

Federal CIO Council

Capital Planning and IT Investment Committee

**Implementing
Best
Practices**

Strategies at Work

June 1998

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- General Services Administration (GSA)
- National Aeronautics and Space Administration (NASA)
- Department of Defense (DoD)

- **Additional Agency/Organization Profiles:**

- Pilot Agencies**

- Department of Agriculture
- Department of Energy
- Department of Housing and Urban Development
- Department of State
- Environmental Protection Agency
- United States Coast Guard

- **Additional Agency/Organization Profiles:**

- Other Agencies/Organizations**

- Department of Commerce
- Nuclear Regulatory Commission

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PREFACE

In July 1997 twenty-four different Federal agencies and organizations gathered in Washington for a Best Practices Workshop. Workshop participants highlighted their approaches for selecting, controlling, and evaluating critical IT investments with three agencies, GSA, NASA and DoD providing extensive case studies that are included in this document. Eight other organizations provided important details from their Capital Planning Pilots projects, each focusing on a different aspect of the Planning Model.

We designed this report to reflect the best practices of these pioneering Federal organizations. All across the government CIOs and IT organizations are applying lessons learned from the private sector and each other to screen and select projects. These projects are monitored closely throughout their life-cycle for accountability and verifiable return on each investment.

The Federal CIO Council would like to thank all of the agencies who took part in the creation of this document. Without your early efforts in Capital Planning and the commitment of your senior leadership, we would have lacked an important blueprint for success. Today, with flexible processes that stress strong management, communication and a commitment to mission-driven investments, the Federal Community is bringing the best technology to work for the American public.

A handwritten signature in black ink, appearing to read 'Shereen G. Remez', with a stylized, flowing script.

Shereen G. Remez
Co-Chair, Capital Planning & IT Investment Committee

**Executive
Summary**

Background

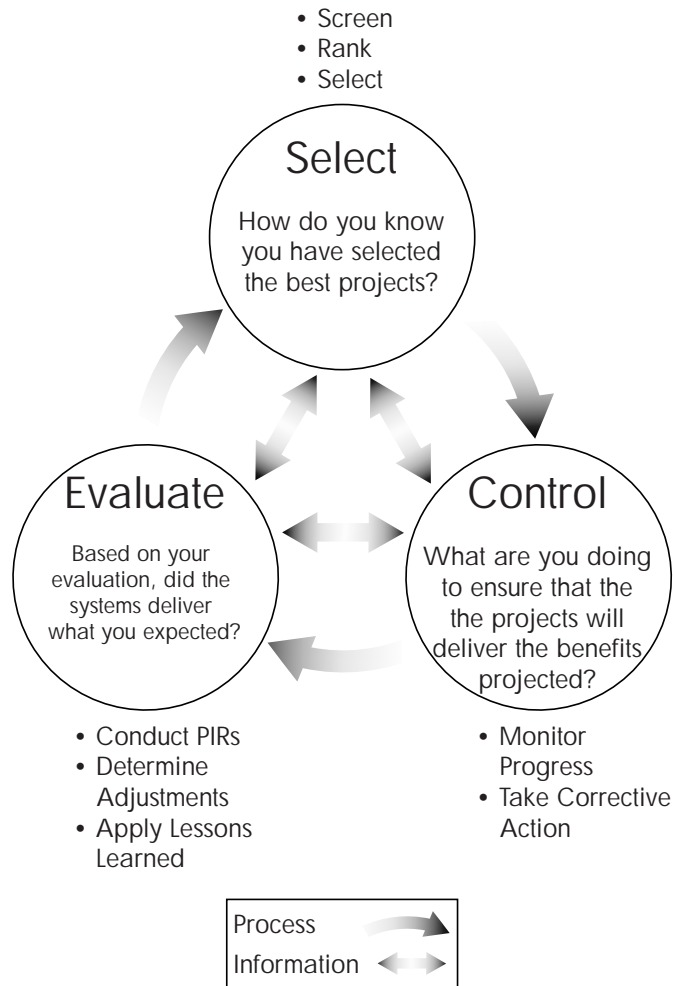
**General
Observations**

**Best
Practices**

The Pilot Agency Presentations Reflected Progress Agencies in Implementing Best Practices Within the Select Phase and the Need to Continue to Develop Strategies for Implementing Control and Evaluate Processes

- **The agencies agreed that the Select, Control, Evaluate processes need to be integrated and ongoing**
- **The pilot agencies presented the progress they have made in implementing their Capital Planning Pilot Projects; each pilot focuses on one or more best practices within the Select, Control, Evaluate Model**
 - Department of Agriculture (USDA)
 - Department of Energy (DOE)
 - Department of Housing and Urban Development (HUD)
 - Department of State
 - Environmental Protection Agency (EPA)
 - U.S. Coast Guard (USCG)
- **Additional agencies and organizations provided inputs about best practices that are being implemented within their organizations:**
 - Department of Commerce
 - Nuclear Regulatory Commission (NRC)

The *Select, Control, Evaluate* Model Provides a High-level, Structured Approach to the IT Capital Planning and Investment Control Process



Critical Success Factors

- Secure commitment and involvement from key agency decision makers
- Identify and implement repeatable, efficient, and consistent processes
- Recognize the need for variety of system types: infrastructure, administrative
- Assign accountability
- Identify interfaces with existing and new processes to ensure that multiple requests are not made for the same information

Participants of the Best Practices Workshop, Held July 24-25, 1997, Provided Strategies for Implementing Best Practices

- **Representatives of 24 different agencies and organizations attended the workshop, including several CIOs, and built upon the work they accomplished during the First Practices Workshop held in February 1997**
- **Participants used the Select, Control, Evaluate Model as a basis for implementing the best practices and provided general observations about successes, barriers, and lessons learned in implementing effective capital planning and IT investment processes**
- **Agencies highlighted approaches to implementing best practices that reflect the different characteristics of their agencies (e.g., mission, agency size, and foot print)**
 - Three agencies, GSA, NASA, and DoD, presented integrated approaches that are highlighted as case studies in this document
 - Several pilot agencies provided detailed approaches to segments of the overall Select, Control, and Evaluate Model; their respective approaches follow the case studies
 - Additional agencies provided inputs and insights to implementing best practices; these are included throughout the document

Workshop Participants Identified Several Success Factors That Apply to All Phases of the *Select, Control, Evaluate* Model

Leadership

- Strong leadership at the top
- CIO who can "sell" IT capabilities to the CEO/agency head

Mission Focus

- Decisions driven by a clearly defined business mission
- IT is seen as a mission enabler
- Emphasis on the contribution of the technology to the bottom line mission; not on the technology itself
- Ability to answer the question "Is this the best solution for our business?"

Communication

- Developed partnership among CIO, CFO, and CEO
- Open communication among the agency's top leadership
- Educate IT management and staff about the organization's business

The Right People

- Decision making at the lowest appropriate level
- Appropriate IT investment review board members

Effective Processes

- Flexibility
- Clear, well-defined processes
- IT investment process tracks with organization's overall budget cycle

Integrated Processes

- Established ROI/Performance measurements at project inception

Supporting Infrastructure

- Installed corporate information Infrastructure (ideas, feedback easily shared within organization)
- Established baseline of current IT assets

"Even the best processes for Capital Planning and IT Investment cannot be fully effective without the commitment of senior management"
- Agency comment

Agencies with Successful Implementation Strategies Shared Several Common Themes

- **Catalysts for change** prompted several agencies to quickly adapt IT investments to the agency mission
 - New senior managers who saw the need to define and narrow their agency's mission focus, and provided a roadmap that clarified that mission
 - Outside intervention such as GAO, OMB, or Congress
- **Mission-driven investments**, including IT, kept decision-makers focused on achieving greater results
- **Open and honest communication** among the primary leaders in the organization (CIO, CFO, Agency Head, and business community) led to better collaborative decision-making
 - Most effective if CEO selects CIO (private-sector model)
 - Strong agency head is essential
- **IT community understood business needs** and could focus more readily on end-user requirements
- **The CIO facilitated** discussions across the agency and provided a strategy for IT investments that is in concert with the agency mission
- **A flexible process** provided a more logical approach to decision-making
- **A corporate information infrastructure** was in place that provided the tools and data needed to help managers make decisions
- **An integrated and ongoing approach** to the Select, Control, Evaluate Model in which decision-making factors used during the Select Phase were carried through the Control and Evaluate Phases (e.g., performance measures and parameters defined during Select are used to make course corrections during Control)
- **Strong program management skills** that maximized each IT investment

**Executive
Summary**

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The CIO Council Committee on Capital Planning and IT Investment Met on July 24-25, 1997 to Share Successful Implementation Approaches to Capital Planning and IT Investment Best Practices and to Build Upon the First Practices Workshop Held in February 1997

- **The First Practices Workshop, held February 3-4, 1997, brought together representatives from the Federal CIO community to discuss approaches for meeting the requirements of the Clinger-Cohen Act of 1996**
- **Twenty-six agencies participated and used the GAO and OMB Select, Control, Evaluate Model to identify the following series of first practices**
 - Secure senior management commitment and participation
 - Establish an executive-level investment review board
 - Select the right investments (using established criteria)
 - Determine costs of present systems
 - Address costs, benefits, and risks of planned investments
 - Provide staff analysis to the investment review board that informs decision making
 - Make decisions when needed
 - Control initiatives throughout the life cycle
 - Evaluate results for lessons learned
- **Seven agencies reported on their plans for implementing Capital Planning Pilot Projects**
 - Department of Agriculture
 - Environmental Protection Agency
 - Department of Energy
 - General Services Administration
 - Department of Housing and Urban Development
 - U.S. Coast Guard
 - Department of State

**Workshop Participants Developed the Document-
"Information Technology Investment:
First Practices," February 1997**

Participants in the Best Practices Workshop Shared Successful Implementation Strategies and Lessons Learned from Their Experiences with the First Practices and GAO/OMB-Defined Best Practices

- **Representatives of 24 different agencies and organizations attended the workshop, including several CIOs**
- **The agencies that are participating in Capital Planning Pilot Projects briefed the participants on their successes and lessons learned in implementing their pilots**
 - Department of Agriculture
 - Department of Energy
 - Department of Housing and Urban Development
 - Department of State
 - Environmental Protection Agency
 - General Services Administration
 - United States Coast Guard
- **The National Aeronautics and Space Administration also provided details of their progress in successfully integrating their IT process into their overall agency strategic management process**
- **A representative from the General Accounting Office (GAO) discussed GAO's expectations for agencies in integrating information technology within the overall capital planning process**
- **Workshop participants from several additional agencies provided inputs on their current implementation efforts during facilitated group discussions**

Workshop Objective:

To gain an understanding of successful approaches for implementing best practices by examining the efforts of a diverse group of federal agencies (e.g., large versus small; centralized versus decentralized; single, focused mission versus broader multiple missions)

Agencies Discussed Their Approaches to Implementing Best Practices Within the Select, Control, Evaluate Model

Participant discussion for implementing the best practices focused on:

- **Processes:** the activities required to gather the information needed to make IT investment decisions

- **People:** the committees, boards, and individuals involved in the decision-making process

- **Tools and Techniques:** the automated and systematic approaches agencies are using to assist in decision-making

- **Success Factors:** the most important ingredients that led to successful implementation of the process

- **Challenges:** the roadblocks agencies are facing in achieving the desired mission-focused outcomes for IT investment decision making

- **Next Steps:** the work that must still occur in order to successfully implement an integrated approach to IT investment decision making

