

Citizen-Centric

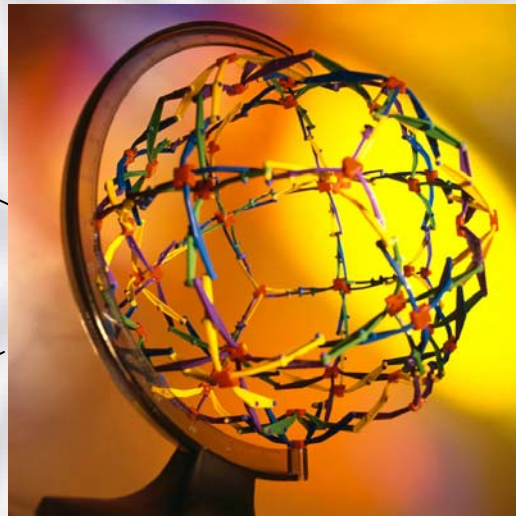
DOI Information Technology

Integrated

Secure

Department of the Interior **INFORMATION TECHNOLOGY STRATEGIC PLAN UPDATE**

September 2005



**PROVIDING WORLD-CLASS CITIZEN-CENTRIC
INFORMATION PRODUCTS AND SERVICES
THROUGH KNOWLEDGE-SHARING AND
PARTNERSHIP WITH ITS BUREAUS**

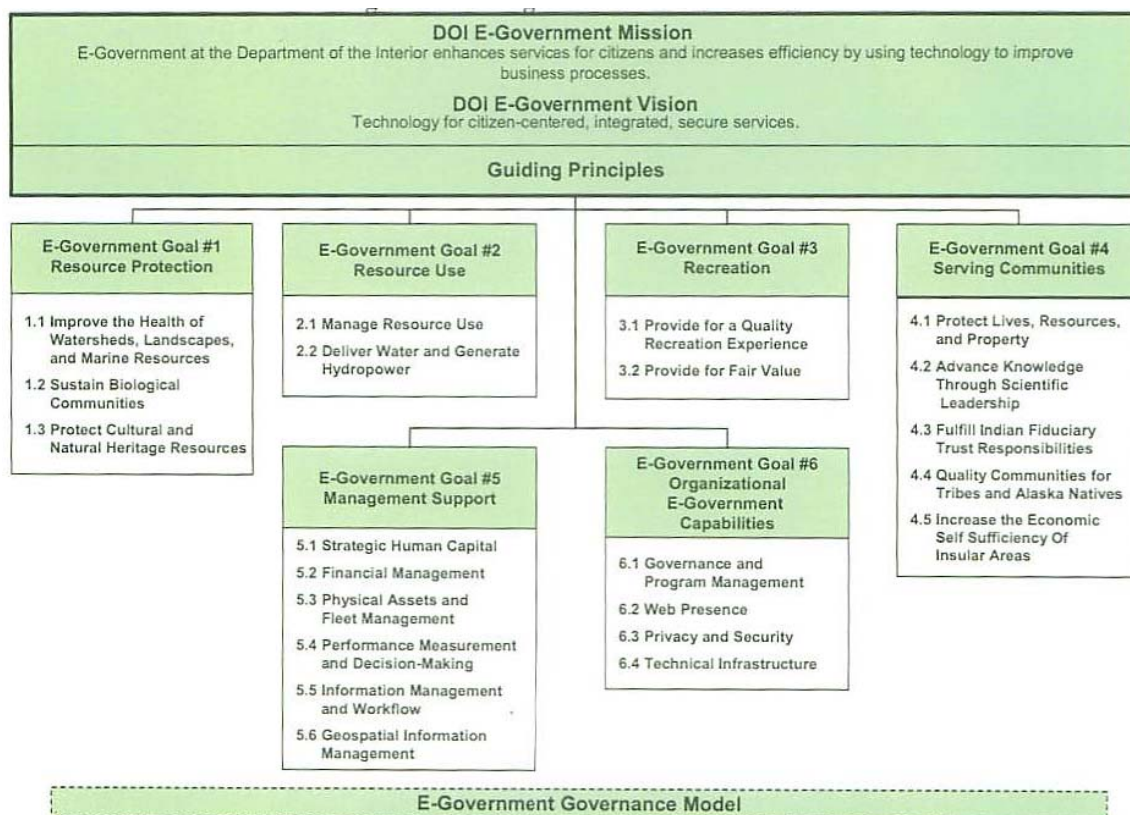
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Executive Summary

Information technology has become more than an enabler over the past decade; IT has become a partner in achieving Interior's important mission. To meet the current and future needs of customers, stakeholders and employees, the exchange and management of information is becoming a larger aspect of the corporate business model. The current IT structure is evolving and must be based on strategic plans that can incorporate the concepts of electronic government into practices supported by a modern IT architecture.

The E-Government Strategic Plan (FY 2004 - FY 2008) set the high-level vision, mission, and guiding principles for E-Government and IT at Interior. It presented goals which create a framework to guide and categorize efforts and objectives which provided more specific targets for those efforts to achieve. It also included a governance model which describes the processes by which Interior will manage E-Government.



This IT Strategic Plan builds on the E-Government Strategic Plan, by providing more specific IT-related goals which drive Interior's E-Government implementation. In a companion document, Interior is also modifying the governance model to include the significant improvements made in implementing these processes over the past year.

The IT Strategic Plan is designed to support the Department's strategic mission and management goals. It aligns IT with the Department's major program concerns. Its goals, enabling strategies, and performance measures are tied to IT security, enterprise architecture, E-Government project implementation, and

portfolio management. Knowledge management is the thread that weaves through the process, enabling an enterprise sharing of information and records management. With the fast-paced changes in the realm of technology, we must ensure the IT workforce is skilled and certified to meet these demands.

This Plan focuses the IT mandates and challenges outlined in numerous directives, and drawing from various models (including those of the Government Accountability Office, Office of Management and Budget and the Federal CIO Council), into seven strategic goals for IT: enterprise architecture, security, E-Government, portfolio management; enterprise operations; knowledge (information) management, and a skilled IT workforce.

DOI IT Strategic Goals

Goal 1: Enterprise Architecture	Goal 2: Security	Goal 3: E-Gov	Goal 4: Capital Planning	Goal 5: Enterprise Operations	Goal 6: Knowledge Management	Goal 7: Skilled Workforce
Leverage EA to improve DOI's mission performance and realize its strategic goals and objectives	Protect the availability, confidentiality and integrity of DOI information technology resources	Improve the efficiency and effectiveness of DOI business processes	Improve the planning, execution and management of IT investments	Provide world-class enterprise operations—improving the quality, accessibility, and sharing of data between DOI and its customers	Create an effective knowledge sharing environment, safeguarding records, privacy, and accessibility	Ensure we have sufficient IT human capital capable of meeting the IT goals and DOI mission challenges

Interior's Managing Partners Philosophy:

A governance framework that embraces distinct bureau needs and strengths serves as the foundation for Interior's IT strategy. Our strength lies in the commitment to work in partnership and the focus on collaboration and unified approaches throughout the Department. Key to this is leveraging the resources and abilities of bureaus' best practices. Bureaus serve as leaders, or managing partners, for a variety of Departmental initiatives.

