Management Group is responsible for providing the DEA Administrator, CIO, CFO, and senior leadership with the necessary analytical and project management information for making key budget, financial, and program management decisions affecting the future use of IT in the DEA. The Management Group is also responsible for overseeing the movement of investment proposals through the ITIM process, including providing assistance to project managers.

Competence. According to the ITIM Framework, to ensure the success of an IT investment program, members of investment boards should be familiar with the boards' policies and procedures and be capable of carrying out their responsibilities competently. Training should be provided for members who have had little or no investment

decision-making experience or relevant education. For example, training could be provided in economic evaluation techniques, capital budgeting methods, performance measurement strategies, and risk management approaches.

As described in a DEA self-assessment, the members of the three investment boards are qualified to make strategic decisions regarding IT investments.²⁵ The DEA's CIO, who is responsible for establishing the IT investment process, chairs the Executive Review Board. The CIO has extensive experience in IT management. Additionally, the Business Council members are key line managers who are knowledgeable about business requirements in their respective areas of responsibility.

Further, the Management Group assists project and program managers in preparing clear, concise summaries of their investment proposals for presentation to the Business Council. According to the Chief of the Strategic Business Analysis Section, for major investments, the Management Group provides guidance on scoring various investment elements and instructs the Business Council on how to complete a scoring worksheet.²⁶

The Chief of the Strategic Business Analysis Section told us that the DEA recognizes the importance of periodic training for board members and program managers. For example, in April 2003 before the FY 2005 budget cycle, the DEA CIO issued a memorandum encouraging the executive staff and anyone involved with IT investments to attend one of two training seminars taught by an OMB IT investment expert. The training focused on the IT capital planning process and the development of IT business cases as presented in the OMB Exhibit 300, which shows the proposed cost, schedule, and performance goals for the investment.

Additionally, the DEA partnered with the Department's Office of the Chief Information Officer (OCIO) to arrange another training session on IT investments in May 2003. The training focused on obtaining a five score in the OMB scoring of Exhibit 300 investments.²⁷

²⁵ The self-assessment is a document the agency uses to assess its IT investment management activities in accordance with the Framework.

²⁶ The DEA uses a scoring method to rank investment proposals based on how each proposal supports the DEA mission. The investment proposal score ranges from zero to 10.

²⁷ The OMB scores IT investments on a scale of one to five, with one being the lowest score and five being the highest.

The DEA obtained the highest score of 5 for 2 of the 11 IT investment proposals scored by the OMB. Further, 5 of the 11 IT investment proposals obtained a score of 4. An OCIO budget analyst told us that the two perfect scores were the only perfect scores for the Department in the FY 2005 budget cycle.

Avoiding Duplication or Gaps. According to the ITIM Framework, the existence of multiple boards to govern the agency's IT investment process requires that criteria governing the boards' authorities and responsibilities be defined in such a way that there are neither overlaps nor gaps in the assigned authorities and responsibilities. The criteria governing the boards' authorities and responsibilities can be based on: cost, benefit, schedule, and risk thresholds; the number of users affected; the function of the business unit; the lifecycle phase of an IT investment; or other comparable and useful measures.

To ensure that no overlaps or gaps exist within the scope of the boards' authorities and responsibilities, the DEA has created a hierarchical approach to the operation of the investment boards. Before the boards become involved in the ITIM process, the Management Group works closely with the project and program managers to ensure the completeness of the IT investment proposals and to monitor the performance of the investments after funding. The proposals are forwarded to the Business Council for review and scoring based on the DEA mission and goals. Based on the results of the Business Council's review, recommendations are made to the Executive Review Board on the IT projects for which funding has been requested. The Executive Review Board evaluates the recommendations to ensure that the DEA's mission and goals are being met through the proposed investment and then makes final recommendations to the DEA Administrator. In reviewing the boards' minutes we noted that the boards discussed and scored proposals and made recommendations.

Oversight Responsibilities. According to the ITIM Framework, the agencywide IT investment boards should be responsible for developing an agency-specific IT investment guide to ensure that technological resources are linked to the agency's mission and IT strategic plan. The boards' work processes and decision-making processes are described and documented in the guidance. Additionally, after the guidance has been developed, the investment boards must actively maintain the guidance, making sure that it reflects the current structure and processes used to manage the selection, control, and evaluation of the organization's IT investments.

The DEA documented its IT investment processes in its December 2001 *Investment Guide*. Since the investment boards were not in existence at the time, the DEA formed a temporary working group consisting of representatives at the management and executive levels to develop the *Investment Guide*. The Executive Review Board's charter states that the Executive Review Board must approve all changes to the *Investment Guide*. Due to the importance of the *Investment Guide* to the ITIM process, the mandatory approval of any changes to the *Investment Guide* demonstrates one of the Executive Review Board's key oversight responsibilities.

Controls. According to the ITIM Framework, establishing effective controls helps ensure that management will carry out IT investment boards' decisions. Without management controls, decisions made by investment boards might not be implemented because of conflicting priorities of the boards' members. To ensure the effectiveness of management controls, the relationship between upper management and the investment boards must be documented and agreed to by both parties. The investment boards must have the confidence of upper management when deciding on new proposals and funding for ongoing projects.

The *DEA Investment Guide* identifies the key DEA players in the ITIM process as follows: the Administrator, CIO, CFO, other senior executives who sit on both the Business Council and the Executive Review Board, and the Management Group. By including such high-ranking officials as the key players to manage the ITIM process, the DEA has, in essence, established controls and oversight to ensure that the boards' decisions are carried out. Because the investment boards have been in operation for only one cycle of the select phase, we were unable to evaluate the boards' effectiveness.

Critical Process #2: Identifying Business Needs for IT Projects

According to the ITIM Framework, an agency needs to develop a process to identify the business needs supported by the proposed IT investment. IT projects and systems should be closely aligned with the business needs of the agency to support the highly visible core business processes. To the extent that an agency has planning documents – such as a strategic plan or target architecture – these documents should be used as a source of agreed-upon business needs.

The identification of business needs is important to ensure that IT projects and systems support the agency's strategic plan objectives and business goals and objectives. In addition, the agency's

investment management process is strengthened and institutionalized by linking the agency's business objectives to its IT strategy and establishing a partnership between the sponsoring unit and the provider of the technology.

To ensure that business needs are identified for IT projects, the DEA implemented the following key practices in accordance with the ITIM Framework:

- documented policies and procedures for identifying IT projects or systems that support the DEA's ongoing and future business needs,
- documented the business mission with stated agency goals and objectives,
- provided resources for the identification of IT projects and systems,
- defined and documented business needs for both proposed and ongoing IT projects and systems,
- identified specific users and other beneficiaries of IT projects and systems,
- ensured user participation in project management throughout an IT project or system's life cycle, and
- ensured that the investment boards periodically evaluated the consistency of IT projects with the DEA's strategic goals and objectives.

Policies and Procedures. The ITIM Framework states that an agency should have policies and procedures that outline a systematic process for identifying, classifying, and organizing its business needs and the IT projects that support these needs. In many cases, the policies and procedures can be covered in the internal guidance used for documenting the business case for a proposed IT investment.

In its *Investment Guide*, the DEA has documented its process for identifying business needs for proposed IT investments. According to the *Guide*, program managers submit proposals to the Business Council and the Executive Review Board for consideration. Each IT proposal must identify which business need is served by the proposed IT project. The proposal must also state tangible and measurable

mission benefits. The DEA has standardized the presentation of an IT proposal to the Business Council by creating a template that must be used by program managers, and also has incorporated the identification of the business needs that are to be supported by the IT proposal as one of the categories within the template.

Further, after the Business Council and the Executive Review Board review the proposal and make a determination to pursue the proposal, the project manager prepares the OMB Exhibit 300. In preparing the Exhibit 300, the project manager must also identify the business needs being met by the proposal. In standardizing the proposal presentation and in completing the Exhibit 300, the DEA has helped ensure that the business needs for each IT proposal will be identified.

Business Mission. According to the ITIM Framework, the business mission, containing the agency's stated goals and objectives, is typically identified in the agency's Strategic Plan.

The DEA incorporated its general business mission into the IT strategic plan, and according to that plan the DEA's IT mission is to strengthen the IT environment to meet future challenges for drug enforcement, terrorism, and electronic government. To accomplish its IT mission, the DEA will modernize obsolete infrastructure platforms, expand secure information sharing capabilities, re-engineer business processes, and implement management practices that better support IT management.

Identifying Business Needs. To demonstrate managerial attention to the process of ensuring that business needs are identified for each project, the DEA has tasked the Office of Information Systems with the responsibility to ensure that IT projects and systems identify the organization's business needs. Each unit within the office has a manager and is staffed to support its respective function. In addition, the DEA hires contractors to help staff some of its units within the office. Further, the office periodically updates an inventory of systems to identify current IT projects, which states the system acronym, name, and description. The office also maps each system to a specific function. The office and the Property Custodian Assistants maintain the DEA's technical hardware inventory, which lists the component, hardware description, and software applications and licenses.

According to the DEA, the program managers are considered sponsors of IT investments because they are responsible for the submission of IT concept proposals to the Business Council. As

sponsors, each program manager ensures IT investment compatibility with the general DEA IT mission.

The Management Group provides staff support to project managers during the concept proposal phase of an IT project. Specifically, this assistance seeks to link the business objectives of each IT proposal with the business needs of the organization. To support the process as outlined in the *Investment Guide*, the Management Group provides concept proposal and business plan training for program managers. The DEA also hosts Project Management Institute seminars to train program managers on how to identify business needs. Additionally, the DEA provides training in the Rational Unified Process tool, which provides project guidance to program managers. The Rational Unified Process is a flexible software development process program that enables an agency to provide consistent process guidance to a project management team. The DEA is using the Rational Unified Process in most organizational units to implement replicable and organized processes.

Documenting Business Needs. According to the ITIM Framework, each agency must ensure that its IT projects are directly or indirectly linked to at least one of the organization's business needs or mission goals. A direct link is of greater value than an indirect link. Identifying the business purpose, defining an executive sponsor of each project, or obtaining confirmation from users that the project meets their business needs can establish a direct link.

The business needs for both proposed and ongoing IT investments within the DEA are defined and documented in the OMB Exhibit 300 for each investment. The business plans submitted by the program managers contain goals for each project that map back to the goals listed in the DEA strategic plan.

The *DEA Investment Guide* states that the Business Council is to evaluate whether the proposal meets the agency's business needs. We reviewed minutes from the Business Council's meetings and determined that the Business Council ranks proposals according to how the proposal supports the business mission of the DEA. Even though the business purpose for each project is determined as part of the proposal phase of the project, ongoing investments undergo further evaluation during the annual budget process. The evaluation consists of: 1) the program manager submitting monthly reports to the Management Group for review and forwarding the reports to the appropriate boards for further review, and 2) the Business Council and

the Executive Review Board reviewing the monthly reports to determine if the investment still supports mission-related functions.