**Executive
Summary**

Background

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Workshop Participants Identified Specific Success Factors for Each Phase of the *Select, Control, Evaluate* Model

Select

- Establish corporate decision making infrastructure
- Involvement of functional level IT executives
- Use of scorecards
- Active, energized investment review board
- Use of Raines Rules and guiding principles
- Standardized reporting formats
- Exercised flexibility where appropriate
- Incorporated lessons learned into process
- Defined business, technical, and management goals and objectives
- Integrated IT planning cycle with agency budget cycle
- Developed portfolio management approaches
- Analyzed multiple investment risk categories
- Predicted benefits of investment that accrue in the near term rather than 3-5 years
- Exercised a practical "make sense" approach
- Develop criteria for applying decision criteria
- Use mission based performance measurements

Control

- Document and simplify all Control/Evaluate findings
- Develop preview of milestones/review schedule
- View control as CEO's responsibility
- Review existing projects
- Relate frequency of reviews to level of investment
- Remain faithful to the scheduled project reviews
- Use funding as a control mechanism
- Establish go/no go criteria for each review
- Develop an egress plan for termination
- Maximize use of existing formal control processes
- Structure integrated relationship with program management teams

Evaluate

- Establish thresholds for evaluations
- Critique, Select and Control phases during Evaluation
- Select the right staff to perform evaluations
- Ensure management involvement
- Agree up front what is to be evaluated
- Incorporate evaluation results into overall IT business practices

Workshop Participants Concluded That Success in the Control and Evaluate Phases is Directly Dependent Upon Developing Effective Decision Making Criteria, Milestones, and Performance Measures During the Select Phase

- **Nearly every agency and organization reported success in implementing portions of the Select phase by:**
 - Implementing investment review boards
 - Developing IT decision criteria to assist in selecting IT investments
 - Solidifying IT portfolios
- **Most agencies also indicated that they are still struggling with establishing meaningful mission performance measures and developing effective Return on Investment (ROI) cost models for existing and planned systems**
- **Fewer agencies have made significant progress in the Control and Evaluate phases**
 - Focus has been on developing the infrastructure needed to select IT investments
 - Many agencies and organizations are implementing monitoring processes in their investment review board structures

GAO Will be Looking for Tangible Evidence to Determine Whether Agencies are Implementing Effective Capital Planning and IT Investment Processes

- **Recommended reviewing GAO's guidebook: *Assessing Risks and Returns: A Guide for Evaluating Federal Agencies' IT Investment Decision-Making*, located on the world wide web at: www.gao.gov/policy/itguide/index.htm**
- **Provided insight on approaching ROI: "ROI creates a mindset and fosters more informed decision making." (InfoWeek)**
 - Establish and implement well-defined, but simplified decision criteria
 - Develop and implement a repeatable investment management process
 - Use key department managers to verify that ROI goals have been evaluated and met
- **Suggested, strongly, that agencies should develop a baseline of current IT assets to assist in framing investment decisions**
- **Noted that the legislation holds agency heads accountable for IT investment decisions**
 - This is not always practical because system development often is completed after agency leadership is gone
 - The current trend, however; is the appointment of a growing number of executives from the private sector who understand short ROI cycles

Workshop Participants Also Identified barriers to Successfully Implementing Effective Capital Planning and IT Investment Processes

- Gaining top-level attention, interest in IT
- Organizational politics
- Political danger of killing a bad project
- CIO failure to sell importance of viewing IT acquisitions as investments
- Turnover of political appointees (e.g., agency leadership)
- Poor project management
- Inadequate understanding of business and mission
- Decentralized IT authority
- Tendency to tinker during control phase, failure to take decisive action
- Over-complicated processes and reporting procedures
- Tendency to adopt one size fits all processes
- Forecasting total life cycle cost
- The difficulty of establishing clearly defined ROI measurements
- Tendency to focus on price versus cost

Participants Discussed Proactive Approaches That CIOs Can Take to Mitigate Barriers and to Motivate Their Organizations to View IT Acquisitions as Investments and Mission Enablers

- Understand the motivations of their leadership, craft strategies and approaches to assist the leadership in accomplishing the business objectives
- Benchmark performance against the "best in class" and share results
- Demonstrate value added to bottom line business need by IT investment
- Educate project office and leadership about evaluation and results by providing information to predict project success, based on data collected during the Evaluation phase

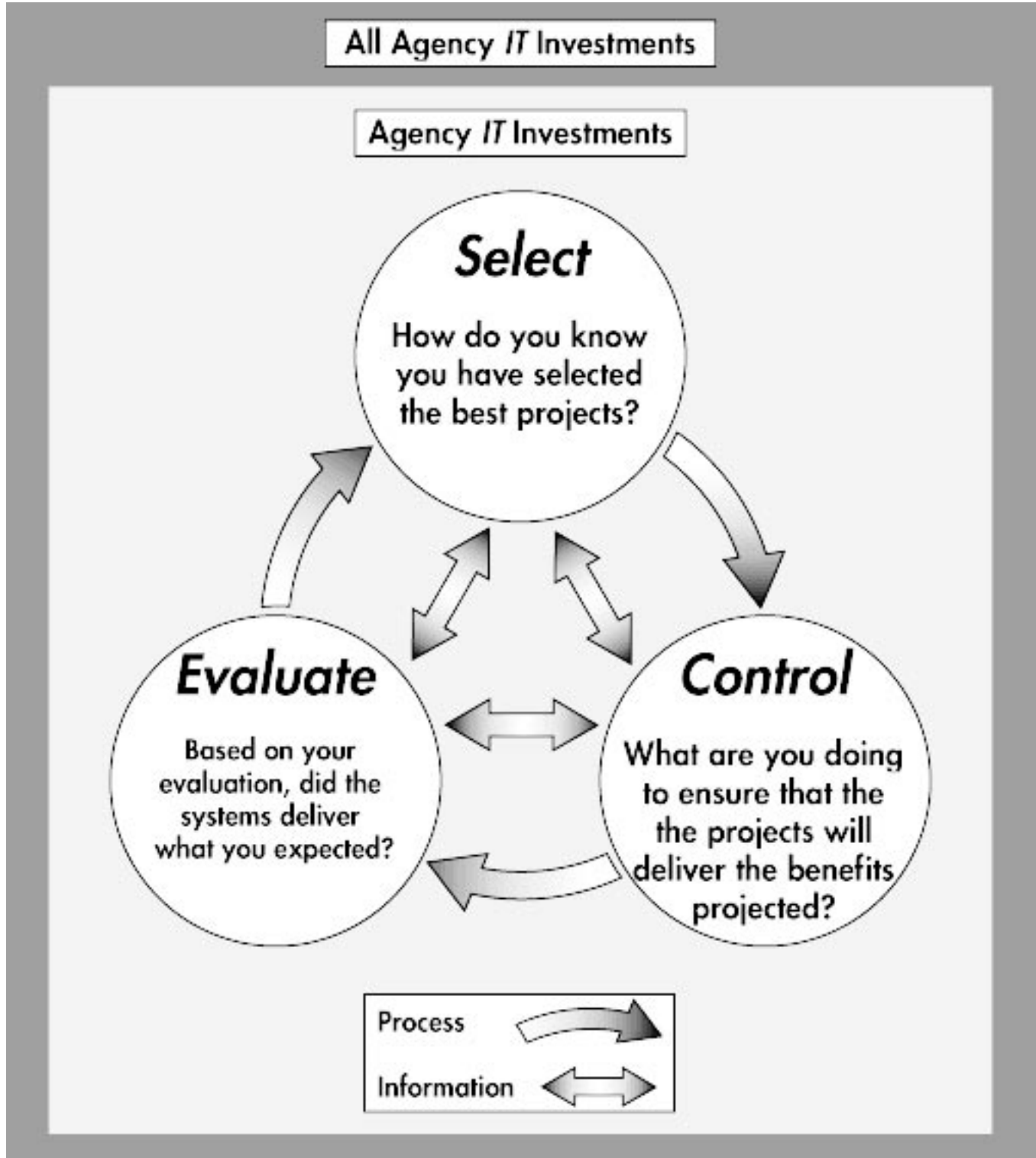
**Executive
Summary**

Background

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The *Select, Control, Evaluate* Model is Most Successful When Integrated with the Agency's Overall Capital Planning and Investment Process



The Agencies With the Most Mature Processes Demonstrated Capital Planning and IT Investment Processes that Were Integrated With the Agency Mission

Best Practice – Case Study

GSA

NASA

DoD

- Three agencies that have been noted as having integrated approaches for making IT investment decisions provided workshop participants with details of their IT decision-making process; they are presented in the following pages as case studies
 - General Services Administration
 - National Aeronautics and Space Administration
 - Department of Defense
- The case studies provide background about each agency, including IT change drivers, use the Select, Control, Evaluate Model as a framework, and focus on six specific areas:

Processes

Process: the activities required to gather the information needed to make IT investment decisions

People

People: the committees, boards, and individuals involved in the decision-making process

Tools and Techniques

Tools and Techniques: the automated and systematic approaches agencies are using to assist in decision-making

Success Factors

Success Factors: the most important ingredients that led to successful implementation of the process

Challenges

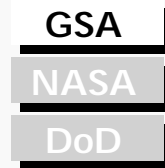
Challenges: the roadblocks agencies are facing in achieving the desired mission-focused outcomes for IT investment decision-making

Next Steps

Next Steps: the work that must still occur in order to successfully implement an integrated approach to IT investment decision-making

Background: Growing Customer Access to Outside Vendors Significantly Increased Competitive Pressures; GSA Needed to Strengthen Their Ability to Offer the Most Cost-Effective Products to Their Customers

Best Practice – Case Study



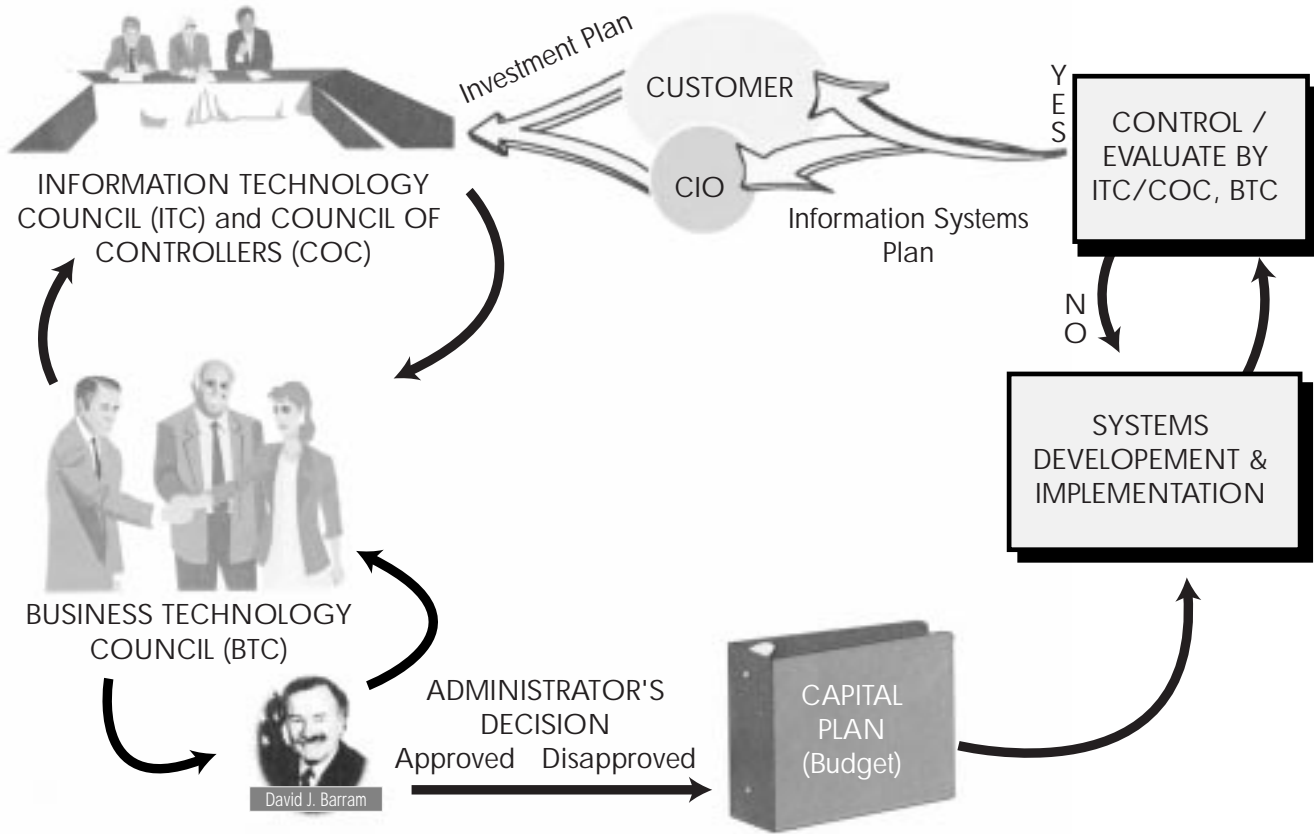
■ **GSA took several significant steps to define their mission more tightly, improve service to their customers, and ensure that GSA services were cost-effective**