Interior's Enterprise Approach:

To maximize the innovative and effective use of technology and adapt to changing needs, the Department is migrating its Information Technology (IT) portfolio to integrated, Department-wide business processes and technologies. Extensive efforts have been made to standardize IT functions and organizations throughout the Department. Further standardization along functional areas will enable DOI to create a more mature IT investment management organization.

Some examples include:

- Enterprise Services Network (ESN)
- Department-wide Active Directory (Access Control)
- Enterprise Messaging
- Enterprise Hardware, Software and IT Services Acquisition
- Web Consolidation
- Streamlined telecommunications
- Emerging Technologies
- Enterprise Integration Services

Information Technology Management Maturity Framework

Interior laid out a strategic roadmap to improve IT investment management using nine key IT management processes based on the GAO report GAO-04-049, *INFORMATION TECHNOLOGY MANAGEMENT, Government-wide Strategic Planning, Performance Measurement, and Investment Management Can Be Further Improved*, January 2004. GAO uses a model to measure IT investment management, which lays out 5 levels of maturity:

Level 1: Policies documented

Level 2: Procedures established

Level 3: Procedures implemented and practices in place

Level 4: Practices verified

Level 5: Full maturity demonstrated by integration

A mature process documents and implements policies and standards, and creates repeatable, verifiable, and integrated practices. Interior is assessing maturity in nine key process areas: 1) IT investment management; 2) enterprise architecture; 3) software acquisition; 4) software development; 5) information security; 6) IT human capital; 7) data management; 8) records management; and 9) IT operations. The IT Strategic Goals are tied closely with the nine key process areas.

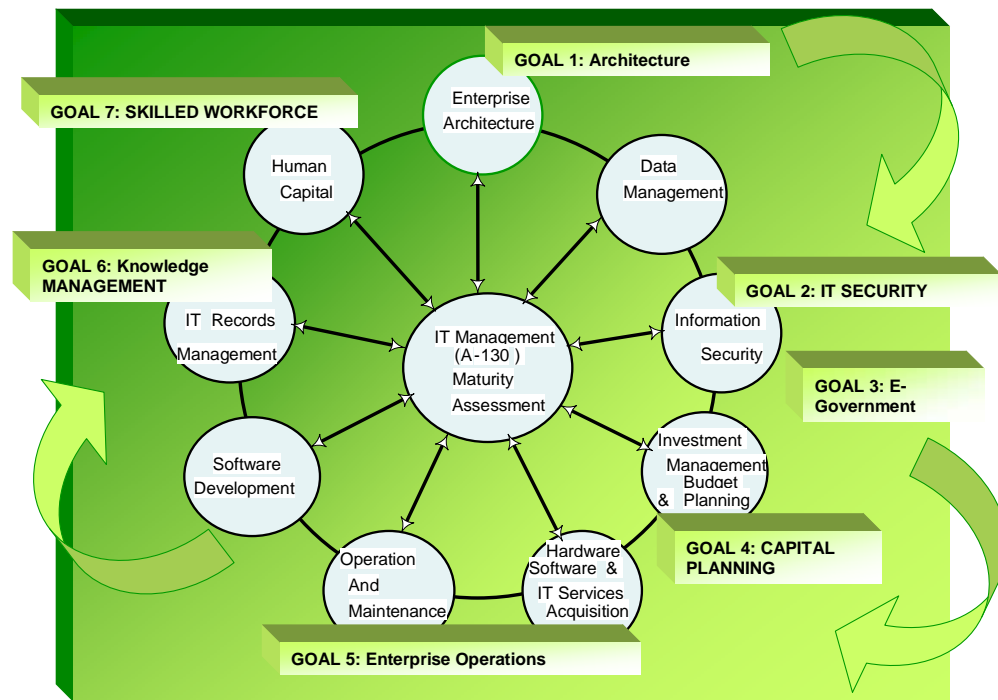
DOI reached or exceeded Stage 2 in 2005 and is committed to reach Stage 3 by 2008.

Results by 2007:

Some of the primary results expected by FY 2007 are:

- An integrated EA aligned with capital planning to provide information needed to appropriately invest for the future;
- C&A maintained for all appropriate systems;
- Alignment of DOI systems to E-Government environment;
- Progress in maturity, focusing on documenting and implementing select policies and standards that will create repeatable practices in key IT process areas

LINKING OF IT STRATEGIC PLAN GOALS to A-130 Maturity Assessment Tracking



Customer Service That Sets Us Apart —

All 7 goals in the IT Strategic Plan are guided by Interior's intent to apply a world-class, best-in-practice, integrated approach to providing technology products and service solutions in support of Interior's lines of business and customers. In order to manage IT within the inherent complexity of an agency with such diverse missions, we must address lines of business that include natural resources, energy, general science and innovation, environmental management, litigation and judicial services, law enforcement, income security, economic development, community and social services, safety and health, disaster management, and education.

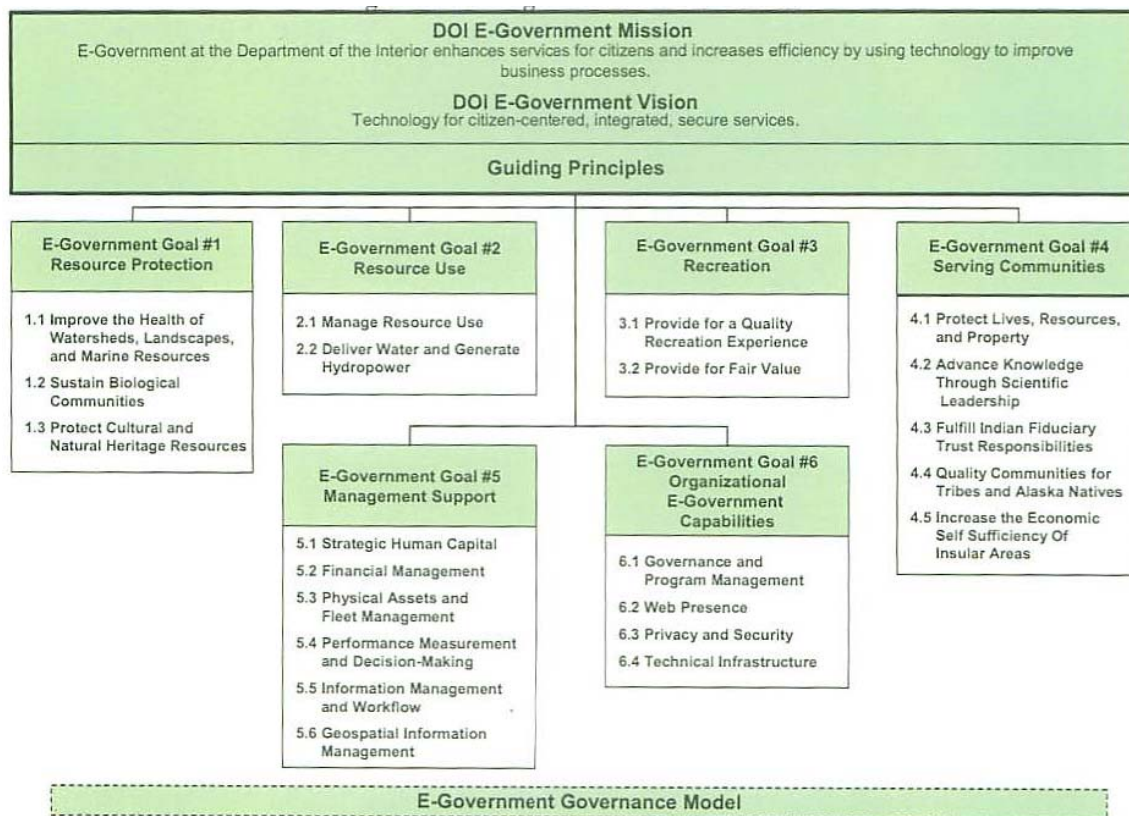
This business-oriented, integrated approach allows us to empower Interior customers and citizens to help themselves; improve the quality of products and services; make information available to customers in a timely, consistent, and easy fashion; remove sources of frustration; and present an integrated customer contact environment.