Specific User Identification. The ITIM Framework states that IT projects may address the needs of multiple sets of end-users, who will benefit from the system. The agency should formally identify the primary end-users early on in the project. This process allows the IT staff to develop IT projects or systems focusing on specific, well-defined goals of delivering value to its end-users, who depend directly on the IT staff to produce systems that will help them accomplish their particular goals.

The DEA maintains a listing of all potential end-users for all IT projects and systems. This listing is also a part of the DEA EA. Additionally, during the “select” component of the capital planning and investment control process (discussed in the Background section of this report), end-users for each IT investment are identified in the Business Plan and the OMB Exhibit 300 for major IT investments.

End-users’ Participation. The ITIM Framework points out that end-user involvement will vary during the different stages of a project’s system life-cycle. During the project’s conception, end-users should be heavily involved in developing the business case and in defining how the system will help to meet needs or opportunities. The end-user should be heavily involved during user acceptance testing. However, during other phases of development, the end-user should play a more limited role.

During the final phases of the system’s life-cycle, especially the operational phase, the end-user should play a major role in helping to identify and document any benefits that are realized from the system’s implementation. End-users are encouraged to participate in the operational analysis of the system, which should involve collecting information about the system’s performance and comparing it with the initial performance baseline.

During the control phase, each project follows the DEA System-Development Life Cycle. The DEA uses the System-Development Life Cycle to ensure a uniform development process. During this phase, project managers prepare a Project Management Plan (PMP) for each IT investment. The PMP serves as an agreement between the end-user and the development team during the construction of the IT system. Specifically, PMPs outline:

- the problem to be solved,
- the proposed solution to the problem,
- the integrated project team,
- the project timeline, and
- the expectations of both the development team and the end-users of the project.

The PMP also includes a work breakdown structure that establishes baseline deliverables and performance milestones. Additionally, the PMP milestones require program managers to provide documentation on project activities to the end-users as the project progresses through the System-Development Life Cycle. And the project's complexity dictates the amount of System-Development Life Cycle documentation required. The DEA utilizes the Rational Unified Process to track the project through the System-Development Life Cycle. The Rational Unified Process consists of four progress stages: 1) inception, 2) elaboration, 3) construction, and 4) transition. The DEA self-assessment states that the DEA uses a Field Advisory Council to determine if the product met end-user requirements within the field offices.²⁸ The Field Advisory Council gathers and provides information to the Office of Information Systems on the development and deployment of technical infrastructure.

Investment Boards' Evaluation. During the investment boards' evaluation, the boards assess the anticipated outcomes of a project or system, and its value in relation to defined expectations. The boards also determine whether and how well the IT project or system is meeting the agency's expectations. After deployment, the DEA measures the system's ability to continually meet a business or user need.

Using historical data, system expectations, and other factors as criteria, the investment boards evaluate each IT project to determine its value to the agency. The review cycle includes an evaluation of project risks. Periodic evaluation of each IT project permits the investment boards to determine the ongoing value of each IT investment. These periodic evaluations are critical to determining whether or not to continue funding the IT project.

²⁸ The Field Advisory Council consists of designated agent representatives from domestic and international field offices.

If an investment is found to be inconsistent with the organization's strategic goals and objectives, immediate action must be taken at the project level, with oversight provided by the investment boards, to realign the project or system. But even a successful system will eventually begin to provide diminishing returns as it becomes more expensive to maintain. In addition, changing business requirements also can make a system obsolete.

The evaluation phase of the DEA IT Process was not yet operational as of February 2004. Presently, the DEA is operating in the select phase of the IT process. According to the *DEA Investment Guide*, the evaluation phase of the ITIM process will be concerned with ensuring that each IT investment delivers expected results and mission benefits. When the evaluation phase is implemented, program managers will submit monthly reports to the ITIM Management Group, which will collect and maintain this information in an ongoing IT portfolio. The Business Council and the Executive Review Board will evaluate the investments contained within IT portfolio.

The Management Group Chief told us that the Business Council has initiated a review of current IT investments. The Chief added that individual project managers, in conjunction with their supervisors, perform an evaluative role regarding IT investments. Individual project managers have presented status reports about IT investments to the Business Council. Minutes of Business Council meetings showed that the Business Council ranked each investment and made recommendations to the Executive Review Board on project funding.

Critical Process #3: Selecting an Investment

According to the ITIM Framework, review or "reselection" of ongoing projects is a very important part of this critical process. If an IT project is not meeting the goals and objectives that were established in the original selection, the investment boards must make a decision on whether to continue to fund the project.

To satisfy this critical process, the DEA implemented the following key practices:

- documented policies and procedures for selecting new IT proposals, reselecting ongoing IT investments, and integrating funding with the process of selecting investments;
- ensured that resources exist for identifying and selecting IT projects and systems;

- established criteria for analyzing, prioritizing, and selecting new IT investment opportunities and reselecting IT investments;
- ensured that the above criteria reflect organizational objectives;
- ensured the use of the defined selection process, including criteria to select new IT investments and reselecting ongoing IT investments; and
- ensured that executives' funding decisions are aligned with selection decisions.

Policies and Procedures. According to the ITIM Framework, a structured method provides the organization's investment boards, business units, and IT developers with a common understanding of the process and cost, benefit, schedule, and risk criteria that will be used to select IT projects. Also, a documented selection process can help to ensure consistency when an organization is considering multiple investments for funding. Transparency in the process can help to create an environment that is objective, fair, and rational. Thus, potential investments will be judged solely on the merits of their contribution to the strategic goals of the organization without undue influence from outside the process.

The DEA has documented its IT investment selection criteria in the *Investment Guide*. A program manager prepares a concept proposal for review by the ITIM Management Group, which validates the concept proposal's format and provides a preliminary evaluation of the technical and business feasibility of the proposal. The concept proposal is then forwarded to the Business Council, which provides an independent review — in accordance with approved criteria — to ensure compliance with the DEA EA and to prevent duplication with ongoing development efforts. The criteria include evaluating risks, costs, and mission benefits based on the DEA's IT Strategic Plan and organizational priorities, consistency with the DEA EA, and compliance with security policy. The Business Council forwards its recommendations to the Executive Review Board, which evaluates and prioritizes the proposals to be forwarded to the DEA Administrator for approval and inclusion in the annual budgeting process.

During the budgeting process, the program managers prepare and submit OMB Exhibits 300, which include a feasibility study, project

plan, and preliminary budget estimate. Each Exhibit 300 is reviewed and evaluated by the ITIM Management Group, Business Council, and Executive Review Board. The projects are compared and rated on a color scale of red, yellow, or green. Red-rated investments are not accepted. Yellow-rated investments have received a “concerned approval” that may require additional information and close monitoring. Green-rated investments signify approval.

The DEA ITIM Management Group forwards an approved portfolio of proposed investments to the Department’s ITIM Management Group. The Department’s ITIM Management Group then consolidates the portfolio with those from other Departmental components and submits them to the Department’s Senior Management Council for decision, prior to forwarding the portfolio to OMB for review.

Further, the DEA uses the process described above to reselect ongoing IT investments. As noted above, the DEA has integrated the funding of investments into the selection process by allowing the selection process to occur simultaneously with the DEA annual budget process.

Adequate Resources. The ITIM Framework states that the resources for selecting IT projects typically involve:

- managerial time and attention to the process, including project sponsorship;
- staff support, including a designated official to manage the process; and
- support tools, methods, and equipment for organizing and analyzing IT proposals.

As the concept proposal author, a program manager becomes the sponsor of the proposed investment. As the sponsor, the program manager is responsible for ensuring IT investment compatibility with the DEA IT Strategic Plan.

Regarding staff support of investments, the DEA has in place an ITIM Management Group, which is responsible for designing, implementing, and operating the DEA ITIM process, including the IT investment selection process. The ITIM Management Group manages the process by: 1) validating IT proposal completeness, 2) monitoring

individual investment performance, and 3) supporting the Business Council and the Executive Review Board in evaluating the investments.

The DEA has described in its *Investment Guide* the tools, methods, and equipment to be used for selecting IT projects. The DEA uses standardized templates for the submission of IT proposals to the Business Council for review. The Business Council and the Executive Review Board use approved criteria to evaluate the IT proposals. The proposals are organized according to the ranking received from the Business Council and the Executive Review Board.

Pre-determined Criteria. According to the ITIM Framework, any decision-support process should be based on pre-determined criteria. In order to maintain consistency, the criteria should include quantitative or qualitative measures for comparing projects, based on such things as investment size, length of the project, technical difficulty, project risk, business impact, customer needs, cost-benefit analysis, organizational impact, and expected improvement. The results of the comparison help the investment boards analyze the potential risk and return on investment for a particular project and prioritize the portfolio using a scoring method that considers the strengths and weaknesses of each project.

The DEA ITIM Management Group has developed a scoring worksheet for use by the Business Council in evaluating each IT investment proposal based on relative factors. These factors include: 1) project management, including performance goals, risk management, security, and project planning and spending; 2) mission support and impact; and 3) appropriateness of funding. Program managers make presentations to the Business Council about the respective IT investments. During the presentation, the Business Council members complete scoring worksheets. The scoring worksheets are then combined, and the investments are prioritized based on the combined score that each investment received. The Business Council's scoring results are reported to the Executive Review Board, which makes the final investment decision. The DEA also uses the above criteria to reselect ongoing IT investments for continued funding.

Organizational Objectives. The ITIM Framework states that during project selection, decision-makers use various criteria to help assess a system's projected outcomes, resource allocations (e.g., people, funding, and tools), and benefits and costs. As organizational goals and objectives change and the criteria for selecting projects change with them, decision-makers need to have a

management structure and tools in place to help reassess their decision criteria and the impact of those criteria on decisions, results, and outcomes.

The DEA's ITIM Management Group is responsible for developing and maintaining the agency's IT Strategic Plan, which is updated annually. In addition, the ITIM Management Group develops the scoring worksheet used by the Business Council to prioritize the IT investments. According to the DEA self-assessment, the ITIM Management Group updates the scoring worksheet each year to reflect any changes in the IT Strategic Plan. This is necessary because one criterion for prioritizing an IT investment is whether or not the investment supports the DEA's mission and goals.

Selection Process. An organization must not only have a project selection process documented but must also use the process. The ITIM Framework states that the selection process should occur within the context of the organization's cyclical budgeting process. A designated official should manage the data submission and the screening activities associated with the selection process.