- Initiated organization-wide BPR in 1993
- Reduced lines of business to 16
- Simplified purchasing and related regulations
- Delegated authority to agencies to lease real estate and purchase IT and telecommunications services
- Revamped small purchase procedures and reduced order turnaround time
- Reduced workforce by 29%

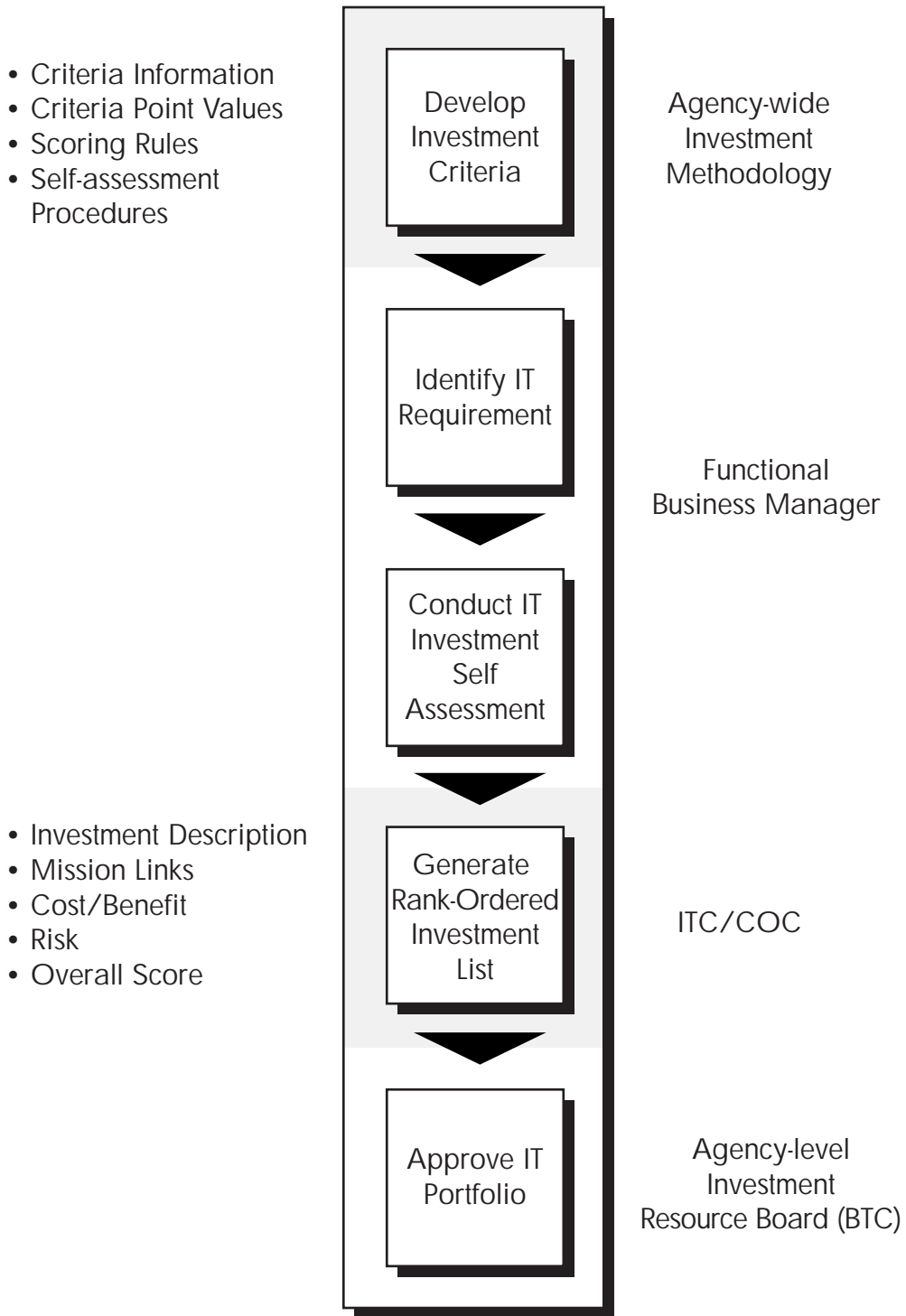
■ **GSA business, and IT's integration into the business, is characterized by several factors:**

- Only 1% (\$155M) of the current agency budget of \$13B is appropriated
- \$155M appropriation represents 26% reduction since 1993
- "Knowing the business" is inculcated into management practices at every level
- CIO is already "at the table" with the CEO and CFO
- Agency leadership has a clear view of associated IT investment risks and anticipated rewards

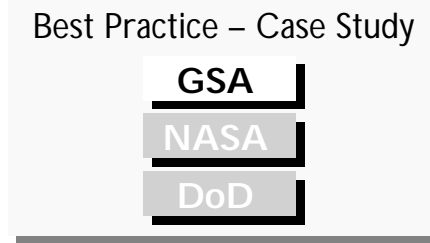
GSA IT Investment Process



GSA's Streamlined Approach to Selecting IT Investments



Select Phase: GSA Developed an IT Investment Portfolio Using Established Criteria and a Repeatable Process



- **Develop weighted criteria and scoring rules to identify major investments that would be reviewed using GSA’s agency-wide process; criteria and rules address:**
 - Dollar thresholds
 - Legal requirements
 - Mission criticality
 - High executive interest
 - Cross-functionality
 - Benefit/cost ratio

- **Develop procedures for the functional business managers to conduct self-assessments of their IT investments**

- **Conduct self-assessments to generate single investment scorecards**

- **Generate a rank-ordered IT investment list**

- **Develop and approve the IT investment portfolio at the agency level using the scorecards and rank-ordered list as input to the decision-making process**

Select Phase: GSA Developed an IT Investment Portfolio Using Established Criteria and a Repeatable Process (Cont'd)

Best Practice – Case Study

GSA

NASA

DoD

People

■ **Functional Business Managers (Service/Staff Office)**

- Conduct IT investment self-assessments using established criteria and scoring rules
- Use a priority placement grid to determine relative priorities among the IT investments

■ **Information Technology Council (ITC)/Council of Controllers (COC)**

- Chaired by Deputy CIO, participants include business area CIOs and three regional representatives; ITC meets regularly with COC
- Evaluates technical risk of investments by looking at BPR, organizational impact, cost and schedule risks, resources and training issues
- Determines the implementation approach for IT investments

■ **Business Technology Council (BTC)**

- Reviews agency-level investments
- Consists of Administrator, Deputy Administrator, CIO, CFO, and Service/Staff Office Heads
- Establishes priorities using the self-assessment inputs and makes final funding decisions
- Reviews strategic alignment between investments and business goals

Select Phase: GSA Developed an IT Investment Portfolio Using Established Criteria and a Repeatable Process (Cont'd)

Best Practice – Case Study

GSA

NASA

DoD

Tools and Techniques

- Integrated the investment selection process with the IT planning database allowing OMB circular A-11, Exhibit 43 costs to be shown for each IT project, for the overall business area, and for the agency IT portfolio

Success Factors

- Emphasizing the meeting of business needs and requirements as the most critical factors in the selection process
- Involving the functional program managers in developing the IT investment process
- Engaging top-level management involvement throughout the ITC, COC and BTC
- Standardizing scoring rules and reporting formats for all users and providing a concentrated and high level of hands-on assistance throughout the scoring process
- Conducting training on establishing IT-related performance goals and measures
- Holding facilitated lessons-learned sessions with various levels at the end of the Select phase

Challenges

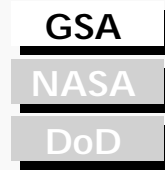
- Communicating with managers and users that the self-assessment numeric score is not the single most important factor in making IT investment decisions, but is only an input
- Bringing IT and business communities together to establish functional and IT performance measures
- Obtaining realistic life cycle cost estimates and quantitative benefits

Next Steps

- Integrate capital planning with other agency processes
- Integrate lessons learned from FY99 budget process

**Control and Evaluate Phases:
GSA has Several Project Review
Mechanisms to Control and
Evaluate an IT Investment's
Progress**

Best Practice – Case Study



Processes

- **Establish Integrated Project Teams (IPTs) during the Select phase of each project**
 - IPTs provide direct project management responsibility
 - Project managers provide monthly status reports and scorecard updates that focus on cost, schedule, deliverables, performance measures, risk factors
- **Conduct Post Implementation Reviews (PIRs) on new systems within 3 to 6 months of implementation**
- **Conducted periodic Operational Reviews on operating and infrastructure systems**

People

- **IPTs, with CIO as a member**
- **ITC and BTC**
 - Receive status reports and scorecards
 - ITC recommends and BTC decides to continue, modify, accelerate, or cancel the project

Tools and Techniques

- **IT planning database is in place and is being reviewed for expansion into other phases of the Capital Planning Process**

**Control and Evaluate Phases:
GSA has Several Project Review
Mechanisms to Control and
Evaluate an IT Investment's
Progress (Cont'd)**

Best Practice – Case Study

GSA

NASA

DoD

Success Factors

- Securing commitment to improving project management skills and to accepting the team concept of project management
- Emphasizing the link between each Service or Staff Office IT Plan and the Agency's business needs and requirements
- Building on the performance measures identified in the Select phase