The IT Strategic Plan therefore concentrates on strategies that address service and support opportunities; determine a baseline of customer satisfaction and quality perceptions; reduce duplication of information; link customer satisfaction and quality goals with strategies, plans, and performance metrics; and better match availability of support to meet these needs.

Introduction

Information Technology (IT) has become more than an enabler over the past decade; IT has become a partner in achieving Interior's important mission. To meet the current and future needs of customers, stakeholders and employees, the exchange and management of information is becoming a larger aspect of the corporate business model. The current IT structure is evolving and must be based on strategic plans that can incorporate the concepts of electronic government into practices supported by a modern IT architecture.

The E-Government Strategic Plan (FY 2004 - FY 2008) set the high-level vision, mission, and guiding principles for E-Government and IT at Interior. It presented goals which create a framework to guide and categorize efforts and objectives which provided more specific targets for those efforts to achieve. It also included a governance model which describes the processes by which Interior will manage E-Government.



The DOI IT Strategic Plan builds on the E-Government Strategic Plan by providing more specific IT-related goals which drive Interior's E-Government implementation.

Strategic Principles

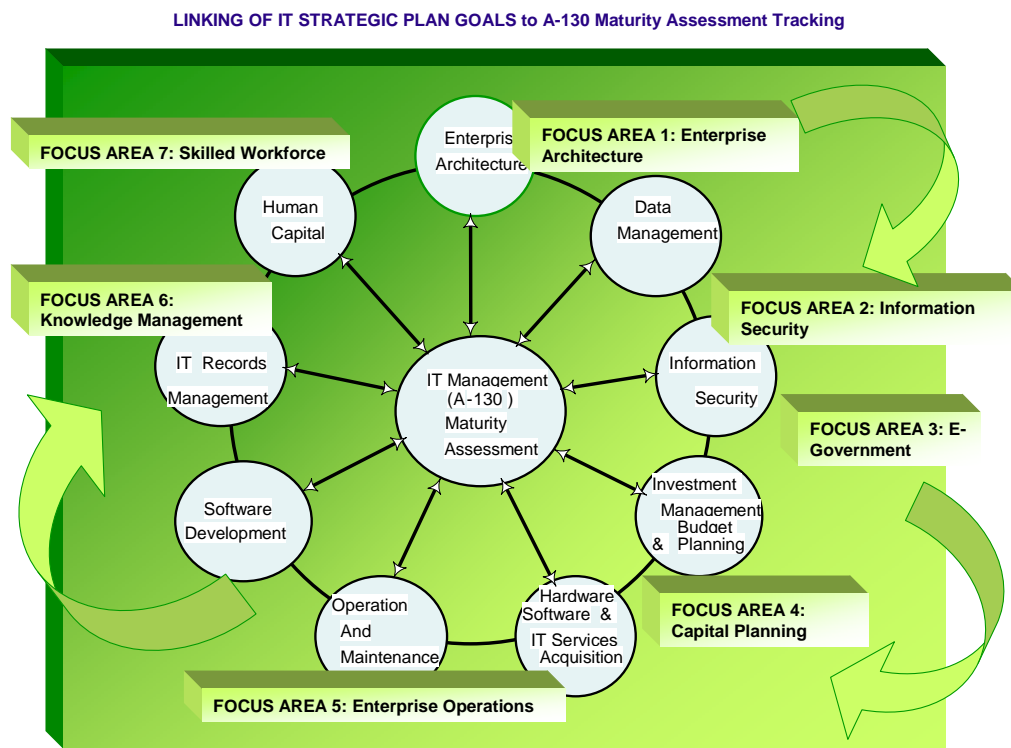
The vision of the Department of the Interior is to apply a world-class, best-in-practice, integrated approach to providing technology products and services in support of Interior's lines of business and customers.

The following strategic principles provide the framework for delivering upon that vision:

- **Alignment:** the Department's strategic mission and management goals will be supported by aligning IT with the Department's major program areas
- **Enterprise Approach:** To maximize effective use of technology, the Department will migrate to integrated, Department-wide business processes and technologies.
- **Teamwork:** Bureaus will serve as leaders, or managing partners, for a variety of Departmental IT initiatives. This approach embraces distinct bureau needs, strengths and best practices.
- **Process Maturity:** continuous improvement in IT processes will be achieved by following appropriate published process maturity models (e.g. GAO IT Investment Management Maturity Model)
- **Measurable:** achievement of strategic goals will be measurable and reported regularly
- **Support for Mandates:** IT strategic goals will address legislative, regulatory and administrative mandates such as FISMA, OMB A-130, HSPD-12, etc.

Strategic Focus Areas

In order to more effectively manage the achievement of the vision, seven strategic focus areas for IT have been defined. The diagram below shows how these focus areas map to process areas defined by OMB Circular A-130.



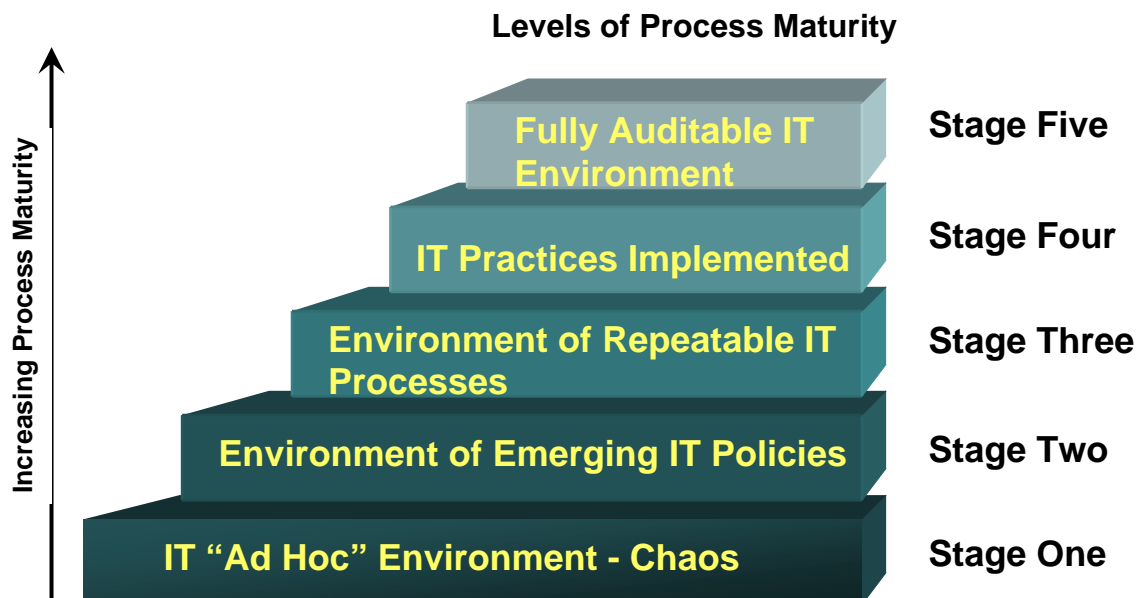
The long term strategic goals associated with each of the focus areas are:

- *Enterprise Architecture*: Leverage EA to improve DOI's mission performance and realize its strategic goals and objectives
- *Information Security*: Protect the availability, confidentiality and integrity of DOI information technology resources
- *E-Government*: Improve the efficiency and effectiveness of DOI business processes
- *Capital Planning*: Improve the planning, execution and management of IT investments
- *Enterprise Operations*: Provide world-class enterprise operations—improving the quality, accessibility, and sharing of data between DOI and its customers
- *Knowledge Management*: Create an effective knowledge sharing environment, safeguarding records, privacy and accessibility
- *Skilled Workforce*: Ensure the availability of IT human capital capable of meeting the goals and DOI mission challenges.

These seven focus areas will provide the structure for the specific elements of the Department of the Interior Information Technology Strategic Plan.

Process Maturity Models

Process maturity models provide a framework for identifying best practices and for measuring progress in achieving strategic goals. Process maturity models typically define five stages of maturity with attributes as shown in the diagram below.



Maturity for each of the seven strategic focus areas will be measured using a process maturity model that is specific to that area. For example, GAO has defined a five stage maturity model for IT Investment Management. This model will be used to define specific goals and to measure progress in the Capital Planning strategic focus area.

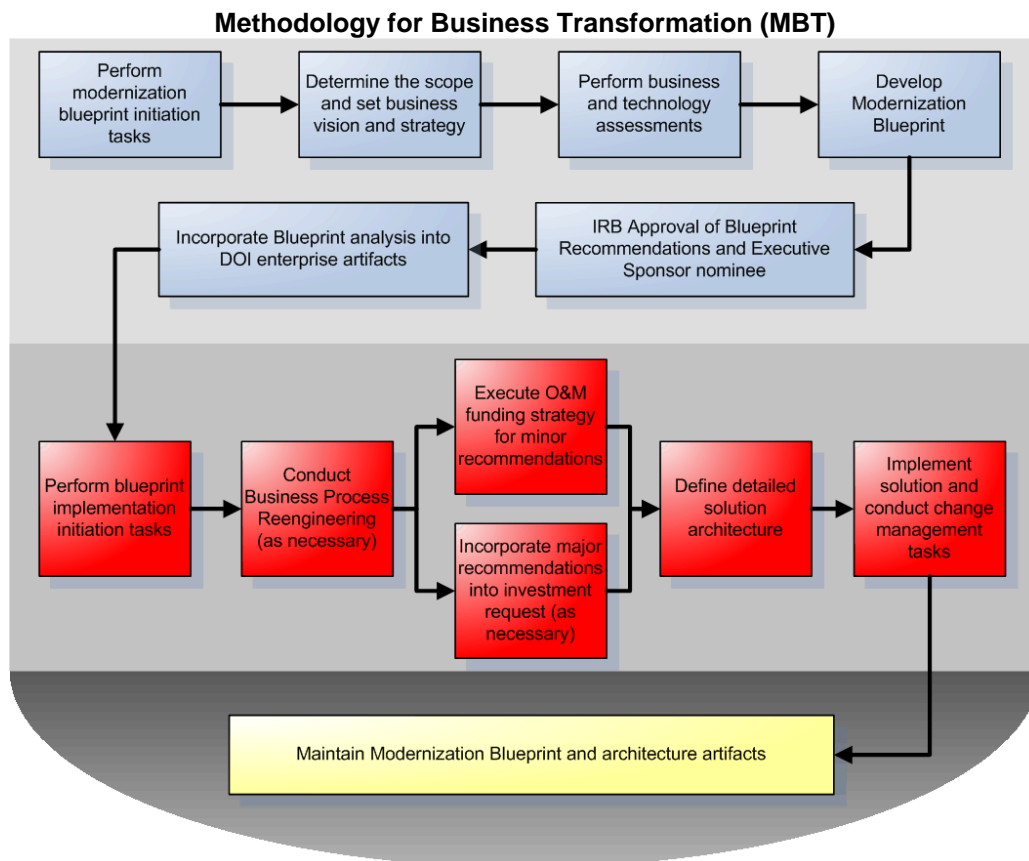
Focus Area 1: Enterprise Architecture

Long Term Strategic Goal

The goal of Enterprise Architecture is to improve DOI's mission performance and realize its strategic goals and objectives. Enterprise Architecture seeks to achieve this goal by:

- Minimizing system redundancies
- Improving data integration and data sharing
- Increase the re-use of IT assets
- Reduce the Total Cost of Ownership (TCO) of Interior's IT Portfolio.

The Department has established a Methodology for Business Transformation (MBT) that is used to develop "Modernization Blueprints". The methodology and resulting blueprints provide for the analysis of business processes and information systems that support a program or mission area. The blueprint identifies redundancies and allows for the development of action plans for eliminating or reducing those redundancies.



A fundamental component supporting Enterprise Architecture activities is the Department Enterprise Architecture Repository (DEAR). This system is used to maintain the official inventory of all systems across the Department and Bureaus in support of modernization efforts.

Maturity Model

The OMB Enterprise Architecture Maturity Framework is used to measure Interior's progress in this strategic focus area.

No evidence presented	EA is initial, informal, and ad-hoc	Formal but basic, follows some best practices	EA is beginning to be operationalized across the enterprise (i.e. part of transition, CPIC, budget)	EA is operationalized and provides performance impact to business operations	IT planning is optimized through the EA
Level 0	Level 1	Level 2	Level 3	Level 4	Level 5

FY05 Goals

- All Enterprise Architecture models will be developed in compliance with the Federal Enterprise Architecture (FEA)
- Achieve a minimum score of 4.0 out of 5.0 on the OMB Enterprise Architecture Maturity Framework
- Formalize the Methodology for Business Transformation and provide training on the methodology to Bureaus
- Complete the development of Modernization Blueprints for the following program areas:
 - Recreation
 - Financial Management
 - Law Enforcement
 - Wildland Fire Management
- Initiate the development of Modernization Blueprints for the following program areas:
 - Planning and NEPA
 - Indian Trust
 - Water Resource Management
 - Geospatial Services
 - Human Resources
- Release version 3.0 of the Interior Technical Reference Model (TRM).

FY06 – FY08 Goals

- All Enterprise Architecture models will be kept current and compliant with the FEA
- Achieve a minimum score of 4.5 out of 5.0 on the OMB Enterprise Architecture Maturity Framework
- Implement the Modernization Blueprints developed for:
 - Recreation
 - Financial Management
 - Law Enforcement
 - Wildland Fire Management
 - Planning and NEPA
 - Water Resource Management
 - Geospatial Services
 - Human Resources
- Retire at least 50% of redundant systems identified in Modernization Blueprints
- Synchronize Enterprise Architecture activities with those of Information Security and Capital Planning.