The DEA has completed one selection cycle of the ITIM process and as of March 2004 was in the process of completing the second cycle for the FY 2006 budget year. We reviewed the minutes of the Business Council to determine if the DEA was actually using its prescribed selection process. According to the minutes, the program managers made presentations to the Business Council, which were ranked and prioritized based on how the projects met mission goals and objectives. The Business Council's decision was forwarded to the Executive Review Board for further evaluation and a funding recommendation.

Funding Decisions vs. Selection Decisions. According to the ITIM Framework, an organization's executives have discretion in making the final funding decisions on IT proposals. However, their decisions should be based on the analysis that has taken place during the selection process. Additionally, there should be evidence that some proposals are judged less meritorious than others and thus do not get funded as part of the decision-making process.

As stated earlier, the Business Council prioritizes the IT investment proposals based on its review and evaluation of each proposal. The Business Council recommendations are then sent to the Executive Review Board for further evaluation and recommendation to the DEA Administrator for funding. In a memorandum dated

May 23, 2002, the DEA Administrator stated that all funding for DEA IT investments would be based on the Executive Review Board's decisions.

Conclusion. The DEA has completed the steps necessary to establish an IT investment selection process. The DEA has: 1) defined a method for selecting new IT projects and to reselect ongoing IT investments for funding, 2) documented a project selection process and is using it, and 3) laid the foundation to implement the mature critical processes for making IT proposals and selecting projects as described in Stage 3 of the ITIM Framework.

Critical Process #4: Providing Investment Oversight

The purpose of this critical process is to ensure that an organization provides effective oversight for its IT projects throughout all phases of a project's life cycle. While the investment boards should not micromanage each project, they should maintain adequate oversight and observe each project's performance and progress toward defined cost and schedule expectations. The investment boards should expect that each project development team will be responsible for meeting project milestones within the expected cost parameters that have been established by the project's business case and cost-benefit analysis.

To satisfy this critical process, the DEA must implement these key practices:

- document policies and procedures for oversight of IT projects and systems,
- provide resources for managing IT projects,
- ensure that project management plans are kept for IT projects and systems,
- provide actual performance data to the appropriate IT investment boards, and
- conduct performance reviews of IT projects and systems.

The DEA has implemented all five key practices.

Policies and Procedures. According to the ITIM Framework, an organization should establish policies and procedures for management

oversight of IT projects. The policies and procedures should specify: 1) the criteria to be used by the investment boards when evaluating project performance, and 2) that corrective action be taken when the project deviates or varies significantly from the project management plan.

The DEA has documented procedures specifically covering software project tracking and oversight. These procedures were developed as part of the Capability Maturity Model (CMM) process improvement initiative.²⁹ The procedures cover internal reviews by project managers, formal project management reviews, communication of commitments and changes to commitments, and senior management review of commitments and changes to commitments. The procedures are executed at the project level and operate within the ITIM process. They describe the roles of the project manager, development team, line management, and senior management within each process.

Project managers review the status of software projects with supervisors and customers to identify and resolve issues associated with the project. Project risks are identified for major IT investments and documented in OMB Exhibit 300. The Business Council and the Executive Review Board manage by exception and review only those projects that exhibit a 10-percent or greater cost or schedule variance as explained in OMB Circular A-11. The DEA coordinates application development projects and infrastructure projects to ensure that the infrastructure can support the development of new applications.

The *DEA Investment Guide* states that along with certain checkpoints in the System-Development Life Cycle, investments in the control phase are subject to periodic progress reviews to assess cost management, schedule variances, and realization of planned benefits. The scope and frequency of these reviews should be determined by the projects' cost, risk, and complexity. The information used for these reviews, such as expenditures and work completed, is collected monthly from the project manager.

Adequate Resources. The ITIM Framework states that an organization should provide the resources needed to oversee its IT projects and systems. These resources should include managers and staff who are assigned specific responsibilities for monitoring, and

²⁹ The Capability Maturity Model is an improvement framework used by an organization to judge the maturity of its software development processes. It also identifies the key practices required to help organizations increase the maturity of these processes.

tools – such as project summary reports on schedule and cost – to support the investment boards’ oversight operations.

The Management Group facilitates the ITIM process. The Management Group is staffed with a combination of government and contractor personnel providing the expertise necessary to ensure that investment boards are provided with sufficient information for executive level oversight. The Management Group prepares presentation templates for project managers, assists project managers in preparing materials for the ITIM boards, develops evaluation forms for the boards’ members, prepares boards’ minutes, and follows up on boards’ action items.

In addition, the Management Group coordinates with the Quality Management Unit on evaluation tools for earned-value and project reporting metrics.³⁰ The information generated from these evaluation tools is included in a status report for the ITIM boards’ oversight activities. The DEA is also using Microsoft Project to present the standard work breakdown for each project. As the project plans are updated with actual completion dates and costs, this information is included in the earned-value management tool. The Quality Management Unit also captures other project-performance metrics, and reports the data to the ITIM Management Group for use with the investment boards’ oversight processes.

Project Management Plans. The ITIM Framework states that each IT project management team should create and maintain a PMP for the project or system for which it is responsible. The PMP documents a variety of project decisions, assumptions, and expectations including project performance. Expectations could include a cost-and-schedule baseline-control system – such as the earned-value management system – milestone-based accomplishment expectations, or another control system depending on the project’s size, importance, cost, and risk.

The DEA has required each project to have a PMP that documents the purpose, scope, and background of the project; the project organization; and the management and technical approach. The PMP also contains the project schedule and funding information. A number of supplemental exhibits are included with the PMP, such as project-sizing and documentation requirements, project questionnaires, staff roles and responsibilities, the work-breakdown schedule, primary points of contacts, and a system-risk matrix.

³⁰ Earned-value is a management technique that measures the amount of planned work completed in relation to the funds expended.

Major IT investment plans are also summarized and reported in the Exhibit 300. The Exhibit 300 captures cost, schedule, and performance data along with earned-value, project assumptions, and risks. Further, the *DEA Investment Guide* states that after a project's concept proposal is approved, a business case must be developed for further consideration. A business case consists of a project plan, feasibility study, cost-benefit analysis, and concept of operations. These documents are all part of the PMP.

Actual Performance Data. For an organization to establish control of projects in Stage 2 of the ITIM Management Framework, it is essential that all performance data, including cost, schedule, benefits, risks, and system functionality for each IT project, are collected and disseminated to the appropriate IT investment boards. In addition, to monitor the long-term value of a project or system, the organization needs to collect and distribute this information to the appropriate IT investment boards during agreed-upon stages of the project's life cycle.

Currently, the DEA uses its project managers to collect and distribute cost and schedule data for individual projects. This information is provided to the investment boards through presentations at board meetings. Additionally, the project performance data is also captured in the Exhibit 300. The DEA is in the process of assessing earned-value management tools, one of which is to be selected and implemented during FY 2004. When implemented, the earned-value tool will provide additional project metrics that will be reported to the ITIM boards by the ITIM Management Group.

Performance Reviews. The ITIM Framework states that investment boards should oversee the performance of IT projects by conducting reviews at predetermined checkpoints or major milestones in order to compare actual project costs and schedules with the proposal.

During the control phase of the ITIM process, investments are to be subject to periodic progress reviews to assess cost management, schedule variance, and realization of planned benefits. Based on the information collected during these reviews, the ITIM Management Group is to determine which projects are at risk, and then follows up on those projects to identify the problem and the solution.

DEA investment boards activities are evolving and will include more activities during the control phase in 2004. We reviewed the

minutes of Business Council meetings in December 2003 and found that during the presentations for each project, program managers informed the Business Council of the status of their respective projects. As stated earlier, the investment boards conduct oversight responsibilities by exception, focusing on investments that show a 10-percent or greater variance in cost or schedule. The ITIM Management Group, in conjunction with the Quality Management Unit, collects and validates the information provided by project managers and presents the data to the investment boards for review.

Critical Process #5: Capturing Investment Information

During this critical process the organization identifies its IT assets and creates a comprehensive repository of investment information. This repository is used to track the organization's IT resources. For an organization to make good IT investment decisions, it must be able to acquire pertinent information about each investment and store that information in a retrievable format, to be used in making future investment decisions.

To complete this critical process, the DEA implemented three key practices:

- identified and collected specific information on IT projects and systems to support decisions about them,
- ensured that information collected is accessible and understandable to decision-makers, and
- provided a repository to be used by investment decision makers to support investment management.

Information Collection. The ITIM Framework suggests that a standard, documented procedure be used to ensure that developing and maintaining information on projects and systems is replicable and produces IT data that is timely, sufficient, complete, and comparable. The information may be prepared by the information systems support component of the organization and verified and validated by a designated official or another organizational unit.

The DEA Office of Information Systems inventories and accounts for the assets comprising the physical infrastructure, which includes workstations, servers, printers, storage devices, and telecommunication devices. The information collected includes the type of equipment and a unique identifier for the equipment, usually a

barcode, acquisition date, deployment date, and location. The DEA similarly maintains a software inventory. These two inventories became the foundation of two of the four EA components. The physical infrastructure is documented in the Application Architecture, and the software inventory is documented in the Technical Architecture. In addition, the DEA's OMB Exhibit 53, IT Investment Portfolio, shows the prior-year, current-year, and budget-year costs for developing and maintaining IT projects.³¹

According to the DEA self-assessment, the physical inventory and the financial data collected on IT projects are used not only for the management of the assets but also in the project planning process. For example, the information collected about the physical infrastructure deployed to each DEA field division is necessary to determine when and where the deployment of a new application will take place, especially if the new application requires an updated physical infrastructure. Business Council minutes documented that the Council uses information collected about the IT projects and systems to make decisions on whether to select, continue, or terminate a project.

Information Accessibility. According to the ITIM Framework, a repository of information about the IT investments is of value only to the extent that decision-makers and stakeholders use the information. Knowledge of the information contained in the repository by staff and managers throughout the organization can help to avoid duplication of effort and facilitate the reconciling of overlapping resources. For example, a report generated from the information contained in the repository can be used to better manage the licensing of an organization's application software by showing individually licensed applications that may be candidates for group licensing.

The DEA makes the IT system and project inventories available to the investment boards as necessary to allow the boards to view proposed investments in the context of similar initiatives. The inventory of systems is also submitted to the Department's CIO as part of the IT budget formulation process. The inventory then becomes the basis for reporting the DEA IT portfolio on OMB Exhibit 53.