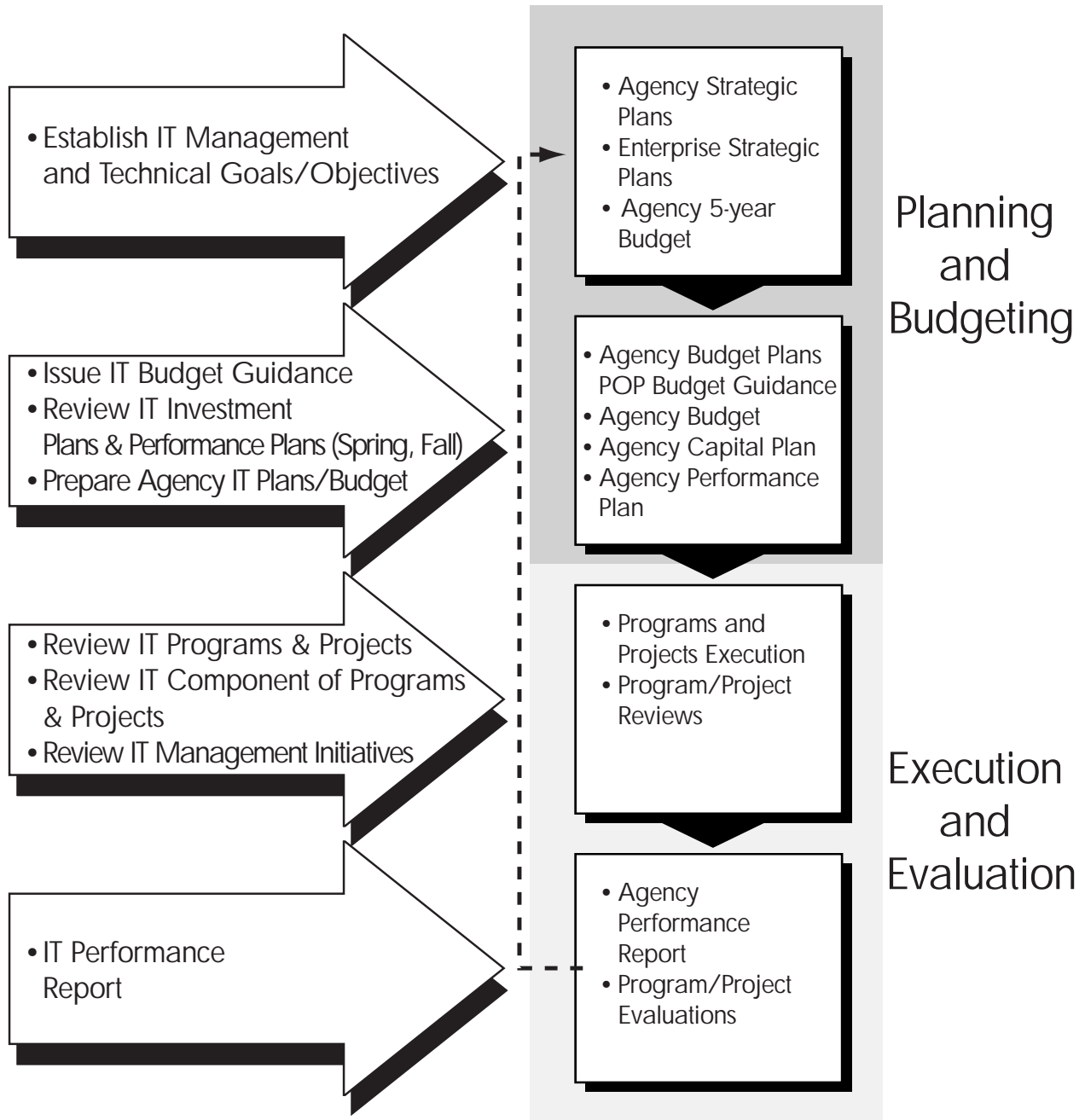
Challenges

- Obtaining management's acceptance of the IPT concept of program management
- Gaining Service/Staff Office acceptance of the ITC/BTC reviewing their IT plans and having authority to approve or disapprove funding for projects sponsored by the Service/Staff Office
- Accepting the move of the IT decision-making process from a Service/Staff Office to an Agency focus

Next Steps

- Further institutionalize the control and evaluate methodologies within GSA

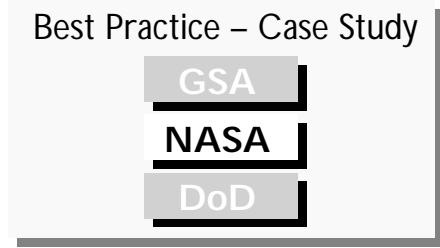
NASA's Investment Process is Integrated with Strategic, Financial, and Program Management Processes



Agency Profile

Agency Budget: \$13.7B
IT Budget: \$1.4B (90% is contracted)
Mission: Research and Development
Primary Businesses: 4
Footprint: National

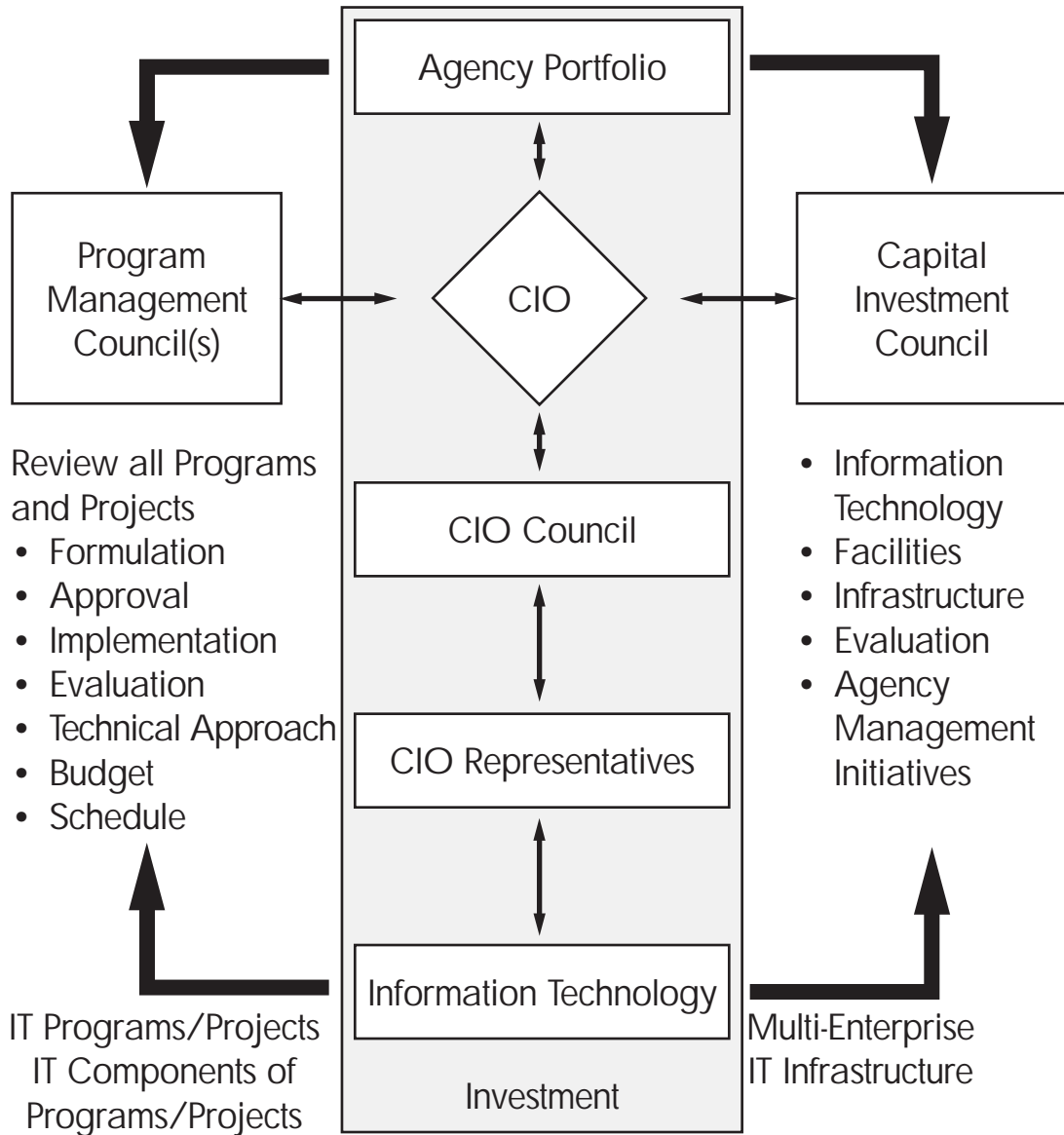
Background: NASA's is Transitioning From Operational Endeavors to Becoming the Premier Scientific Research and Development Agency



- **NASA is building on recent accomplishments with a renewed focus on scientific research and development and application of new cutting-edge technologies**
 - NASA implemented a comprehensive, customer-focused strategic planning and management process that established the Agency's vision, mission, and roadmap for the future
 - NASA's Strategic Plan defined four primary enterprise businesses
 - Mission to Planet Earth Enterprise
 - Aeronautics and Space Transportation Technology Enterprise
 - Human Exploration and Development of Space Enterprise
 - Space Science Enterprise
 - Information technology is part of the Agency's cross-cut process to manage strategically

- **NASA's approach to IT management is characterized by several factors:**
 - IT is viewed as an enabler to support space exploration, scientific research, and technology development and transfer mission areas
 - The Agency CIO reports to the Administrator and provides vision and leadership on matters pertaining to IT plans, policies, standards, investments, and assessments
 - Enterprise-level CIOs and CIO Representatives at Centers are responsible for ensuring effective IT management in a decentralized environment

NASA's Integrated IT With Program Management Process



Select: NASA Integrates Their Investment Process with Their Strategic, Financial, and Program Management Processes

Best Practice – Case Study

GSA

NASA

DoD

Processes

- Include IT management and technical goals in Agency Strategic Plan and Enterprise Strategic Plans
- Develop a two-pronged review process in which the Program Management Council reviews all enterprise projects, including IT, and the Capital Investment Council reviews IT infrastructure and multi-purpose IT projects
- IT budget and investment planning and reporting processes are fully integrated with the Agency's overall budget process
- All investments, including IT, are linked to mission performance using strategic management framework

People

- NASA CIO Council, chaired by NASA CIO, recommends Agency IT investment strategies to Capital Investment Council
 - Membership includes Enterprises and CFO
- Program Management Council considers all programs and projects including IT programs/projects and IT components of programs/projects
 - Membership includes Enterprise Heads and CIO as an equal participant
- Capital Investment Council considers all multi-enterprise and IT infrastructure investments
 - Membership includes the CFO, Deputy Administrator, and Enterprise Heads

Select: NASA Integrates Their Investment Process with Their Strategic, Financial, and Program Management Processes (Cont'd)

Best Practice – Case Study

GSA

NASA

DoD

Tools and Techniques

- Defined criteria for program formulation
- Established management controls throughout program life-cycle to address budget, technical, and schedule issues
- Defined a hierarchy of investment reviews, including NASA CIO IT Investment Review

Success Factors

- Aligning the organization directly to a clearly defined mission
- Integrating IT management processes with established Agency program and project management processes and control
- Adapting Raines Rules to meet unique ROI characteristics of research and development programs
- Coordinating closely with the CFO community