Focus Area 2: Information Security

Long Term Strategic Goal

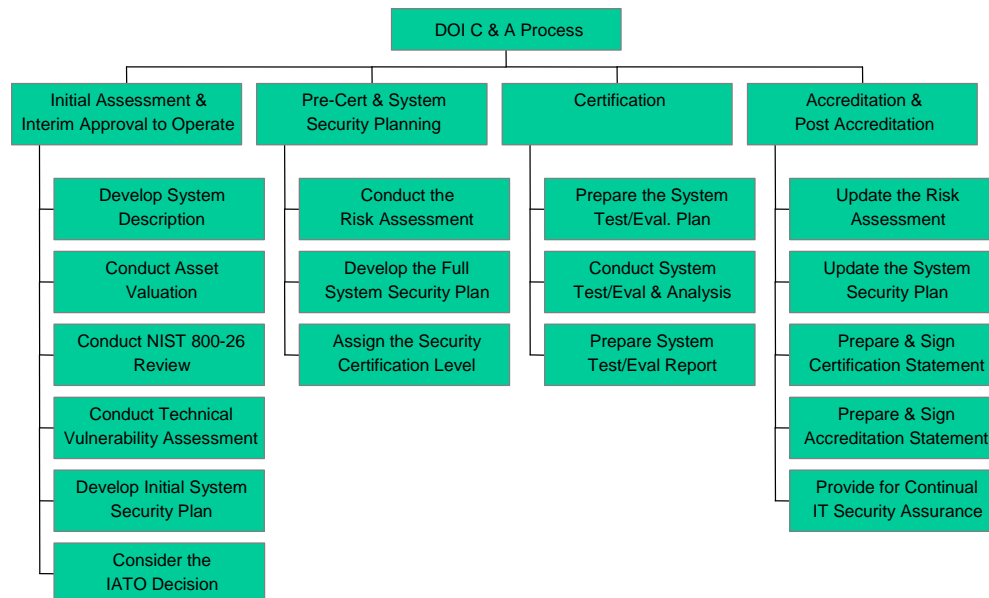
The goal of Information Security is to protect the availability, confidentiality and integrity of DOI information technology resources. This goal is met primarily by meeting the requirements specified in OMB Circular A-130, the Federal Information Security Management Act (FISMA) and various NIST publications. Interior will use a risk-based approach in order to make appropriate decisions regarding the implementation of specific policies, procedures and operational controls required to maintain compliance with these mandates.

As shown in the table below, NIST has defined 17 areas that must be addressed as part of a world-class Information Security program. These 17 elements must be addressed in order to achieve the long term strategic goal for this focus area.

NIST Security Program Elements

<ol style="list-style-type: none"> 1. Risk Management 2. Review of Security Controls 3. Life Cycle 4. Authorize Processing (Certification & Accreditation) 5. System Security Plan 6. Personnel Security 7. Physical and Environmental Protection 8. Production, Input/Output Controls 9. Contingency Planning 	<ol style="list-style-type: none"> 10. Hardware and System Software Maintenance 11. Data Integrity 12. Documentation 13. Security Awareness, Training, and Education 14. Incident Response Capability 15. Identification and Authentication 16. Logical Access Controls 17. Audit Trails
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The Certification & Accreditation (C & A) process is a key component of the security program as it consolidates many of the 17 program elements on a system by system basis. Interior has defined a process for completing C & A activities that is used across the Department and Bureaus.



Maturity Model

The Federal IT Security Assessment Framework developed by NIST is used to measure Interior's progress in this strategic focus area.

Federal IT Security Assessment Framework

Level 1	Documented Policy
Level 2	Documented Procedures
Level 3	Implemented Procedures and Controls
Level 4	Tested and Reviewed Procedures and Controls
Level 5	Fully Integrated Procedures and Controls

FY05 Goals

- Complete Certification & Accreditation for at least 90% of the systems in the DOI inventory
- Achieve a score of at least 3.5 out of 5.0 on the Federal IT Security Assessment Framework
- Complete IT Security Awareness training for at least 95% of DOI employees and contractors
- Establish regular penetration testing and vulnerability scanning of DOI and Bureau networks
- Establish regular quality assurance reviews of documentation packages supporting the Certification & Accreditation of DOI and Bureau systems

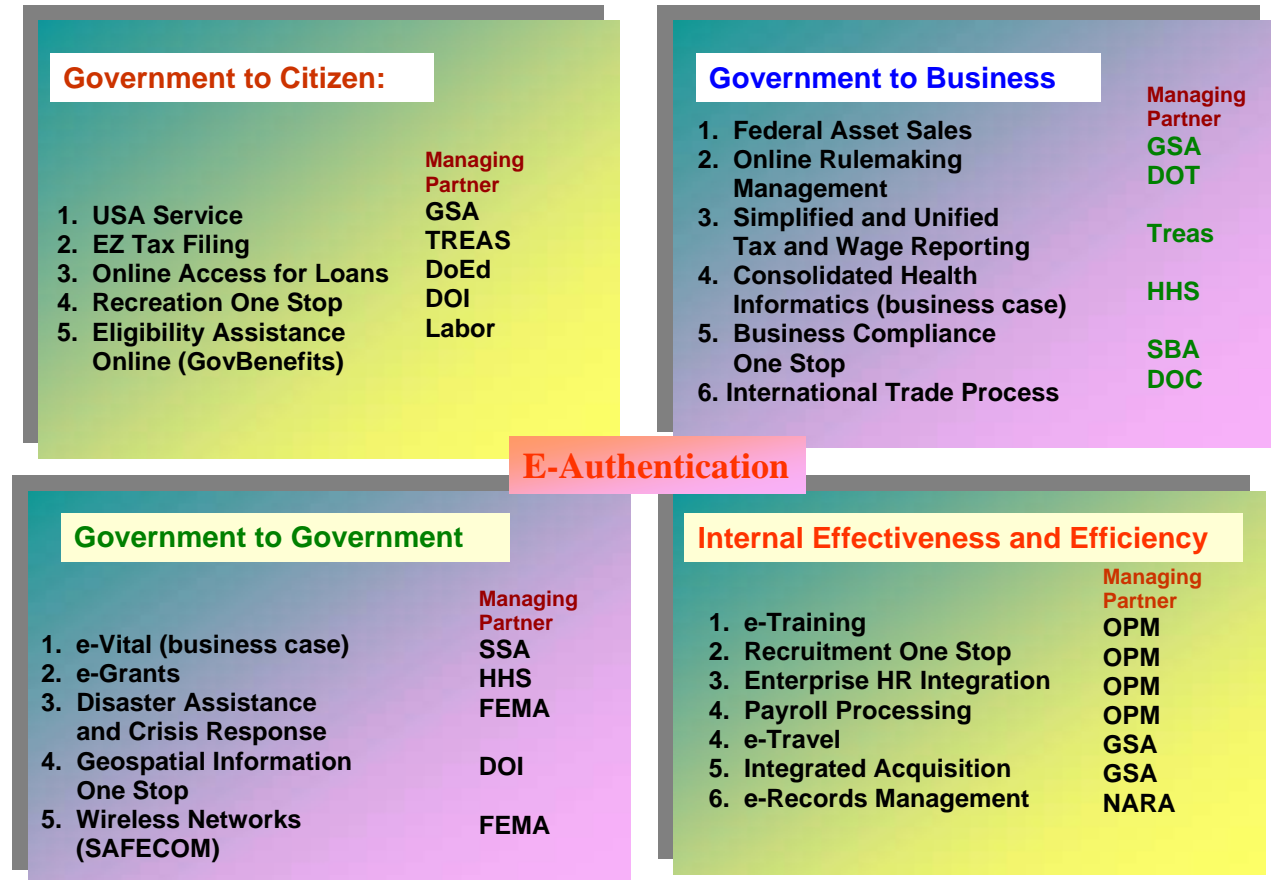
FY06 – FY08 Goals

- Complete Certification & Accreditation for 100% of the systems in the DOI inventory
- Synchronize Information Security activities with those of Enterprise Architecture and Capital Planning
- Achieve a score of at least 4.5 out of 5.0 on the Federal IT Security Assessment Framework.