As stated earlier, the inventory and financial data for the IT projects are provided to the Business Council for its review and for

³¹ OMB Exhibit 53 is a listing of an agency's entire IT investment portfolio. An agency is required to submit an Exhibit 53 to OMB if the agency's financial management budget is \$500,000 or more in any given year.

making funding recommendations to the Executive Review Board. The Business Council then provides the funding recommendations, along with supporting documentation, to the Executive Review Board, which reviews and makes decisions about the DEA's IT portfolio.

Maintaining the Information Repository. According to the ITIM Framework, informed investment decisions require up-to-date information. Maintaining the integrity of the information repository is important to ensure that the repository remains a useful decision-making tool. As projects and systems change through additions, updates, or deletions, the status of the projects and systems should be documented in the repository. An individual or organizational unit should be designated to maintain the repository.

According to the DEA's self-assessment, the IT inventory maintained as part of the DEA EA is crucial to future investment decisions. The knowledge of current assets – including capabilities, limitations, and expected lifespan – is an important part of any decision that affects the DEA investment portfolio. The ITIM Management Group is responsible for periodically updating the inventory based on DEA decisions about the agency's infrastructure and software configuration.

Our review of the DEA PMP determined that the DEA includes a change-control page to track all changes made to the project. We also found that the *DEA Investment Guide* requires that during the control phase, investments are subject to periodic progress reviews to assess cost management, schedule variance, and the realization of planned benefits.

ITIM Stage 2 Summary

The DEA has completed the ITIM Framework's critical processes necessary to build an IT investment foundation. The critical processes include: 1) establishment of investment boards, 2) identification of business needs for IT projects, 3) IT investment selection, 4) IT project oversight, and 5) IT system and project identification and tracking.

Stage 3 Not Yet Completed

Stage 3 of the ITIM Framework focuses on the investment boards' enhancement of the ITIM process by developing a complete investment portfolio. According to the ITIM Framework, having a portfolio perspective enables an organization to consider its

investments in a comprehensive manner. The portfolio perspective to IT investing is important in that it allows the investment boards to select investments that address not only the strategic goals, objectives, and mission of the organization, but also the effect that projects have on each other. To develop an IT investment portfolio, an organization combines all its IT assets, resources, and investments — considering new proposals along with previously funded investments — and identifying the appropriate mix of IT investments that best meets its mission, organizational, and technology needs, and priorities for improvements.

Stage 3 maturity requires the accomplishment of four critical processes; the DEA has not yet completed them. To attain Stage 3 maturity, the DEA needs to implement 27 key practices within the 4 critical processes. We found that as of February 2004, the DEA had completed 9 of the 27 key practices. However, the DEA has not completed all the key practices within any of the critical processes.

Critical Process #1: Defining the Portfolio Criteria

According to the ITIM Framework, portfolio selection criteria are a necessary part of an IT investment management process. Developing an IT investment portfolio involves defining appropriate IT investment cost, benefit, schedule, and risk criteria to ensure that the organization's strategic goals, objectives, and mission will be satisfied by the selected investments. Portfolio selection criteria reflect the strategic and enterprise-wide focus of the organization and build on the criteria that are used to select individual IT projects. The ITIM Framework states that IT projects are sometimes selected on the basis of an isolated business need, the type and availability of funds, or the receptivity of management to a project proposal. The portfolio selection criteria should be applied as uniformly as possible throughout the organization to ensure that decision-making is consistent and the processes become institutionalized. When an organization's mission or business needs and strategies change, the criteria should be re-examined.

To ensure that the IT investment portfolio criteria are defined, the DEA implemented the following key practices in accordance with the ITIM Framework:

- documents policies and procedures for creating and modifying IT portfolio selection criteria;

- assigns responsibility managing the development and modification of the IT portfolio selection criteria;
- ensures that the investment board approved the IT portfolio selection criteria based on the organization's mission, goals, strategies, and priorities;
- ensures that project managers and other stakeholders are aware of the portfolio selection criteria; and
- ensures that the investment board reviewed the IT portfolio selection criteria and modified the criteria as appropriate.

Policies and Procedures. The DEA uses DOJ Order 2880.1A and OMB Circular A-11 as the criteria for its IT portfolio selection. The Order and the Circular emphasize project performance and value added to the agency. DOJ Order 2880.1A provides criteria for selecting major IT investments and defines a major investment as any one that the Department's CIO determines requires special management attention because of its importance to an agency mission, political sensitivity, and high development and maintenance costs, regardless of whether such work is performed by government employees or contracted out. According to the Department's CIO, for an investment to be considered a major IT investment it must meet one of the following criteria:

- annual cost greater than \$10 million, or total life-cycle cost greater than \$50 million;
- any financial information system with an annual cost greater than \$500,000;
- any investment that is mandated for department-wide use;
- any investment that affects multiple Department of Justice organizational components;
- any investment required by law or designated by Congress as a budget "line item"; or
- any high-risk or politically sensitive investment, as determined by the Department's CIO.

OMB Circular A-11, Section 300, defines a major investment as one of the following: a system or investment that requires special

management attention because of its importance to an agency's mission, an investment that is directly linked to the top two layers of the Federal Enterprise Architecture (Services to Citizens and Mode of Delivery), or an investment that is an integral part of an agency's EA. All major investments are reported on Exhibit 53, which becomes one source, along with the EA and physical infrastructure, for the agency's investment portfolio. The use of DOJ Order 2880.1A and OMB Circular A-11 meet the ITIM Framework requirements for a portfolio selection criteria.

Criteria Development Responsibility. The ITIM Framework states that an individual or working group should be assigned the responsibility of developing IT portfolio selection criteria and for modifying the criteria as necessary. Individuals who are assigned the task of developing and modifying the criteria should have a working knowledge of investment management. Developing the right criteria with which to analyze a portfolio of projects is a critical component of making sound investment decisions.

The DEA ITIM Management Group is responsible for interpreting the above-mentioned criteria and facilitating the application of it. The criteria are documented in the *DEA Investment Guide* and incorporated in the scoring sheets used by the Business Council to rank the proposed investments. The DEA is ensuring that the Business Council uses the correct criteria for selecting portfolio investments by incorporating the criteria into the scoring sheets.

Portfolio Selection Criteria. According to the ITIM Framework, the criteria for selecting portfolio investments should be linked directly to the organization's broader mission, goals, strategies, and priorities. This ensures that the selected IT investments will support the larger organizational purposes. The Framework points out that the criteria should also take into account the organization's EA to: 1) avoid unwarranted overlap across investments, 2) ensure maximum system interoperability, and 3) increase the assurance that investments are consistent with the IT strategy as captured in the EA.

The selection criteria used for assessing and ranking individual investments and proposals should generally include four essential investment elements: cost, benefit, schedule, and risk. The assessment may also include other criteria to aid in evaluating relationships among investments. Organizations typically focus on these four elements and develop multiple measures under each broad element.

As stated earlier, the DEA uses DOJ Order 2880.1A and OMB Circular A-11, Section 300, as criteria for selecting portfolio investments. In addition, the DEA has established investment selection criteria within the *DEA Investment Guide*, which defines the core selection criteria that are based on DEA missions, goals, strategies, and priorities. The charters of the Executive Review Board and the Business Council reiterate these core criteria. The Executive Review Board's charter also grants authority to the Executive Review Board to approve changes to the DEA's ITIM process.

The Executive Review Board evaluates funding proposals based on uniform criteria to ensure that all investments meet at least minimum requirements. These criteria include evaluating risk, cost, and mission benefits. As stated previously in the Stage 2 section of this finding, the projects are compared against each other in a portfolio setting and rated on a color scale.

The Business Council's scoring sheet includes the following criteria for evaluating projects: performance goals, risk management, security, project planning and spending, mission support and impact, and cost. The scoring sheet covers the selection criteria elements as outlined in the ITIM Framework and the *DEA Investment Guide*. The DEA first used this scoring sheet to rank proposed IT investments in 2003 as part of the FY 2005 budget formulation process.

Selection Criteria Awareness. The ITIM Framework states that the criteria for selecting portfolio investments should be disseminated to each IT investment board and IT project managers, organizational planners, and any other interested parties. The selection criteria should be clearly addressed in funding submissions for IT projects.

The DEA program managers use a standardized template to complete the investment proposals. The selection criteria are embedded within the template to ensure that the program managers are not only aware of the criteria but also address them. Again, the Business Council's scoring worksheet used to rank all investments also contains the selection criteria. The Exhibit 300 prepared by the program managers also includes financial data, security, agency mission and strategic goals, and risk assessments.

Our review of the minutes of a December 2003 Business Council meeting showed that all 19 IT investment proposals were presented using the standardized template. For the FY 2005 budgetary process, the DEA prepared 15 Exhibits 300 for new and ongoing IT investments. Because the project managers used the standardized

template to submit project proposals, and the investment boards used both the Exhibits 300 and the scoring sheet to rank projects, we conclude that both project management personnel and the investment boards are aware of the portfolio selection criteria.

Selection Criteria Review. The criteria for selecting IT investments may be changed based on: 1) historical experience; 2) changes in the organization's strategic direction, business goals, or priorities; or 3) other factors, such as increased IT management capabilities or technological changes. Ultimately, however, the task of modifying the criteria will be based on the experience and judgment of the enterprise-wide investment boards.

According to the DEA self-assessment, the DEA Business Council uses its experience to rank investments within the framework of the portfolio selection criteria summarized in the scoring worksheet. The Executive Review Board has the authority to recommend and approve changes to the ITIM process, which includes the portfolio selection criteria. The Business Council has been in operation for only one budget cycle, and there have been no modifications to the criteria. The Chief of the ITIM Management Group told us that the DEA would begin implementing the control phase of the ITIM process in 2004.

Critical Process #2: Creating the Portfolio

The development of the IT investment portfolio is an ongoing process that includes decision-making, prioritization, review, realignment, and reprioritization of projects that are competing for resources and funding. The process for creating the portfolios should ensure that each IT investment board manages investments according to an organizational, strategic-planning perspective. The boards should collectively analyze and compare all investments and proposals to select those that best fit with the strategic business direction, needs, and priorities of the entire organization.

To implement the critical process of creating an IT investment portfolio, the DEA must establish six key practices. The DEA has completed two of the six key practices:

- established policies and procedures for analyzing, selecting, and maintaining the investment portfolio; and
- ensured that boards' members are knowledgeable about the process of creating a portfolio.

Policies, Procedures, and Processes. According to the ITIM Framework, each IT investment board should have policies and procedures in place to help it select the most promising proposals and to ensure that the most feasible investments are considered. These policies should include specific screening criteria to help identify and expedite the selections.