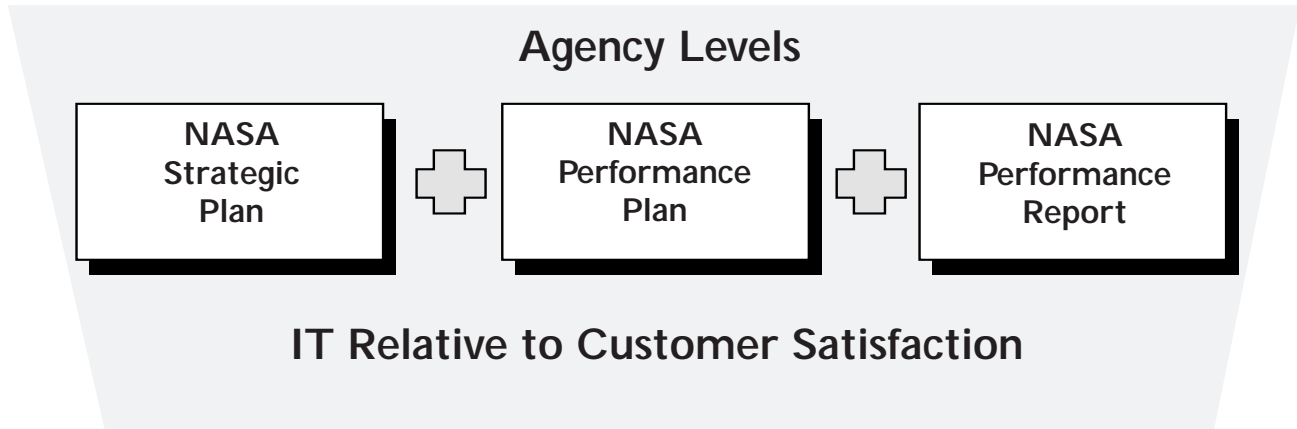
Challenges

- Meeting IT needs and supporting mission with decreasing budget
 - Maximizing outsourcing opportunities
 - Consolidating IT resources (WANs, mainframe/ mid-tier, supercomputing)
- Defining clear ROI criteria

Next Steps

- Complete implementation of strategies for IT consolidations and outsourcing
- Incorporate lessons learned from integrated process in future planning

NASA Integrated IT With Performance Management Process



**Control and Evaluate Processes:
NASA Integrates Their Select
Process With Their Performance
Management Process**

Best Practice – Case Study

GSA

NASA

DoD

Process

- At the highest level, NASA is using three documents to manage: NASA Strategic Plan, NASA Performance Plan, and NASA Performance Report
- IT performance measures are established at the agency level as part of the NASA Performance Plan as well as at individual IT investment levels
- Agency's established program evaluation process used to ensure alignment and integration of IT investments
- A pilot program is being launched to measure Agency IT ROI relative to customer satisfaction

People

- Entire agency participates in processes

Tools and Techniques

- **NASA Performance Plan**
 - Performance Measures defined for IT as part of overall NASA performance will be published in September 1997
- **Output, outcome, service level, and customer satisfaction performance measures established at the individual IT investment level**
- **Cost, schedule, and technical issues are reviewed as part of the Agency program management evaluation process**

**Control and Evaluate Processes:
NASA Integrates Their Select
Process With Their
Performance Management
Process (Cont'd)**

Best Practice – Case Study

GSA

NASA

DoD

Success Factors

- Integration of control and evaluation processes with agency strategic, budget and program management evaluation process
- CIO Investment Reviews

Challenges

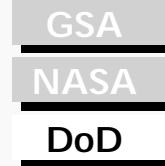
- Quantifying intangibles (e.g., customer satisfaction)

Next Steps

- Conduct pilot for Agency-level IT performance measure of ROI relative to customer satisfaction

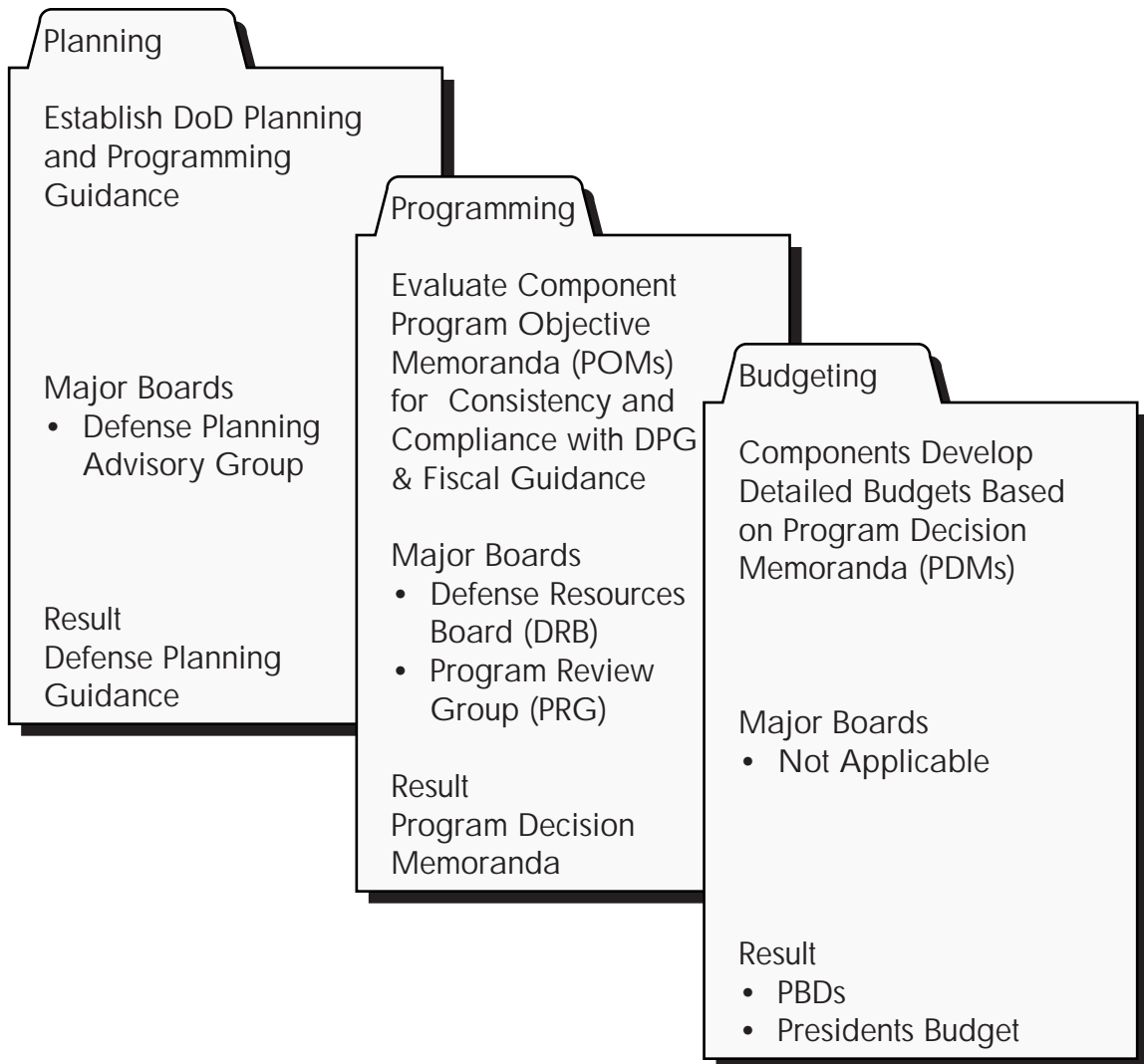
Background: DoD's Primary Challenge in Implementing the Tenets of the Clinger-Cohen Act of 1996 Centered on Integrating IT Decision Points Into the Existing Capital Planning and Investment Control Process

Best Practice – Case Study



- DoD reviewed its programs and mission during the Quadrennial Defense Review (QDR) process
 - The worldwide threat has changed dramatically over the last 10 years
 - Budget decreases of \$150 billion (38%) required streamlined processes and businesses
 - Staff reductions of 750,000 (33%) mandated increased efficiencies
 - Advances in technology required DoD to begin adopting new processes to ensure that U.S. national security interests will be protected in the future
- DoD had a long-standing capital planning and investment control process in place that needed to be leveraged to effectively implement Clinger-Cohen
- Acquisition reform has also contributed to improved IT decision-making through consolidation of DoD's policies and directives
 - Use of Integrated Product Teams (IPTs) facilitates issue identification and provides risk mitigation for projects throughout the development stage
 - Empowerment of program managers and oversight officials
 - Tailoring oversight to individual characteristics of each program

DoD's Capital Planning and Investment Control Process is known as the Planning, Programming, and Budgeting System (PPBS)



Agency Profile

Agency Budget: \$250 Billion
IT Budget: \$10.4 Billion
Mission: Operational Readiness and R&D
Primary Businesses: Multiple
Footprint: Decentralized

Select Phase: DoD's IT Investment Process is Tied to the Programming and Budgeting Processes

Best Practice – Case Study

GSA

NASA

DoD

Processes

- **Includes the DoD IT investment portfolio in the Planning, Programming, Budgeting System (PPBS)**
 - Ensures correct selection of IT investments
 - Evaluates IT investments
 - Ensures success of IT investments
- **Uses the DoD ITM Strategic Plan as a planning tool for the overall budget process**
 - Tied the ITM Strategic Plan to the GPRA Strategic Plan (the QDR) and the Defense Planning Guidance
 - Focused the Plan on improving mission performance
- **Takes a rigorous approach to linking all investments, including IT, to mission performance by leveraging the existing PPBS Process**
 - DoD reviewed PPBS and continues to implement changes to strengthen CIO participation (i.e., CIO co-chairs POM Issue Teams and participates in the PRG and DRB)
- **Uses ROI as a major factor in IT investment decision making (economic analysis, functional economic analysis)**

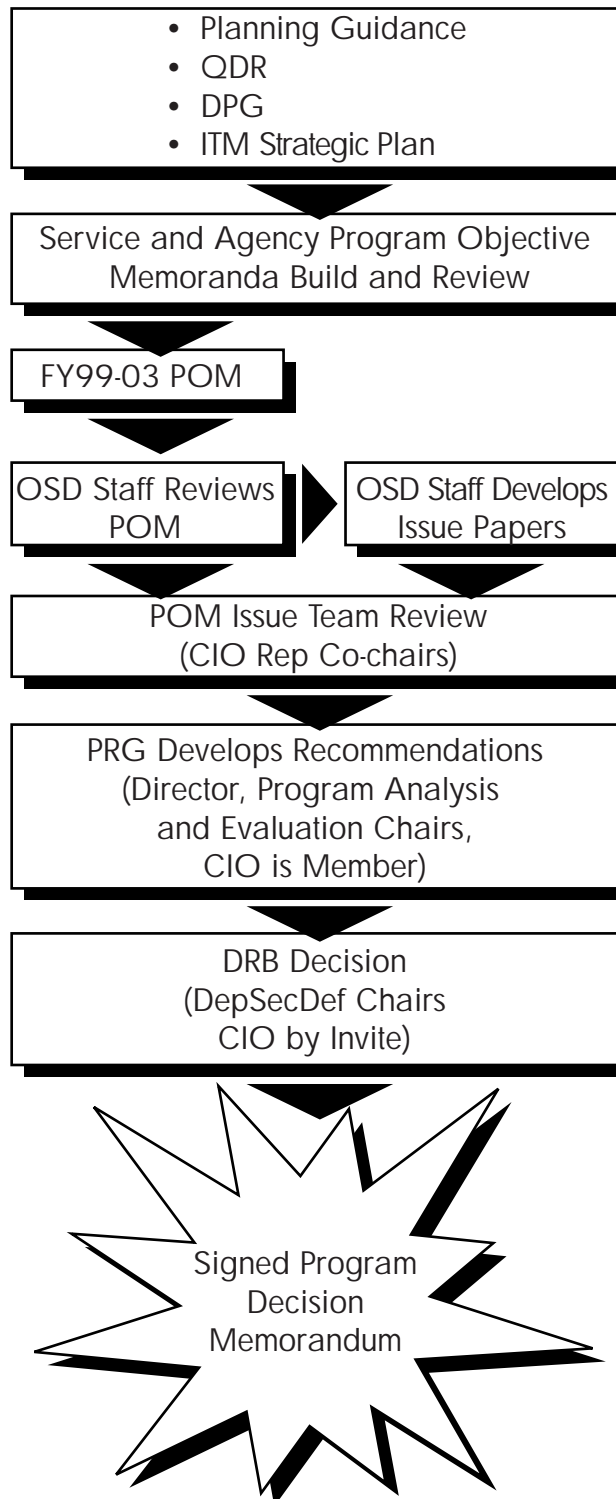
People

- **Entire agency participation; all functionals in each Service and agency participate**
- **Each component agency also has its own hierarchical review process that include equivalents to the DRB, PRG, and POM teams**