Focus Area 3: E-Government

Long Term Strategic Goal

The goal of E-Government is to improve the efficiency and effectiveness of DOI business processes. This focus area is directly supported by several of the other focus areas, such as Enterprise Architecture, Information Security and Enterprise Operations. The Department of Interior E-Government Strategic Plan (FY 2004 - FY 2008) provides a comprehensive description of the high-level vision, mission and guiding principles for E-Government at Interior.



E-Government initiatives cut across multiple Federal agencies and address opportunities to provide services in the areas of Government to Citizen, Government to Business, Government to Government and Internal Effectiveness. Current initiatives in each of these areas are summarized in the diagram above.

Note that this document is primarily focused on the component of the IT Strategic Plan related to OCIO program areas. Accomplishment of E-Government objectives will be described more fully in a separate update to the E-Government component of the IT Strategic Plan.

Maturity Model

OMB has developed a scorecard for tracking the progress of agencies in implementing E-Government. This scorecard uses a traffic light (red, yellow, green) grading system to measure success.

FY05 Goals

- Act as the managing partner for two of the Presidents E-Government initiatives:
 - Recreation One-Stop
 - Geospatial One-Stop.

FY06 – FY08 Goals

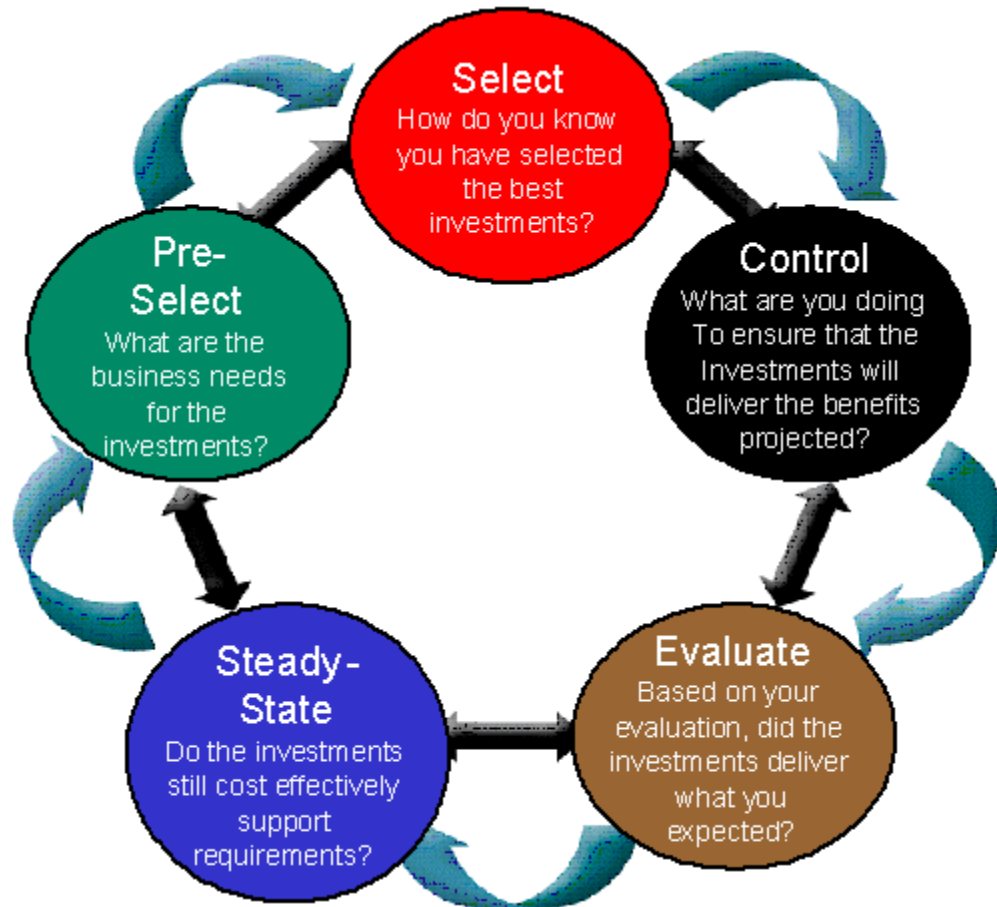
- Continue to act as the managing partner for two of the Presidents E-Government initiatives:
 - Recreation One-Stop
 - Geospatial One-Stop.

Focus Area 4: Capital Planning

Long Term Strategic Goal

The goal of Capital Planning is to improve the planning, execution and management of IT investments. The overall process for Capital Planning is defined in the Department of the Interior Capital Planning and Investment Control Guide. The process defined in this guide is a circular flow through five sequential phases. These phases are represented in the diagram below.

DOI Capital Planning Investment Control (CPIC) Process



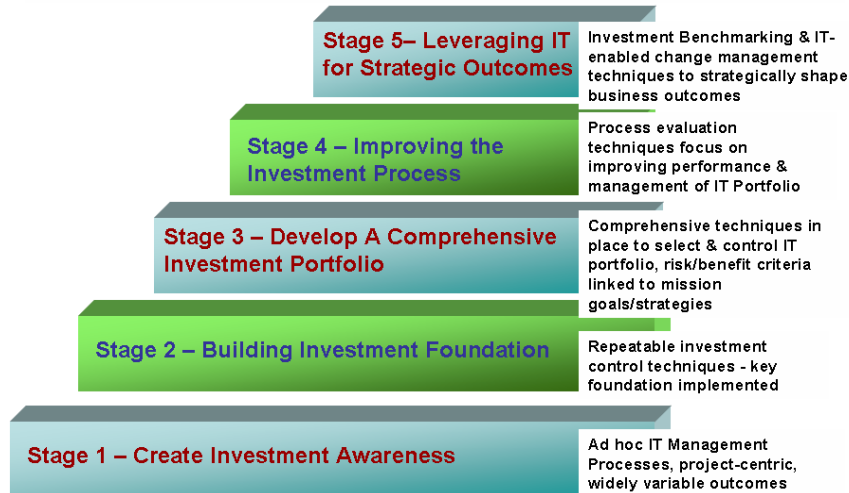
Activities supporting the Capital Planning focus area are closely tied to activities in the Enterprise Architecture focus area. Capital Planning defines a process for reviewing, approving and monitoring investments. Enterprise Architecture ensures that the investments being made are not redundant and that they support mission goals.

Maturity Model

Progress in the Capital Planning focus area is tracked using the GAO IT Investment Management (ITIM) Framework.