The DEA has documented the processes for selecting an investment portfolio in its *DEA Investment Guide*, which provides policies and procedures that supplement and support guidance from DOJ Order 2880.1A and OMB Circular A-11 regarding investment analysis. The *Investment Guide* contains detailed processes for analyzing, selecting and maintaining the investment portfolio. In addition, the DEA requires program managers to develop an Exhibit 300, as explained in OMB Circular A-11, for all projects to be submitted for final funding approval. The Exhibit 300 includes a description of the project and a justification describing the costs, project management, schedule, and risks.

Board Members' Knowledge. As stated previously, the DEA included the criteria within a scoring sheet format to be used by the Business Council in reviewing and selecting portfolio investments. In doing this, the DEA has ensured that the investment board is knowledgeable of the criteria to be used in selecting portfolio investments.

Uncompleted Key Practices. The DEA is working on, but has not yet implemented, the following four key practices:

- ensures that the investment boards are provided with information comparing actual project and system performance to expected performance;
- ensures that the IT investment boards examine the mix of new and ongoing investments and selects investments for funding;
- ensures that each investment board approves or modifies performance expectations for its selected IT investments; and
- ensures that information used to select, control, and evaluate the portfolio is captured and maintained for future reference.

As stated before, the DEA has detailed procedures for selecting, controlling, and evaluating portfolio investments. Through our review

of the supporting documentation given to us by the DEA and minutes of the Business Council's meetings, we conclude that the DEA is operating according to the procedures outlined for the selection of investments. However, because the Business Council has only been in operation for one budgetary cycle, we were unable to determine if the "control" and "evaluate" procedures have been implemented. The Chief of the Strategic Business and Analysis Management Group told us that the DEA would implement the control phase of the ITIM process during 2004.

We also found that the DEA has taken steps to ensure that information used to select, control, and evaluate the portfolio is captured and maintained for future reference. The DEA maintains the minutes and action items from investment board meetings electronically for retrieval at a later date. The DEA also uses an Information Technology Investment Portfolio System (ITIPS), which tracks the planning, acquisition, and operations of Automated Information Systems and IT investments. The ITIPS also complies with federal requirements such as the Government Performance and Results Act, the Paperwork Reduction Act, and the Clinger-Cohen Act. According to the DEA self-assessment, the DEA is assessing other tools to better capture the required information about IT investments.

The DEA's ability to effectively capture investment information on past and present IT decisions can translate into better decisions on IT investments during control phase activities, as well as during the evaluation and selection processes. As stated previously, without an effective system to capture IT investment information, the DEA may base IT decisions more on judgment, intuition, and partial data than on objective, systematic, IT-related information that is routinely collected and analyzed. The ITIM Framework states that IT information systems that deliver information that is up-to-date, encompassing, and presented in a useful format will enhance the decision process.

Critical Processes #3 and #4: Evaluating the Portfolio and Conducting Post Implementation Reviews

The two remaining critical processes within Stage 3 of the ITIM Framework involve evaluating the investment portfolio and performing post-implementation reviews on it. The DEA had not yet completed those critical processes as of February 2004.

As stated previously, the DEA has procedures in place for evaluating investments within the portfolio. However, no work has

been done to evaluate those investments. Although the DEA's ITIM process has been in operation for two fiscal years and one budgetary cycle, the agency has not yet advanced into the evaluation phase of the ITIM Framework. The DEA self-assessment stated that the DEA is beginning to implement a 10-percent threshold for cost and schedule variance to guide in evaluating IT portfolio performance.

To streamline the Business Council and the Executive Review Board's access to current information on the status of DEA IT investments, the DEA is working to implement the DOJ/CIO Dashboard to provide information on the status of IT projects.³² Once implemented, the Business Council, the Executive Review Board, and project managers may use the Dashboard to gain a quick reference to determine the cost, schedule, and risks for investments contained in the DEA IT portfolio.

In addition, the DEA has not provided formal training for investment boards members to ensure that boards' members are familiar with portfolio evaluation and improvement procedures. As stated previously, at the beginning of the meeting the DEA ITIM Management Group outlines for the Business Council the process to be used for IT investment review. In our judgment, a formal training session would enable the investment boards to become more familiar with the ranking categories and to understand what each category entails and how each category is important to the evaluation of each IT investment.

ITIM Stage 3 Summary

The DEA has completed 9 of 27 key practices necessary to attain Stage 3 maturity of the ITIM Framework. The agency has defined the policies and procedures to be used in the portfolio selection process, established responsibility for criteria development, and has made the investment boards aware of the established criteria. However, the DEA has not yet: 1) obtained and utilized a system to effectively capture investment information for projects, or 2) provided training to investment boards members on the evaluation criteria for IT investments.

³² The DOJ/CIO Dashboard is a Department database that provides the Department's CIO, component CIOs, and project managers with current status information on major and other highly visible IT systems in the Department's portfolio.

Attaining Stage 4 Maturity

According to the ITIM Framework, the primary focus of Stage 4 is to improve the overall performance of an agency's IT portfolio. To attain the Stage 4 level of maturity, an agency must implement two critical processes: 1) evaluate the performance of the portfolio and use the information gained from the evaluation to improve both current IT investment processes and the future performance of the investment portfolio, and 2) manage the succession of information systems by replacing low-value systems with higher-value systems.

The ITIM Framework states that an agency should know how well investments in information management and technology are contributing to improvements in mission performance. Improving the portfolio's performance is, at the level of the investment portfolio, the equivalent of Stage 3's post-implementation reviews for an investment. At Stage 4, an agency determines how well a portfolio of IT investments is: 1) helping to achieve the strategic needs of the enterprise, 2) satisfying the needs of business units and users with IT products and services, and 3) improving IT business performance for users and for the enterprise as a whole. To make these determinations, an agency's entire portfolio of investments should be compiled and analyzed, and investment trends examined. To perform the analysis of the entire portfolio, an agency may use the information compiled from the post-implementation reviews, the IT investment boards' experiences, and the results to date for major investments.

Also at Stage 4, the agency enhances its ability to forecast, plan, and manage the migration to new system investments. At this stage, the target EA and transition plan can be useful guides in evaluating which investments should be phased out and which ones the agency should retain. According to the ITIM Framework, Stage 4 maturity is significant because some IT investments can outlive their usefulness and yet consume resources that outweigh the IT investments' benefits to the agency.

The DEA stated in its self-assessment that it has not yet implemented any of the key practices for Stage 4 maturity. In addition, in order for the DEA to consider Stage 4 maturity it must implement all key practices in Stage 3.

Attaining Stage 5 Maturity

According to the ITIM Framework, at Stage 5 an agency is using its IT investment capabilities both to anticipate the effects of

next-generation information technologies and to significantly drive strategic business transformation. As an agency's capability to run effective management processes to constantly select, control, and evaluate IT investments matures, the agency can more effectively examine how best to institute major business transformations to better achieve its missions. These major business transformations will include fundamental changes to how the agency applies new information technologies to support changes in customer interaction and service delivery processes.

For the DEA to attain Stage 5 maturity it must: 1) attain Stage 4 maturity by implementing all key practices within Stages 3 and 4, 2) optimize the investment process by ensuring that best practices of other organizations are captured and incorporated into the DEA's IT investment process, and 3) use IT to strategically transform work processes and explore new and more effective ways of executing the DEA's mission.

Conclusion

The DEA is making progress toward implementing a process to effectively manage its IT investments. The DEA has attained Stage 2 of the five maturity stages outlined in the ITIM Framework by: 1) establishing IT investment boards and defining the membership, guiding policies, operations, roles responsibilities, and authorities for each board; 2) developing business cases that identify key executive sponsors and business customers or end-users and the business needs that the IT project will support; 3) defining a process that is used to select new IT project proposals and reselect ongoing projects; 4) providing investment oversight by monitoring projects regarding cost and schedule expectations as well as anticipated benefits and risk; and 5) capturing the investment information necessary for executive decision-makers to make informed decisions about the DEA's IT investments.

The DEA has made progress toward attaining Stage 3 maturity of the ITIM Framework, by completing 9 of the 27 necessary key practices. Specifically, the DEA has defined the policies and procedures to be used in the portfolio selection process, established responsibility for criteria development, and has made the investment boards aware of the established criteria. To attain Stage 3 maturity, the DEA must: 1) obtain and utilize a system to effectively capture investment information for projects, and 2) provide training to investment boards' members on the evaluation criteria for IT investments.

To attain Stage 4 and 5 maturity as described by the ITIM Framework, the DEA must: 1) evaluate the performance of the portfolio and use the information gained from the evaluation to improve both current IT investment processes and the future performance of the investment portfolio, 2) manage the succession of information systems by replacing low-value systems with higher-value systems, 3) optimize the investment process by ensuring that best practices of other organizations are captured and incorporated within the DEA's IT investment process, and 4) use IT to strategically transform work processes and explore new and more effective ways of executing the DEA's mission.

Recommendations

We recommend that the DEA:

6. train members of the investment boards on the criteria for evaluating IT investments; and
7. establish a schedule for completing Stages 3 through 5 of the ITIM process to control and evaluate the DEA's IT investments.

STATEMENT ON COMPLIANCE WITH LAWS AND REGULATIONS

We have audited the DEA's management of Enterprise Architecture and IT investments. The audit was conducted in accordance with Government Auditing Standards. As required by the standards, we reviewed management processes and records to obtain reasonable assurance about the DEA's compliance with laws and regulations that, if not complied with, in our judgment, could have a material effect on DEA operations. Compliance with laws and regulations applicable to the DEA's handling of Enterprise Architecture and IT investments is the responsibility of the DEA's management.

Our audit included examining, on a test basis, evidence about laws and regulations. The specific laws and regulations against which we conducted our tests are contained in the relevant portions of the Clinger-Cohen Act of 1996 and OMB Circular A-11, Section 300.

The Clinger-Cohen Act of 1996:

- as applied to the Enterprise Architecture, requires the CIOs for major departments and agencies to develop, maintain, and facilitate the implementation of architectures as a means of integrating business processes and agency goals with IT; and
- as applied to the management of IT investments, defines requirements for capital planning and control of IT investments and mandates a select/control/evaluate approach that federal agencies must follow.

OMB Circular A-11, Section 300:

- as applied to IT investment management, establishes the criteria for completing Exhibits 300, which is the format used to represent the purpose for the proposed investment to agency management and the OMB.

Except for those issues cited in the Finding and Recommendations section of our report, our tests indicated that for those items reviewed, the DEA's management complied with the laws and regulations referred to above. With respect to those items not tested, nothing came to our attention that caused us to believe that the DEA's management did not comply with the laws and regulations cited above.

STATEMENT ON MANAGEMENT CONTROLS

In planning and performing our audit of the DEA's management of its EA and IT investments, we considered the DEA's management controls for the purpose of determining our audit procedures. This evaluation was not made for the purpose of providing assurance on the management control structure as a whole; however, we noted certain matters that we consider to be reportable conditions under Government Auditing Standards.