Tools and Techniques

- **Used hierarchical reviews to accomplish review of the entire DoD budget, including IT**

The IT Investment Process is Built Into the Programming and Budgeting Processes



**Control and Evaluate Phases:
The MAISRC Monitors and
Controls IT Investments
Throughout the Acquisition
Life Cycle**

Best Practice – Case Study

GSA

NASA

DoD

Processes

- Monitors and controls development of major AISs throughout the acquisition process
- Oversees progress from one major decision point or milestone to another
- Redirects or terminates programs if required

People

- Chaired by the DoD CIO (ASD, C3I)
- All stakeholders participate through Integrated Product Teams (IPTs) who manage and oversee each project throughout the MAISRC process

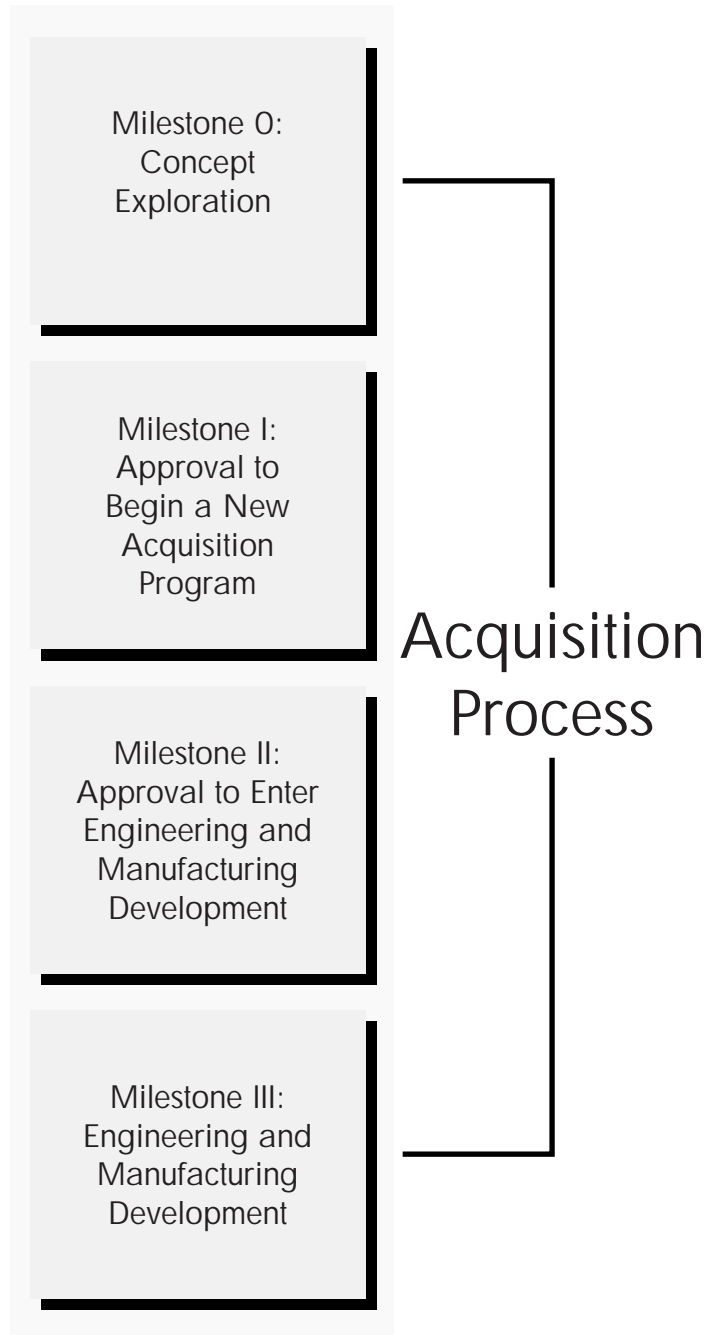
Tools and Techniques

- Used hierarchical reviews

The Department of Defense Has a Structured Control and Evaluation Process: Each Milestone Ends in a Program Review

MAISRC
(Milestone Decision Authority)
Chair: DoD CIO (ASD, C31)
Principal Members:

- USD (Comptroller)
- Joint Chiefs of Staff
- DOT&E
- DTSE&E
- DirectorAPI
- Deputy ASD (C31)
- User Representatives
- Senior Information Management Official (s)
- Component Acquisition Executives



The Department of Defense Has Been Successful in Refining an Integrated Capital Planning and IT Investment Process, but Continues to Face Challenges

Best Practice – Case Study

GSA

NASA

DoD

Success Factors

- Develop and use the Strategic Plan - ensure guidance is reflected in budget
- Support of the Agency head
- Continued decisions to use the existing processes rather than reinvent a process whenever problems arise
- Capitalizing on the hierarchical review process in both PPBS and acquisition
- Making hard decisions (e.g., MAISRC recently stopped the standard DoD accounting system)

Challenges

- Finding the right level of guidance - should not be too high level or too detailed
- Securing agreement from existing bodies to include the CIO in their forums

Next Steps

- Improving link between MAISRC and PPBS processes
- Improving portfolio analysis (i.e., relating IT to the mission area it supports)

USDA Developed Draft Investment Guidance That is Currently Being Used by USDA's Board Structure to Decide on FY99 IT Investments

Best Practice

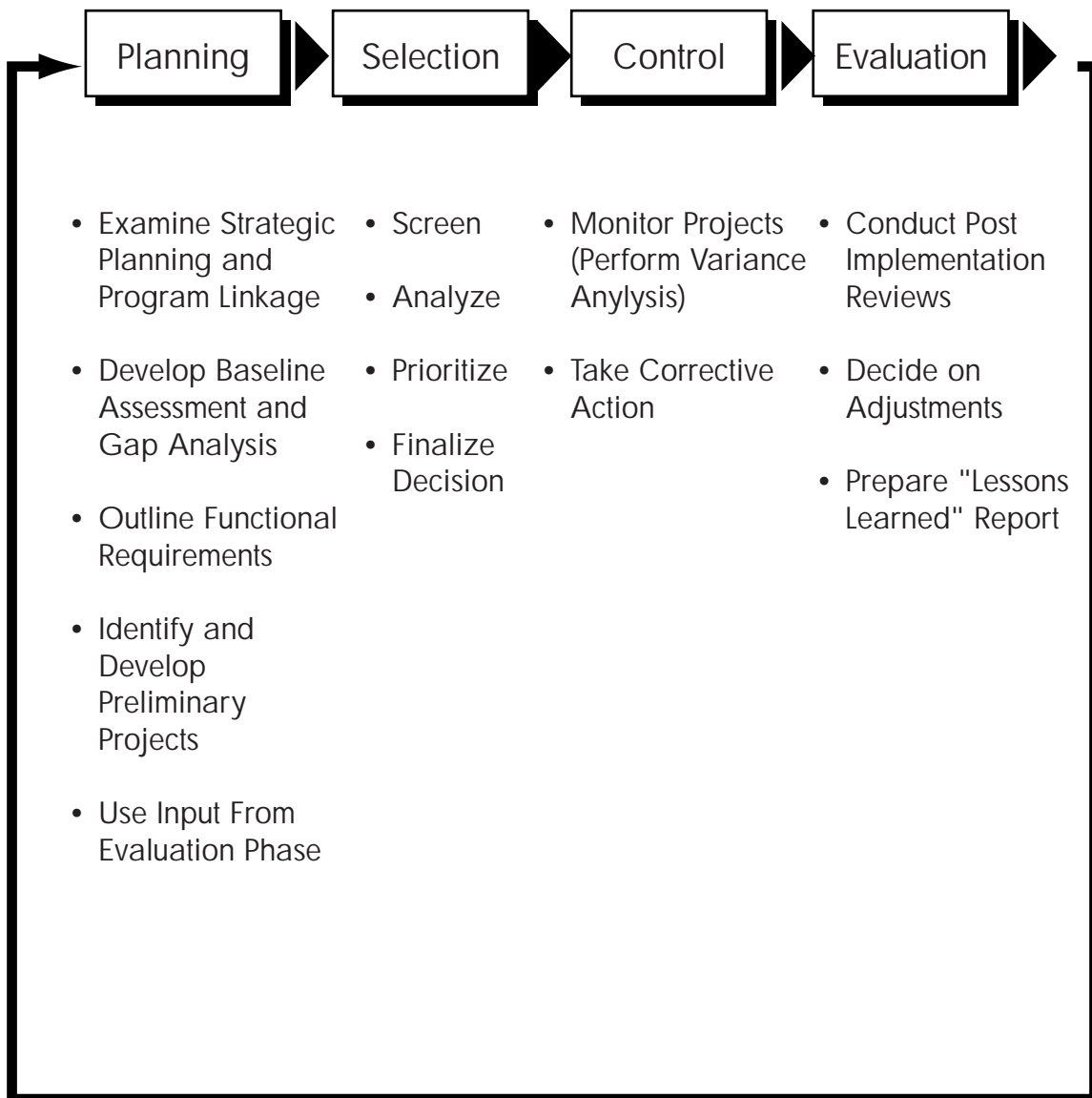
USDA

- **Established a Departmental Executive Information Technology Investment Review Board (EITRB)**
 - USDA CIO provides oversight and members include the Deputy Secretary, Under Assistant Secretaries, and Departmental CIOs and CFOs
 - Board reviews and approves IT investments using a ranking process
 - Board considers additional factors to refine rankings

- **Established Agency (Bureau) Boards**
 - Participants include the Administrator, Deputy Administrators and CIO
 - IT investment reviews are based on established criteria
 - Program, budget, and IT personnel prepare the system project plan and budget then submit them to the Board
 - Conduct self-assessment of capital assets using a predetermined set of criteria for risk and benefits
 - Establish performance goals and measures
 - Provide cross-cutting narrative for telecommunications costs and IT staffing and locations
 - Consider ITMRA requirements (e.g., Y2K)
 - Boards approve and forward IT proposals to Department

- **Completed Guide to Capital Planning and Investment Control (Draft)**
 - Incorporates agency-wide planning into the Select, Control, Evaluate Model
 - Ensures IT investments are made to effectively support agency mission objectives

USDA's Approach to Capital Planning and Investment Control is Based on the *Select, Control, Evaluate* Model