GAO 5 Stages of Information Technology Management Improvement (ITIM) Maturity Framework

GAO-03-751 Report of July, 2003

**FY05 Goals**

- Achieve Level 2 of the GAO ITIM Maturity Model
- 95% of IT investments will have actual costs within 90% of cost estimates established in the project or program timeline
- 100% of IT investments will be reviewed and approved through the CPIC process.

FY06 – FY08 Goals

- Achieve Level 3 of the GAO ITIM Maturity Model (FY08)
- Ensure that all Interior business cases score 4 or better overall and 4 or better in IT security (using scoring criteria defined in OMB Circular A-11)
- Synchronize Capital Planning activities with those of Enterprise Architecture and Information Security.

Focus Area 5: Enterprise Operations

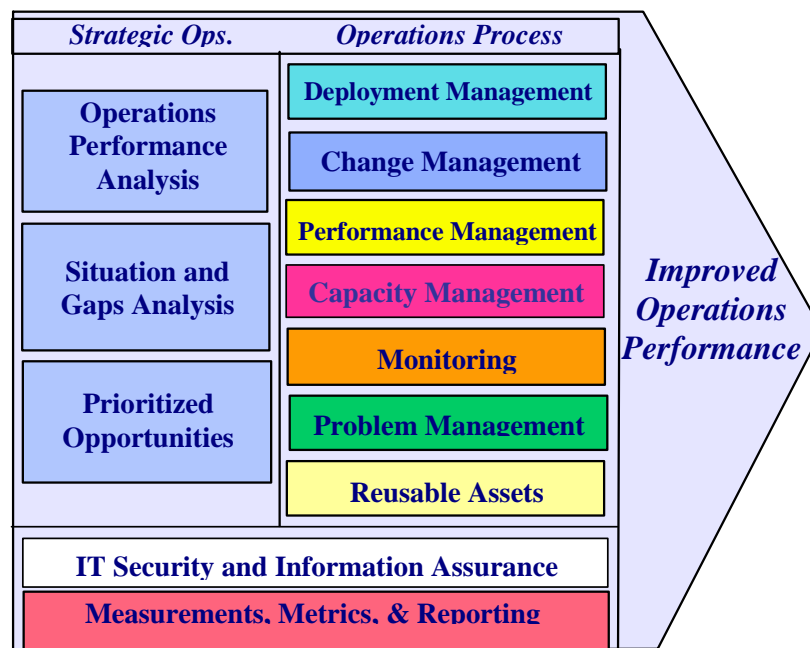
Long Term Strategic Goal

The goal of this focus area is to provide world-class enterprise operations—improving the quality, accessibility, and sharing of data between DOI and its customers. The architecture and management of the current DOI network is fragmented and decentralized. The overall goal of this focus area is to consolidate operations for a variety of technology infrastructure components in order to provide improved levels of service and security with an overall reduction in operational costs.

The following initiatives have been identified as candidates for consolidation into DOI-wide Enterprise Operations:

- Enterprise Services Network (ESN): to create a single wide-area network (WAN) supporting the Department and all Bureaus
- Enterprise Active Directory (EAD): to provide a single authoritative user directory for controlling access to IT systems and services
- Enterprise Messaging Services (EMS): to provide electronic mail and messaging services
- Help Desk Consolidation: to consolidate multiple help desk operations across the Department and Bureaus
- Web Server Consolidation: to consolidate web server infrastructure across the Department and Bureaus
- Handheld Radio: to provide a consistent approach and level of service in providing this critical server to fire and law enforcement organizations both internally and externally to DOI
- Wireless Communications: to provide for consolidated delivery of wireless services to the Department and Bureaus.

Operations Performance Analysis will be applied to activities in this area. The analysis will identify opportunities for improvement. This approach will allow DOI to provide continuous improvement in operations performance.



Maturity Model

The Information Technology Infrastructure Library (ITIL) is used to track progress in this strategic area.

LEVEL	MATURITY	DESCRIPTION
0	ABSENCE	<i><u>"There is absolutely no evidence of any activities supporting the process"</u></i>
1	INITIATION	<i><u>"There are ad-hoc activities present, but we are not aware of how they relate to each other within a single process"</u></i> <ul style="list-style-type: none"> • Some policy statements have been made • Words but no documented objectives or plans • No dedicated resources or real commitment
2	AWARENESS	<i><u>"We are aware of the process but some activities are still incomplete or inconsistent; there is no overall measuring or control"</u></i> <ul style="list-style-type: none"> • Process driven by tool rather than defined separate from tool • Positions are created, but roles and responsibilities are poorly defined
3	CONTROL	<i><u>"The process is well defined, understood and implemented"</u></i> <ul style="list-style-type: none"> • Tasks, responsibilities and authorizations are well defined and communicated • Targets for quality are set and results are measured • Comprehensive management reports are produced and discussed • Formal planning is done
4	INTEGRATION	<i><u>"Inputs from this process come from other well controlled processes; outputs from this process go to other well controlled processes"</u></i> <ul style="list-style-type: none"> • Significant improvements in quality have been achieved • Regular, formal communication between department heads working with different processes • Quality and performance metrics transferred between processes
5	OPTIMIZATION	<i><u>"This process drives quality improvements and new business opportunities beyond the process"</u></i> <ul style="list-style-type: none"> 5 Direct links to IT and corporate policy 5 Evidence of innovation 5 Quality management and continuous improvement activities embedded 5 Performance measurements are indicative of "world class"

FY05 Goals

- Establish a Department-wide Intranet
- Consolidate 33 Internet connections to 5 centrally managed secure Internet gateways
- Establish the Enterprise Services Center (ESC) and Network Operations and Security Center (NOSC) to manage the ESN and to provide customer support
- Ensure that networks are operational for all users at least 99.5% of the time.

FY06 – FY08 Goals

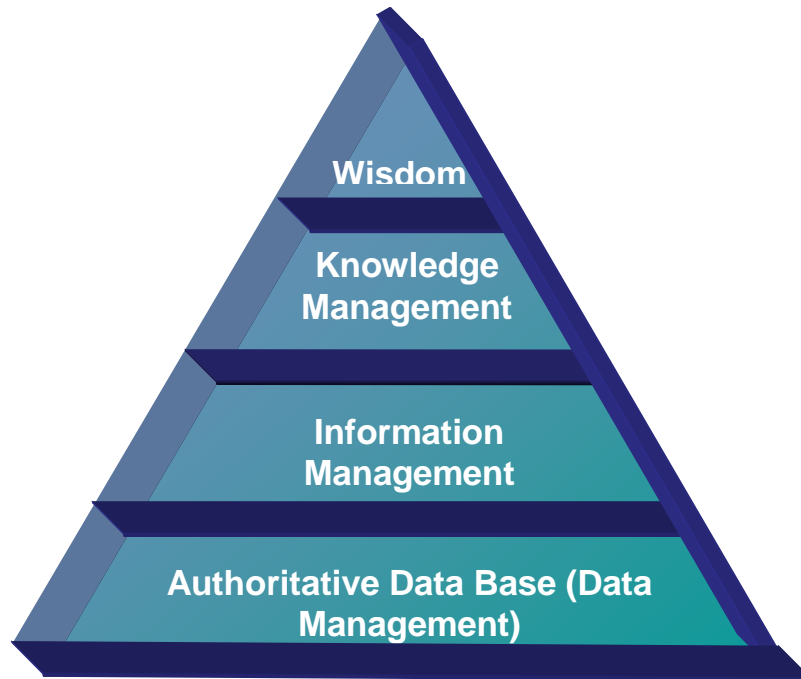
- Move network management for all Bureaus to the NOSC
- Migrate all Bureaus to the EAD
- Establish the EMS to provide e-mail and messaging services
- Ensure that networks are operational for all users at least 99.9% of the time.