Reportable conditions involve matters coming to our attention relating to significant deficiencies in the design or operation of the management control structure that, in our judgment, could adversely affect the DEA's ability to manage its EA and IT investments. During our audit, we identified the following management control concerns.

- The DEA has not yet completed an EA to drive its IT investments.
- The DEA has not yet implemented the control and evaluate processes necessary to complete its IT investment capability.

Because we are not expressing an opinion on the DEA's management control structure as a whole, this statement is intended solely for the information and use of the DEA in managing its EA and IT investments. This restriction is not intended to limit the distribution of this report, which is a matter of public record.

OBJECTIVES, SCOPE, AND METHODOLOGY

Objectives

The objectives of the audit were to: 1) determine if the DEA was effectively managing its Enterprise Architecture; and 2) determine if the DEA was effectively managing its IT investments.

Scope and Methodology

The audit was performed in accordance with Government Auditing Standards, and included tests and procedures necessary to accomplish the audit objectives. We conducted work at the DEA Headquarters in Arlington, Virginia.

To perform our audit, we conducted approximately 17 interviews with 9 officials from the DEA, DOJ, GAO, and Bearing Point – the contractor being used to complete DEA EA. Additionally, we reviewed over 90 documents related to EA and IT management policies and procedures, project management guidance, strategic plans, IT project proposals, budget documentation, organizational structures, investment board minutes, and prior GAO reports.

To determine whether the DEA is effectively managing its EA, we used the GAO's EA Management Framework as criteria. As part of our assessment of the DEA's EA, the DEA completed a survey developed by the GAO to identify which of the core elements in the EA Management Framework were implemented. We reviewed the survey and obtained supporting documentation for the core elements that the DEA said were implemented. We did not test or review documentation for the core elements that the DEA considered not implemented or partially implemented. We did not perform an independent analysis of the DEA's current EA to determine if all business areas and IT systems were listed. We made an assumption that the DEA's current architecture represented the DEA's existing IT infrastructure.

To determine whether the DEA is effectively managing its IT investments, we applied the GAO's ITIM Framework and the associated assessment method. As part of the Framework's assessment method,

the DEA completed a self-assessment of its IT investment management activities. In addition to the self-assessment, the DEA provided documentation; for example, policies and procedures, templates, program managers' presentations, meeting minutes, and training agenda and information, to support its claims within the self-assessment. We examined the documentation provided to determine if the DEA implemented the key practices within the critical processes. We did not review documentation for the key practices in the self-assessment that the DEA considered not implemented or partially implemented.

ACRONYMS

CFO	Chief Financial Officer
CIO	Chief Information Officer
CMM	Capability Maturity Model
DEA	Drug Enforcement Administration
DOJ	Department of Justice
EA	Enterprise Architecture
FEAF	Federal Enterprise Architecture Framework
GAO	Government Accountability Office
IT	Information Technology
ITIM	Information Technology Investment Management
ITIPS	Information Technology Investment Portfolio System
JMD	Justice Management Division
OCIO	Office of the Chief Information Officer
OIG	Office of the Inspector General
OMB	Office of Management and Budget
PMP	Project Management Plan

THE THREE COMPONENTS OF THE ITIM PROCESS

Select

Within the “select” component of the capital planning and investment control process, an agency is to:

1. evaluate each investment to determine whether the investment will support core mission functions,
2. demonstrate a projected return on the investment that is clearly equal to or better than alternative uses of available public resources,
3. prepare and update a benefit-cost analysis for each information system throughout its life cycle,
4. prepare and maintain a portfolio of major information systems,
5. ensure consistency with the agency’s EA,
6. establish oversight mechanisms to ensure continuing security and availability of systems and their data, and
7. ensure that improvements to existing information systems and the development of planned information systems do not necessarily duplicate IT capabilities within the same agency.

Control

Within the “control” component of the capital planning and investment control process, an agency is to:

1. institute performance measures and management processes that monitor actual performance compared to expected results,

2. establish oversight mechanisms that require periodic review of information systems to determine whether the information systems continue to fulfill ongoing and anticipated mission requirements,
3. ensure that major information systems proceed in a timely fashion toward agreed-upon milestones,
4. prepare and update a strategy that identifies and mitigates risks associated with each information system, and
5. ensure that agency EA procedures are being followed.

Evaluate

Within the “evaluate” component of the capital planning and investment control process, an agency is to:

1. conduct post-implementation reviews of information systems and information resource management processes to validate estimated benefits and costs and to document effective management practices for broader use;
2. evaluate systems to ensure positive return on investment and to decide whether continuation, modification, or termination of the systems is necessary to meet agency mission requirements;
3. document lessons learned from the post-implementation reviews;
4. reassess an investment’s technical compliance and compliance with EA; and
5. update the EA and IT capital planning processes as needed.

Source: The Office of Management and Budget.

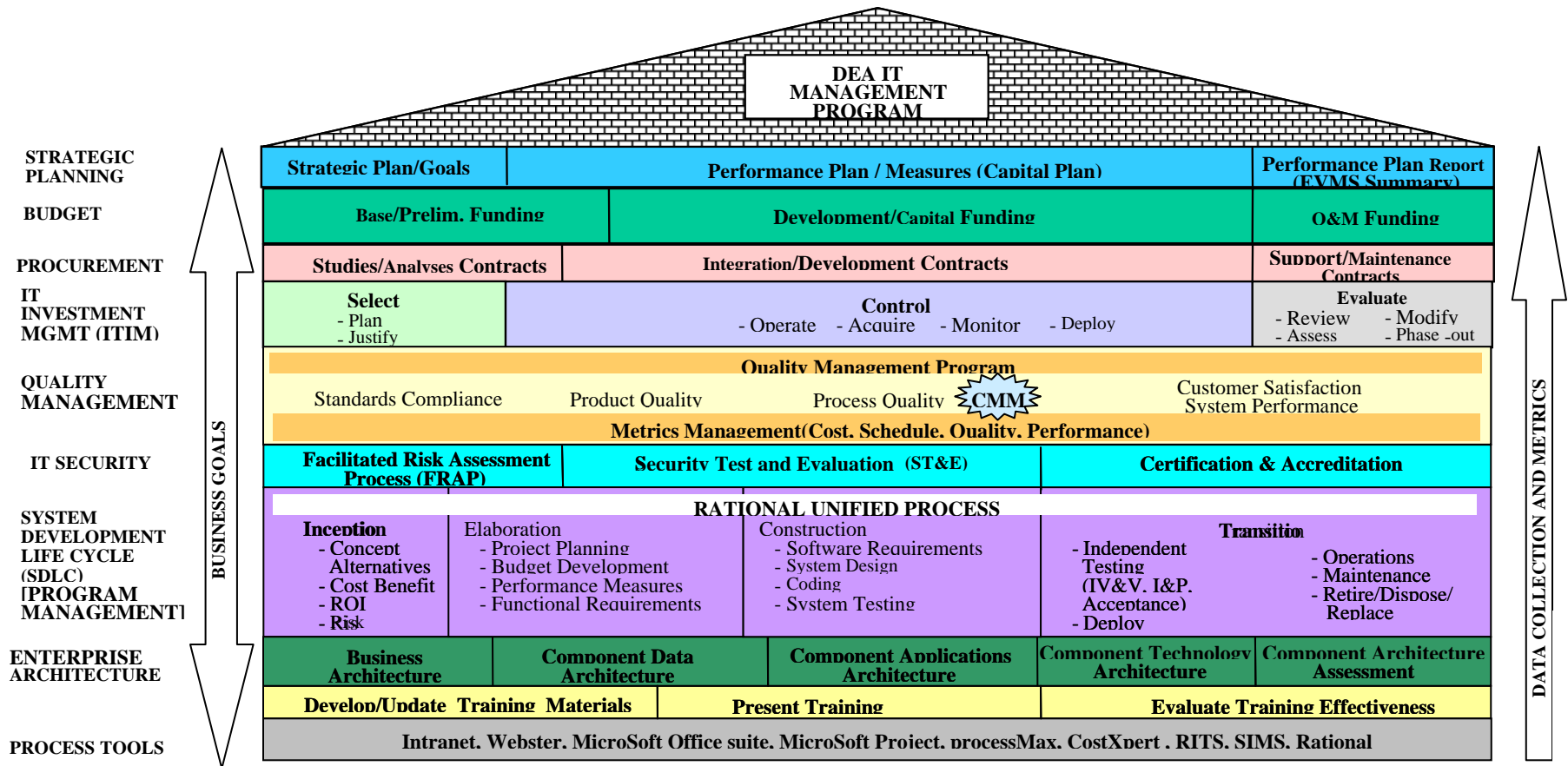
Summary of the EA Management Framework’s Maturity Stages, Critical Success Attributes, and Core Elements

	Stage 5:				
	Stage 4: Completing EA products			Leveraging the EA to manage change	
	Stage 3: Developing EA products	Stage 2: Building the EA management foundation			
	Stage 1: Creating EA awareness				
Attribute 1: Demonstrates commitment		Adequate resources exist. Committee or group representing the enterprise is responsible for directing, overseeing, or approving EA.	Written and approved organization policy exists for EA development.	Written and approved organization policy exists for EA maintenance.	Written and approved organization policy exists for IT investment compliance with EA.
Attribute 2: Provides capability to meet commitment		Program office responsible for EA development and maintenance exists. EA is being developed using a framework, methodology, and automated tool.	EA products are under configuration management.	EA products and management processes undergo independent verification and validation.	Process exists to formally manage EA change. EA is integral component of IT investment management process.
Attribute 3: Demonstrates satisfaction of commitment		EA plans call for describing both the “as is” and the “to-be” environments of the enterprise, as well as a sequencing plan for transitioning from the “as is” to the “to-be”. EA plans call for describing both the “as is” and the “to-be” environments in terms of business, performance, information/data, application/service, and technology descriptions to address security.	EA products describe or will describe both the “as is” and the “to-be” environments of enterprise, as well as a sequencing plan for transitioning from the “as is” to the “to-be”. Both the “as is” and the “to-be” environments are described or will be described in terms of business, performance, information/data, application/service, and technology. Business, performance, information/data, application/service, and technology descriptions address security.	EA products describe both the “as is” and the “to-be” environments of enterprise, as well as a sequencing plan for transitioning from the “as is” to the “to-be”. Both the “as is” and the “to-be” environments are described in terms of business, performance, information/data, application/service, and technology. Business, performance, information/data, application/service, and technology descriptions address security. Organization CIO has approved current version of EA. Committee or group representing the enterprise or the investment review board has approved current version of EA.	EA products are periodically updated. IT investments comply with EA. Organization head has approved current version of EA.
Attribute 4: Verifies satisfaction of commitment		Ea plans call for developing metrics for measuring EA progress, quality, compliance, and return on investment.	Progress against EA plans is measured and reported.	Quality of EA products is measured and reported.	Return on EA investment is measured and reported. Compliance with EA is measured and reported.