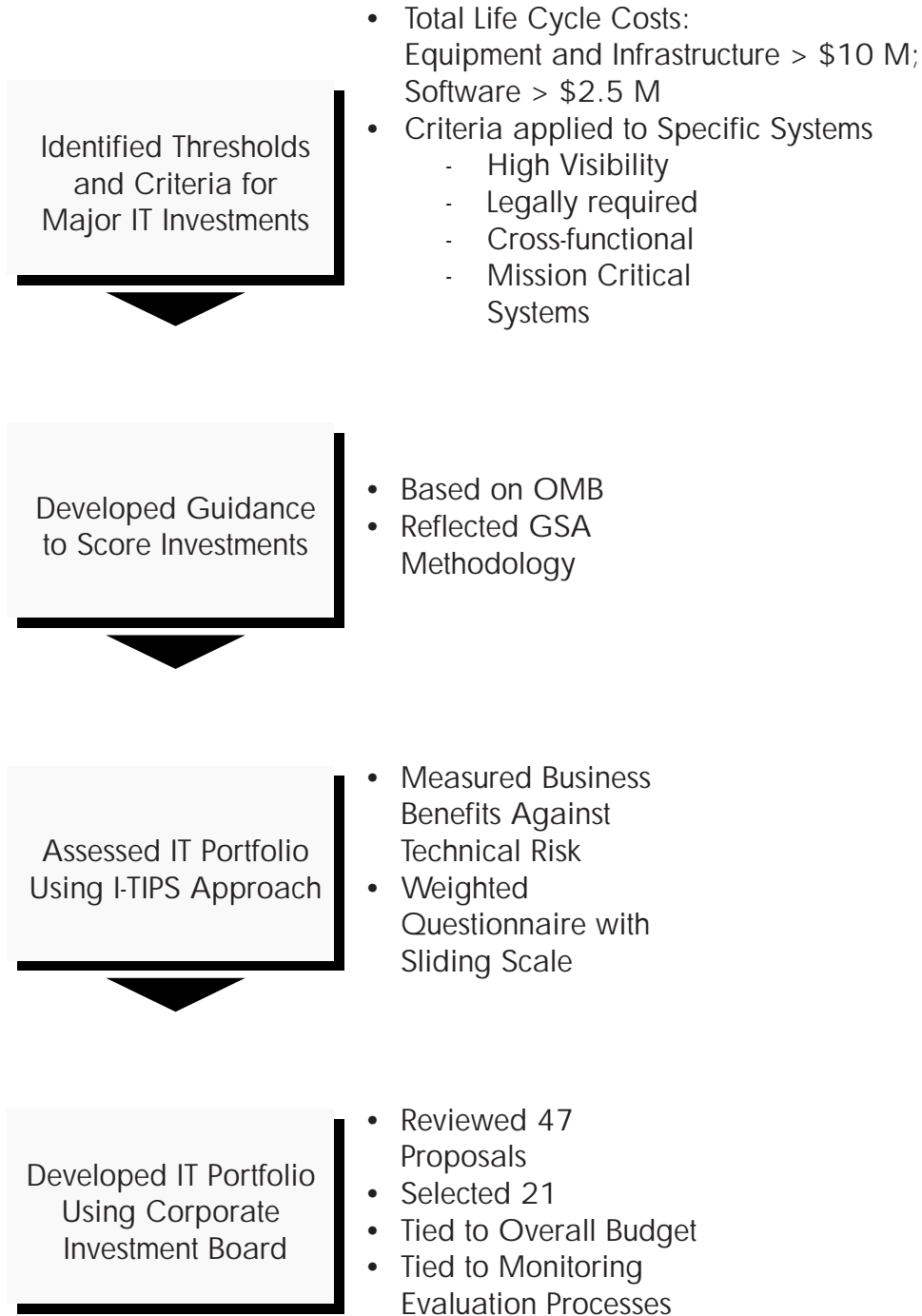
DOE is Refining its Approach for Selecting IT Investments by Piloting the I-TIPS System and its Accompanying Policies and Procedures

Best Practice

DOE

- **Incorporated BPR into IT investment process**
 - Established mission-based performance measures
 - Conducted cost/benefit analysis
 - Developed business decision criteria
- **Involved senior management involved in key processes**
 - Developed Corporate Investment Board (CIB): chaired by Deputy Secretary, CIO serves as Executive Secretary, and membership includes all Assistant Secretaries
 - Met at scheduled intervals to discuss mission and strategy priorities
- **Developing a portfolio management system, I-TIPS, to measure business benefit against technological risk**
 - Provides a tool to score IT investments
 - Offers portfolio alternatives
 - Identifies IT asset baseline
 - Pilot tests being conducted for legacy, new, and concept systems
 - Provides a tested, award winning selection model

The Department of Energy is Developing an Automated Portfolio Analysis Tool That Will Be the Focal Point for the IT Decision-Making Process



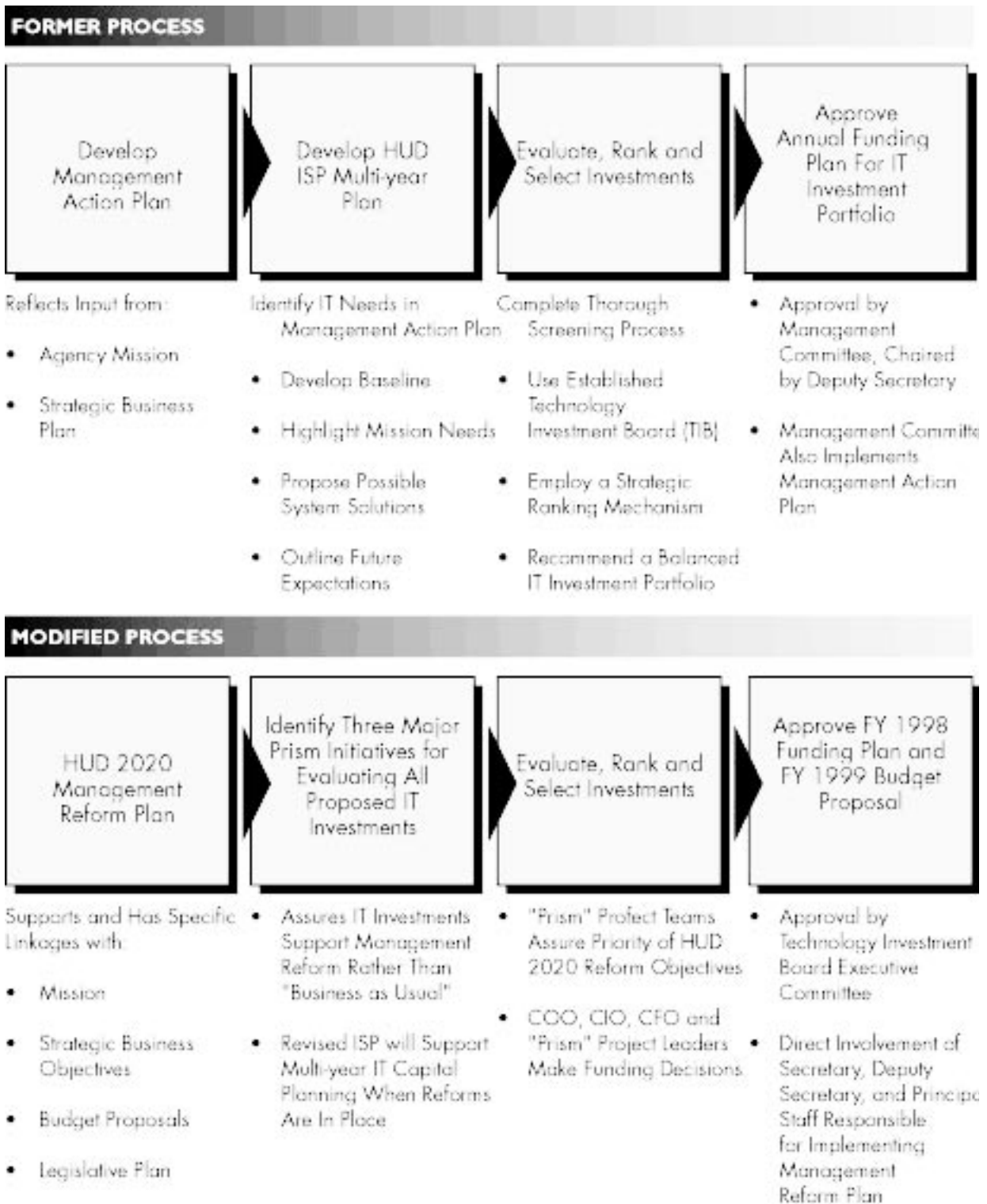
HUD Modified its Established Approach to IT Capital Planning to Support Major Business Transformation and Management Reform Within the Department, and to Reflect the Direct Involvement of the Agency Head in the Capital Planning Process

Best Practice

HUD

- **Defined the Agency's Mission, Strategic Business Plan, and Management Reform Plan (HUD 2020)**
- **Identified three major systems initiatives that are critical to achieving mission, strategic objectives, and management reform**
 - Three initiatives are a screen, or "prism" through which all proposed IT Investments must be evaluated.
- **Created Technology Investment Board Working Group (TIBWG) and Technology Investment Board Executive Committee (TIBEC) to perform capital planning functions previously performed by TIB and Management Committee**
 - HUD Secretary, Deputy Secretary, and executive Principal Staff actively participate in monthly TIBEC meetings
 - The "prism" initiative project leaders and teams evaluate, rank, and select, proposed investments which support HUD 2020 reforms
 - COO, CIO, CFO, and "prism" Project Leaders determine proposed funding for recommended investments
 - TIBEC has final approval
- **Success Factors**
 - Having an Agency Head that is mission focused and highly interested in understanding the contribution each investment, including IT, will make to the mission
 - Focusing on results
 - Developing flexible processes that enable sound decisions that cut across traditional program cylinders

Housing and Urban Development's Selection Process for IT Investments is Modified to Support Agency Management Reform