Focus Area 6: Knowledge Management

Long Term Strategic Goal

The goal of Knowledge Management is to create an effective knowledge sharing environment, safeguarding records, privacy and accessibility. This focus area includes Records Management, which is a critical element in meeting mandates associated with the Privacy Act and the Freedom of Information Act (FOIA).

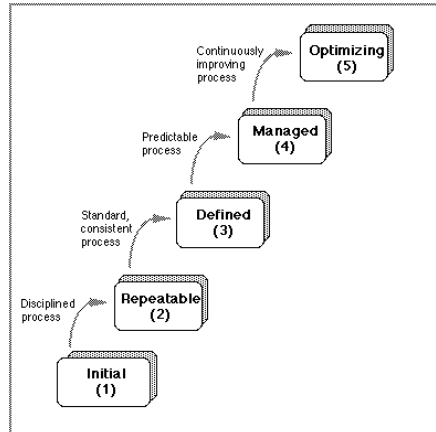
Knowledge Management Pyramid



Knowledge Management must support the Interior workforce in managing an ever-increasing volume of information and provide for the retention of institutional knowledge despite growing numbers of retirees from Federal service. The diagram above shows the relationship between traditional database management, Information Management and Knowledge Management. This model will guide Interior's efforts in the Knowledge Management focus area.

Maturity Model

The maturity model shown below is used to track progress in this focus area.

***FY05 Goals***

- Develop a consistent records management policy in all Bureaus and Offices

FY06 – FY08 Goals

- Establish and implement a records disposition system for the Office of the Secretary (FY06)
- Implement an electronic records system (FY08)

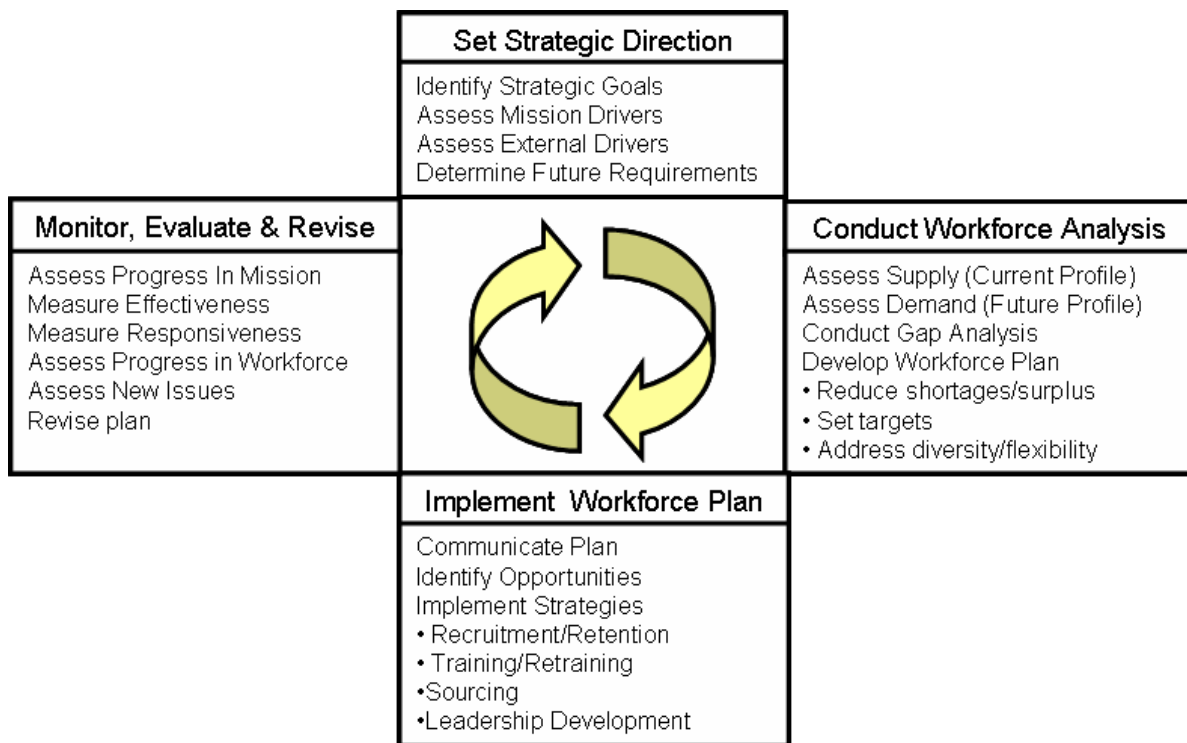
Focus Area 7: Skilled Workforce

Long Term Strategic Goal

The goal of the Skilled Workforce focus area is to ensure the availability of IT human capital capable of meeting IT goals and DOI mission challenges. This focus area includes:

- Improvement of IT workforce identification, assessment and reporting capabilities
- Ensuring that robust IT professional development programs are available
- Strengthening and leveraging IT project management skills; and
- Developing and implementing competitive compensation programs.

Success in this area must also take into account changes to business processes, workloads and required skill sets that will result from implementation of enterprise initiatives, modernization blueprints and E-Government initiatives.



Maturity Model

The “People Capability Maturity Model” is used to measure Interior’s progress in the Skilled Workforce focus area.

People CMM Objectives and Their Supporting Process Areas				
Levels	Developing Competency	Building Workgroups and Culture	Navigating and Managing Performance	Shaping the Workforce
5 Optimizing	Continuous Capability Improvement		Organizational Performance Alignment	Continuous Workforce Innovation
4 Predictable	Competency Based Assets Mentoring	Competency Integration Empowered Workgroups	Quantitative Performance Management	Organizational Capability Management
3 Defined	Competency Development Competency Analysis	Workgroup Development Participatory Culture	Competency Based Practices Career Development	Workforce Planning
2 Managed	Training and Development	Communication and Coordination	Compensation Performance Management Work Environment	Staffing

FY05 Goals

- Initiate study to determine the impacts of enterprise initiatives on the IT workforce.

FY06 – FY08 Goals

- Develop and implement an IT workforce plan.

Conclusion

The Department of Interior IT Strategic Plan provides a strategic framework for the coordinated development, implementation, operation, and integration of information technology within the Department. Its goal is to help enhance the efficiency and effectiveness of the organization in meeting its mission and business goals.

The plan provides an organizational framework for the continued development of an architecture that can support more levels and types of electronic interactions. It outlines our IT guiding principles, defines the IT goals we need to strive for in order to support our mission and achieve the results, outcomes and added value that are defined in our strategic vision of the future.

Through leadership in customer service, strategic planning and the intelligent management of our IT resources and investments, as well as through continual improvements in securing our IT environment, we are well on the way to achieve this end.

We will continue to look for greater efficiencies and ways to support our critical mission. As Interior's IT business partner we will provide the most viable means for ensuring that the Nation receives the best value for its precious resources – now and in the future.