Maturation ➔

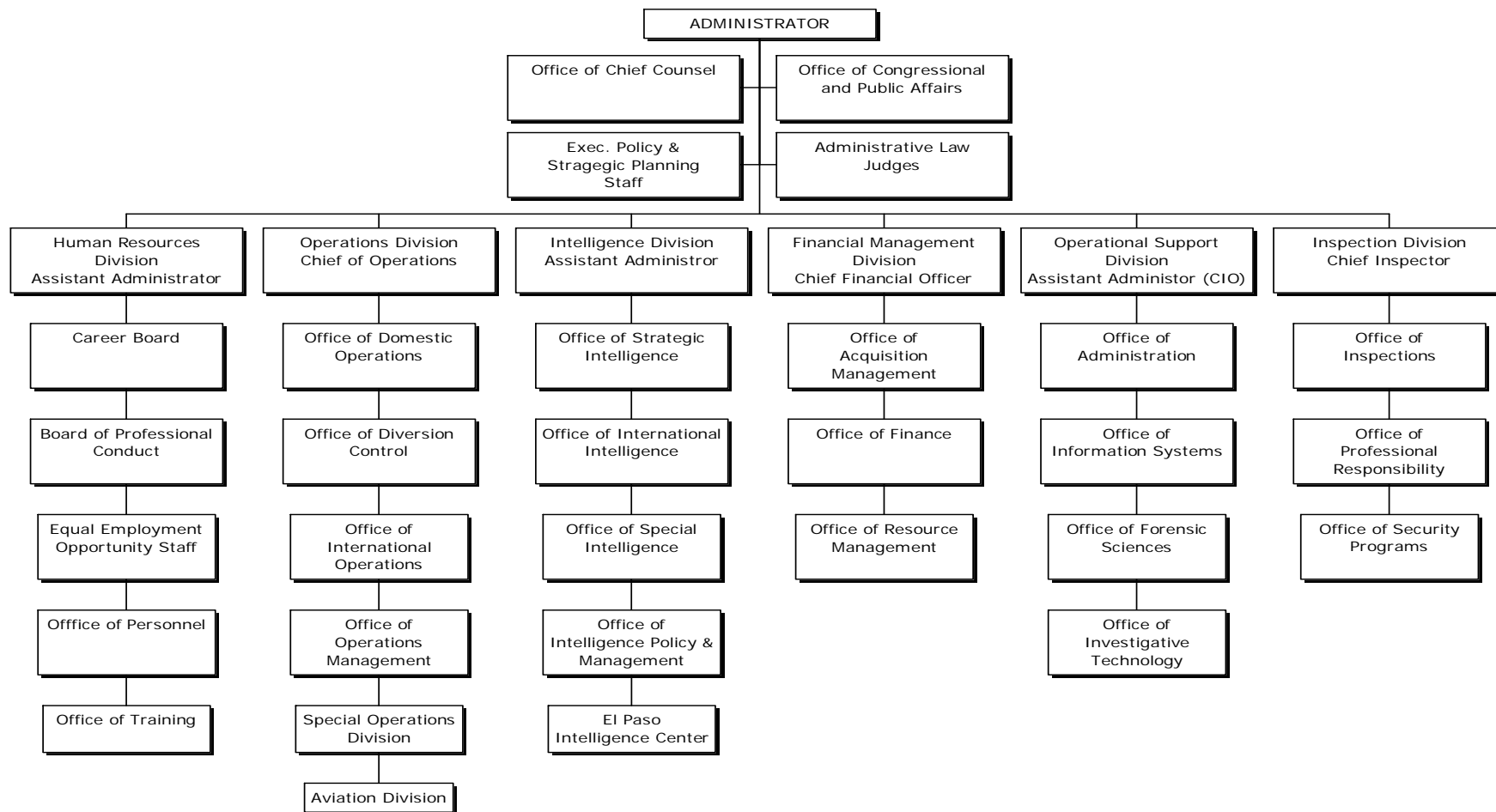
Source: The U.S. Government Accountability Office.

DEA'S IT MANAGEMENT PROGRAM



Source: The Drug Enforcement Administration.

**The Drug Enforcement Administration
ORGANIZATION CHART**



-83-

Source: The Drug Enforcement Administration.

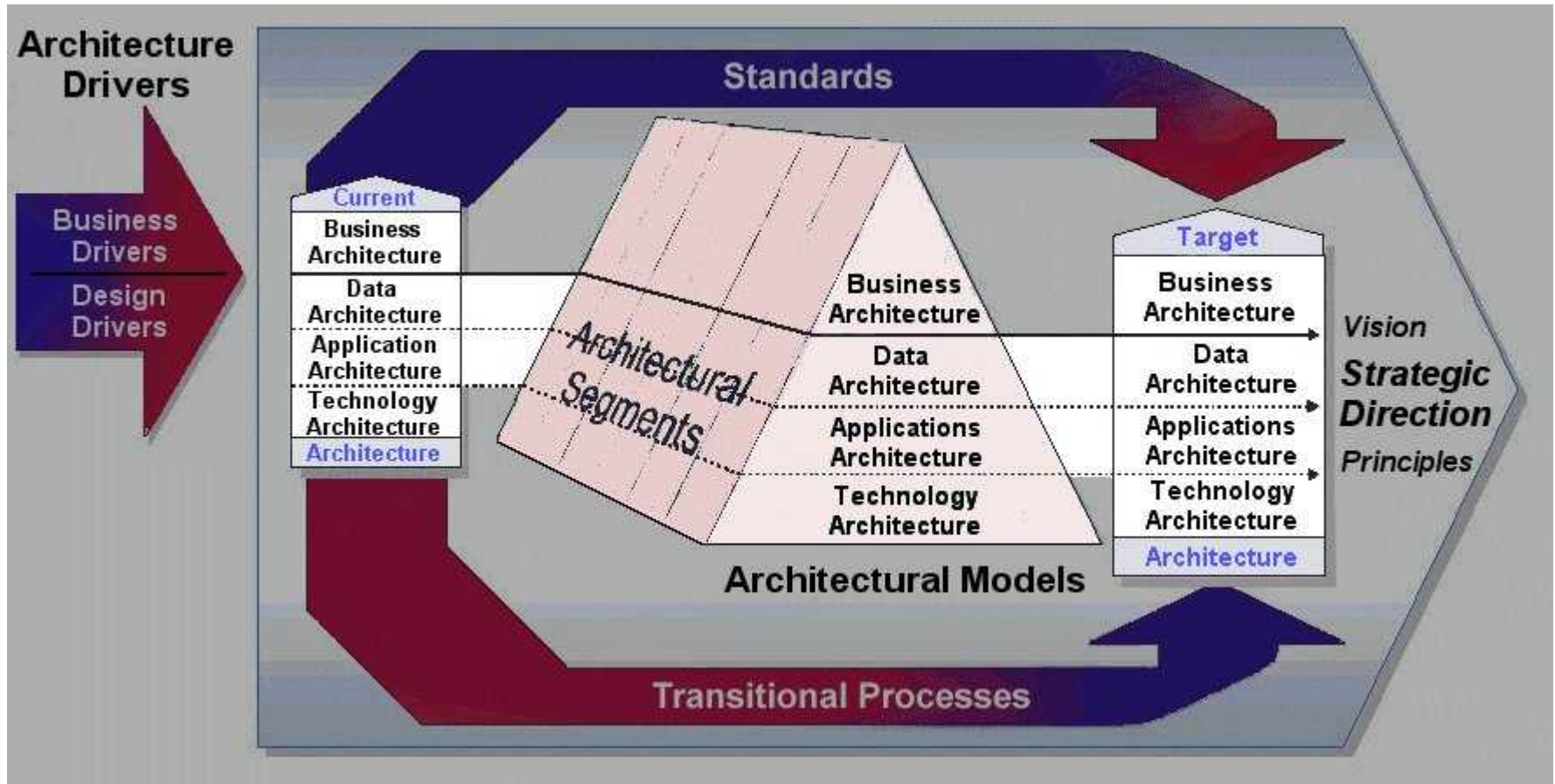
**DEA PROGRESS THROUGH STAGE 3
OF THE EA MANAGEMENT FRAMEWORK**

<i>Core Elements</i>	<i>Status</i>	
	<i>Implemented</i>	<i>Not Implemented</i>
STAGE 2		
Critical Attribute #1: Demonstrates Commitment		
<u>Core Elements</u>		
Adequate Resources	✓	
EA Governing Committees	✓	
Critical Attribute #2: Capability to Meet Commitment		
<u>Core Elements</u>		
EA Program Office	✓	
Appointment of Chief Architect	✓	
EA Development	✓	
Critical Attribute #3: Demonstrates Satisfaction of Commitment		
<u>Core Elements</u>		
EA Program Plan Development	✓	
Security	✓	
Critical Attribute #4: Verifies Satisfaction of Commitment		
<u>Core Elements</u>		
EA Progress Measurement		✓
STAGE 3		
Critical Process #1: Defining the Portfolio Criteria		
<u>Key Practices</u>		
Documented Policies and Procedures	✓	
Criteria Development Responsibility	✓	
Adequate Resources		✓
Working Group Responsibility	✓	
Portfolio Selection Criteria	✓	
Selection Criteria Awareness	✓	
Selection Criteria Review		✓

Core Elements	Status	
	Implemented	Not Implemented
Critical Process #2: Creating the Portfolio		
<u>Key Practices</u>		
Policies, Procedures, and Processes	✓	
Adequate Resources	✓	
Board Members' Knowledge	✓	
Expectation and Performance comparison		✓
New and Ongoing Investment Examination		✓
Performance Expectation Modification		✓
Archiving Used Information		✓
Critical Process #3: Evaluating the Portfolio		
<u>Key Practices</u>		
Policies and Procedures		✓
Adequate Resources		✓
Board's Knowledge of Evaluation Criteria		✓
Board Review Provision		✓
Assessment Criteria Development	✓	
Performance Measurement Data and Criteria		✓
Investment Adjustments		✓
Critical Process #4: Conducting Post-Implementation Reviews		
<u>Key Practices</u>		
Documented policies and procedures		✓
Resource adequacy		✓
Investment board knowledge		✓
Investment board identification		✓
Data use and collection		✓
Investment board assessment		✓

Source: Office of the Inspector General.

FEDERAL ENTERPRISE ARCHITECTURE FRAMEWORK



Source: The Drug Enforcement Administration.

**DEA PROGRESS THROUGH STAGE 3
OF THE ITIM FRAMEWORK**

<i>Key Practices</i>	<u>Status</u>	
	<i>Implemented</i>	<i>Not Implemented</i>
STAGE 2		
Critical Process #1: Instituting the Investment Board		
<u>Key practices</u>		
Investment Boards	✓	
IT Investment Process	✓	
Adequate Resources	✓	
Competence	✓	
Avoiding Duplication of Gaps	✓	
Oversight Responsibilities	✓	
Controls	✓	
Critical Process #2: Identifying Business Needs for IT Projects		
<u>Key Practices</u>		
Policies and Procedures	✓	
Business Mission	✓	
Identifying Business Needs	✓	
Specific User Identification	✓	
End-Users Participation	✓	
Investment Board Evaluation	✓	
Critical Process #3: Selecting An Investment		
<u>Key Practices</u>		
Policies and Procedures	✓	
Adequate Resources	✓	
Criteria	✓	
Organizational Objectives	✓	
Selection Process	✓	
Reselection Process	✓	
Funding vs. Selection Decisions	✓	

Key Practices	Status	
	<i>Implemented</i>	<i>Not Implemented</i>
Critical Process #4: Providing Investment Oversight		
<u>Key Practices</u>		
Policies and Procedures	✓	
Adequate Resources	✓	
Project Management Plans	✓	
Actual Performance Data	✓	
Performance Reviews	✓	
Critical Process #5: Capturing Investment Information		
<u>Key Practices</u>		
Information Collection	✓	
Information Accessibility	✓	
Maintaining the Information Repository	✓	
STAGE 3		
Critical Process #1: Defining the Portfolio Criteria		
<u>Key Practices</u>		
Documented Policies and Procedures	✓	
Criteria Development Responsibility	✓	
Adequate Resources		✓
Working Group Responsibility	✓	
Portfolio Selection Criteria	✓	
Selection Criteria Awareness	✓	
Selection Criteria Review		✓
Critical Process #2: Creating the Portfolio		
<u>Key Practices</u>		
Policies, Procedures, and Processes	✓	
Adequate Resources	✓	
Board Members' Knowledge	✓	
Expectation and Performance comparison		✓
New and Ongoing Investment Examination		✓
Performance Expectation Modification		✓
Archiving Used Information		✓

Key Practices	Status	
	<i>Implemented</i>	<i>Not Implemented</i>
Critical Process #3: Evaluating the Portfolio		
<u>Key Practices</u>		
Policies and Procedures		✓
Adequate Resources		✓
Board's Knowledge of Evaluation Criteria		✓
Board Review Provision		✓
Assessment Criteria Development	✓	
Performance Measurement Data and Criteria		✓
Investment Adjustments		✓
Critical Process #4: Conducting Post-Implementation Reviews		
<u>Key Practices</u>		
Documented policies and procedures		✓
Resource adequacy		✓
Investment board knowledge		✓
Investment board identification		✓
Data use and collection		✓
Investment board assessment		✓

Source: Office of the Inspector General.



U. S. Department of Justice
Drug Enforcement Administration

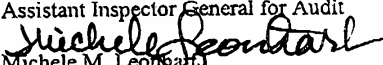
www.dea.gov

Washington, D.C. 20537

SEP 21 2004

MEMORANDUM FOR THE OFFICE OF THE INSPECTOR GENERAL

TO: Guy K. Zimmerman
Assistant Inspector General for Audit

FROM: 
Michele M. Leonard
Deputy Administrator

SUBJECT: Draft Audit Report: *The Drug Enforcement Administration's Management of Enterprise Architecture and Information Technology Investments*

The Drug Enforcement Administration (DEA) has reviewed the Department of Justice, Office of the Inspector General's (OIG) draft audit report entitled *The Drug Enforcement Administration's Management of Enterprise Architecture and Information Technology Investments*. DEA provides the following comments as requested in your memorandum dated August 31, 2004.

DEA concurs with the recommendations resulting from this audit and will take steps to implement the recommendations. DEA is pleased the report recognizes that the agency has instituted and utilizes several processes to govern its information technology investments and portfolio management. DEA believes the report accurately reflects the progress the agency has made in both enterprise architecture and information technology investment management areas. Advancement in these areas is attributed to a cooperative effort with the Department of Justice and other agencies. Implementation of the report's recommendations will ensure progress in the areas of enterprise architecture and information technology investment management will continue at the DEA.

DEA has completed a sensitivity review of the draft audit report. This information will be provided under separate cover.

Documentation detailing DEA's efforts to implement the attached action plan will be provided to OIG until all corrective actions are employed. If you have any questions regarding this information, please contact Audit Liaison Sheldon Shoemaker at (202) 307-4205.

Attachment

Guy K. Zimmerman, Assistant Inspector General for Audit

Page 2

Cc: Richard P. Theis
Acting Director, Audit Liaison Office
Justice Management Division

ACTION PLAN

The Drug Enforcement Administration's Management of Enterprise Architecture and Information Technology Investments

Recommendations	Action Planned	Projected Completion Date
<p>1. Apply metrics to measure EA progress, quality, compliance, and return on investment.</p>	<p>The Drug Enforcement Administration (DEA) has initiated a task that will begin September 21, 2004, to update DEA's Information Technology (IT) Strategic Plan, analyze the current "As Is" Enterprise Architecture (EA) and develop a Target EA. As part of this effort, DEA will determine its current maturity level and establish an EA Review Board that will apply the Government Accountability Office's (GAO) Maturity Model criteria and the metrics within it. DEA will also conduct formal training to educate participants on the GAO guidance, IT Investment Management (ITIM), and EA.</p>	<p>May 2005</p>
<p>2. Establish an organization policy for EA development and maintenance that meets the requirements of the EA Management Framework.</p>	<p>The Chief Information Officer of DEA has approved the development of an EA program, to include a Target EA. As a result of this approval, a charter, policy, plan, and maintenance process will be developed to keep DEA's EA aligned with the Federal and Department of Justice EA framework and guidance.</p>	<p>November 2004</p>
<p>3. Ensure that the completed EA undergoes configuration management.</p>	<p>As part of the task that will begin September 21, DEA will develop a maintenance process that will keep the "As Is" EA, the Target EA, the Transition Plan, and documentation current. Also, the EA program and EA Review Board will actively ensure configuration controls are provided and obeyed.</p>	<p>May 2005</p>

ACTION PLAN

The Drug Enforcement Administration's Management of Enterprise Architecture and Information Technology Investments

Recommendations	Action Planned	Projected Completion Date
<p>4. Ensure that the target architecture addresses security as outlined in the EA Program Plan.</p>	<p>As part of the task that will begin September 21, DEA will integrate security with EA to ensure a structured and comprehensive process for evaluating the impact and consequences of changes in the functional and technical environment. As a result, all of the artifacts in the EA will be aligned with security attributes and comply with the Federal Information Security Management Act.</p>	<p>May 2005</p>
<p>5. Complete and implement the remaining EA stages to ensure that IT investments are not duplicative, are well integrated, are cost effective, and support the DEA's mission.</p>	<p>As part of the task that will begin September 21, DEA will integrate the Target EA with the DEA ITIM process, allowing DEA to ensure that IT investments are not duplicative, are well integrated, are cost effective, and support the DEA mission. To ensure the leveraging of IT investments to the fullest extent, DEA will create and document review criteria for each phase of the ITIM process (Select, Control, Evaluate).</p>	<p>May 2005</p>
<p>6. Train members of the investment boards on the criteria for evaluating IT investments.</p>	<p>Members of the ITIM investment boards are provided specific training before each meeting. However, a board session will be scheduled to focus only on investment management training, to include process, evaluating, scoring, and EA.</p>	<p>December 2004</p>
<p>7. Establish a schedule for completing Stages 3 through 5 of the ITIM process to control and evaluate the DEA's IT investments.</p>	<p>The Office of Information Systems Strategic Business ITIM staff will review the current ITIM Transition Plan and update the same based on current activities, strategies, and plans.</p>	<p>May 2005</p>

OIG, AUDIT DIVISION ANALYSIS AND SUMMARY OF ACTIONS NECESSARY TO CLOSE REPORT

We provided a draft audit report to the DEA for review and comment. The response from the DEA is incorporated as Appendix 10 of this final report. The DEA concurred with the recommendations resulting from the audit. Our analysis of the DEA's response to specific recommendations is provided below.

Recommendation Number:

- 1. Resolved.** This recommendation is resolved based on the DEA's plan to determine its current Enterprise Architecture (EA) maturity level and establish an EA Review Board that will apply the Government Accountability Office's Maturity Model criteria and the metrics within the model. This recommendation can be closed when we receive and review documentation that the DEA is applying metrics to measure EA progress, quality, compliance, and return on investment.
- 2. Resolved.** This recommendation is resolved based on the DEA's plan to develop a charter, policy, plan, and maintenance process to keep the DEA's EA aligned with the federal and the Department of Justice EA framework and guidance. This recommendation can be closed when we receive and review a copy of the policy for EA development and maintenance that meets the requirements of the EA Management Framework.
- 3. Resolved.** This recommendation is resolved based on the DEA's intent to actively ensure that configuration controls are provided and obeyed. This recommendation can be closed when we receive and review a copy of the maintenance process that will ensure the completed EA undergoes configuration management.
- 4. Resolved.** This recommendation is resolved based on the DEA's plan to integrate security with EA so that all of the artifacts of the DEA's EA will be aligned with security attributes and comply with the Federal Information Security Management Act. This recommendation can be closed when we receive and review documentation that the target architecture addresses security as outlined in the EA Program Plan.
- 5. Resolved.** This recommendation is resolved based on the DEA's plan to integrate the target EA with the Information Technology Investment Management (ITIM) process to ensure that the DEA's information

technology investments are not duplicative, are well integrated, are cost effective, and support the DEA mission. This recommendation can be closed when we receive and review documentation that the remaining EA stages are completed and implemented.

6. Resolved. This recommendation is resolved based on the DEA's plan to schedule an ITIM investment board meeting to focus on investment management training, including process, evaluating, scoring, and EA. This recommendation can be closed when we receive and review documentation that the board members have received the planned training.

7. Resolved. This recommendation is resolved based on the DEA's intention to review and update the ITIM transition plan based on current activities, strategies, and plans. This recommendation can be closed when we receive and review the DEA's schedule from completing Stages 3 through 5 of the ITIM process to control and evaluate the DEA's information technology investments.