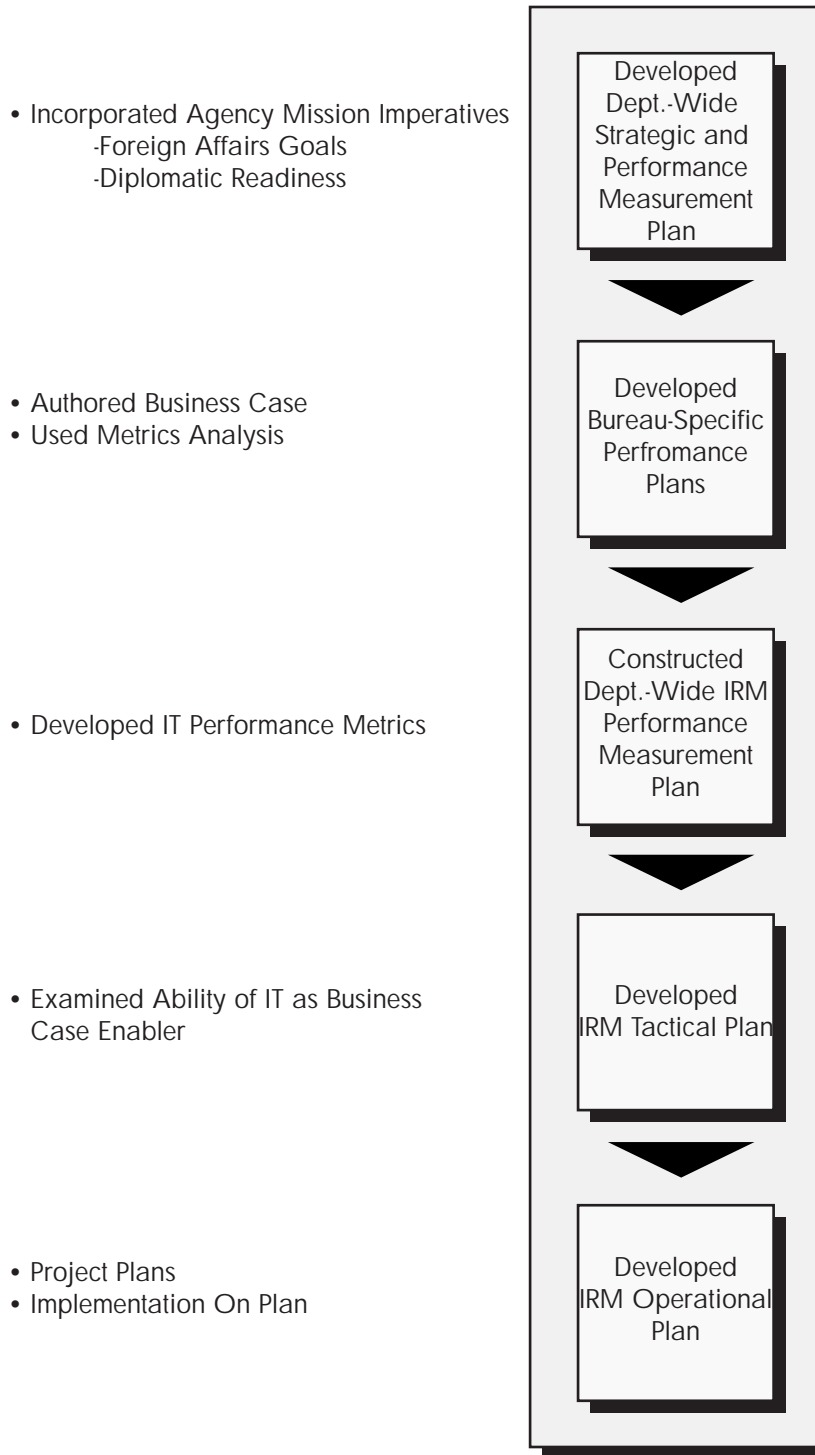


The State Department has Established an Information Resources Management Program Board (IRMB)

Best Practice
State

- **Established the IRMB to prioritize IT investments and provide management oversight**
 - Considered Raines Rules and Pesky questions
 - Investigated use of COTS for ranking and scoring process (e.g. Expert Choice)
 - Identified interdependencies and dependencies
 - Examined ROI goals, objectives
- **Acted on initiatives generated through the planning process**
 - Y2K compliance
- **Implemented group decision making methodology**
- **Involved key management decision makers**
 - CIO, CFO, A/S for Administration, Executive Secretary, A/S for Diplomatic Security, DAS for IM, Procurement Executive, Deputy Legal Advisor, Director, Officer of Acquisitions, A/S (Functional Bureau)
- **Authored post implementation review and evaluation criteria**
- **Developed a plan to evolve the ranking and scoring process using an automated tool**

The Department of State is Integrating IT Planning and Agency Performance Measurements



EPA Strengthened an Existing Infrastructure for IT Capital Planning and Investment

Best Practice

EPA

■ **Focused on the Strategic Role of the CIO**

- Established effective relationship with program offices and with CFO
- Installed CIO as Chair of Executive Committee for IRM
- Created appropriate investment review and evaluation protocols
- Worked to increase CFO understanding of IT capabilities

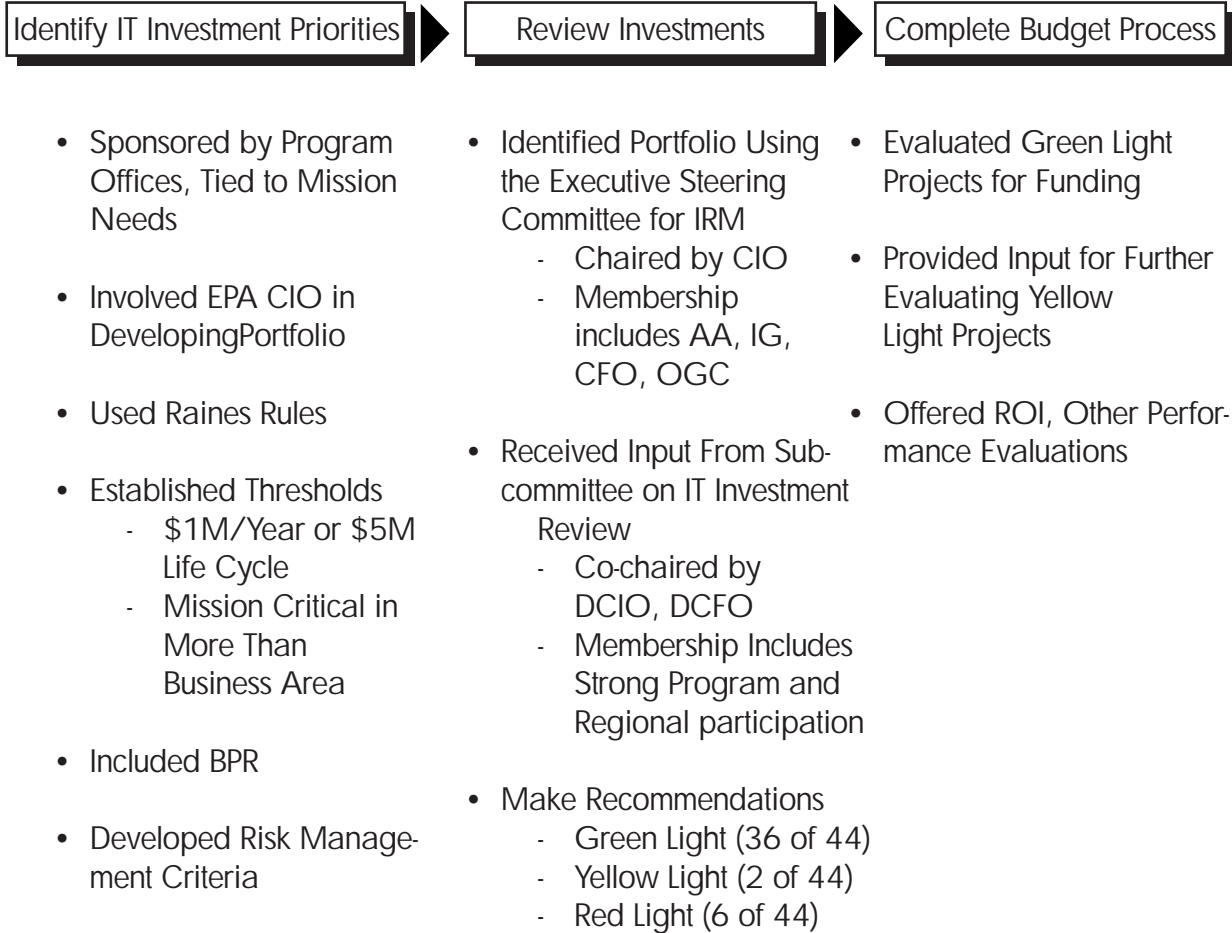
■ **Developed a flexible investment process**

- Tied investments directly to mission needs
- Incorporated direct input from program offices (Subcommittee on IT Investment Review)

■ **Defined a clear portfolio recommendation format**

- Green Light = Strong recommendation for funding/implementation
- Yellow Light = IT project requires further evaluation against predetermined criteria and external factors
- Red Light = IT project is not ready to go forward to the CFO Budget Process

The Environmental Protection Agency's Approach to IT Investment Planning and Selection Includes a *Red, Yellow, Green-Light* Evaluation Prior to Funding the Initiative



The Coast Guard Developed a Set of Criteria That Fall Into Four Categories: Risk, Mission Effectiveness, Strategic and Operational Alignment, and Benefit/Cost Impacts

Best Practice

USCG

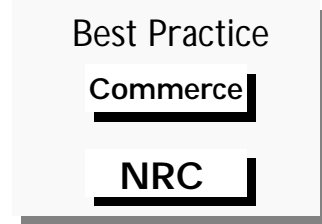
- **Involved designated personnel and offices in the process**
 - Program (business area) develops IT budgetary and support documentation
 - IRM Peer Group uses defined set of criteria and scoring rules to evaluate and rank IT investments
 - IRM Board determines final recommended IT portfolio for inclusion in the agency's budget
 - Board members include senior agency managers and USCG CIO
- **Developed corporate information infrastructure to meet process demands**
 - Created an automated in-house application that assists IRM Peer Group in scoring and extrapolating raw scores in the development of IT portfolio
- **Recognized Implementation Barriers**
 - Acceptance of program offices
 - Gaining senior management support
 - Personnel turnover
 - Maintaining process integrity and clarity
- **Highlighted Success Factors**
 - Ensured support throughout agency by including program offices at the IRM Peer Group and IRM Board levels
 - Provided level playing field for evaluating competing IT investments
 - Recognized GAO and OMB guidance and interest in IT investment planning reform

U.S. Coast Guard Developed IT Investment Weighting Criteria that Incorporates Concepts of GAO “Best Practices” for IT Planning and the OMB Raines Rules

Risk (30%)	Mission Effectiveness (25%)	Strategic & Operational Alignment (25%)	Benefit/Cost Impact (15%)
Schedule	Improved Service to Public	Strategic Planning	Benefit/Cost Ratio
Cost Sensitivity		Business Process Redesign	
Organizational		Scope of Beneficiaries	
Risk of Not Doing It			
Sensitivity/Quality of resource Savings Estimate			

Risk Criteria (30%)	Weight (30 %Rel. Wt.)	Minimum 0 Points	Maximum 30 Points
Schedule Risk	4 points	<p>Zero points: Very risky. Project acquisition is not structured as relatively short-term modules that can be evaluated easily and allow project to change direction. Execution of Project is likely to slip; acquisition strategy indicates contract may not be awarded in time to meet schedule or obligate budget year dollars. Project staff is limited in size and/or experience and project is complex. An accelerated project schedule was imposed rather than developed from project planning.</p> <p>Zero points: Very risky. Project is complex and cost estimates appear to require additional refinement. Software development is required and represents more than 50% of the predicted cost.</p>	<p>Four points: Low risk. Project acquisition is structured as relatively short-term modules that can be evaluated easily and allows project to change direction without significant difficulty. Execution of project is not likely to slip; acquisition strategy should result in timely contract award such that funds can be obligated as planned. Adequate project staff is available and has requisite experience to execute the project; project is not complex. Project schedule has not been accelerated to meet artificial deadlines.</p> <p>Five points: Low risk. cost estimates are well supported. Little software development required or a software cost estimating technique has been used to produce a reasonable reliable cost.</p>
Cost Sensitivity	5 points		
Technical risk	7 points		
Organizational risk	5 points		
Risk of Not Doing It	5 points		
Sensitivity/Quality of Resource Savings Estimate			

Department of Commerce and Nuclear Regulatory Commission Outlined Best Practices Implemented in the Select Phase of IT Capital Planning



- **Department of Commerce established the Commerce Information Technology Review Board (CITRB), chaired by the CIO**
 - Worked with budget staff to coordinate and combine requests for budget and IT plan submissions from all Commerce operating units
 - Required sponsors of major IT initiatives to brief Departmental Staff on the following areas for each investment: mission relevance, Y2K compliance, ROI, risk mitigation
 - Used Raines Rules to review operating unit IT plans
 - Ensured IT investments are aligned with department strategy; satisfy mission requirements; are compatible with architecture goals; minimize risk; and meet ROI requirements
 - Developed an IT capital planning and investment processes that built upon GAO and OMB guidance and comments from the Commerce CIO Council and budget community
 - Developed decision criteria and scoring processes for ranking new IT projects and modifications to existing systems, used the criteria in a trial process to score and prioritize projects, and revise criteria to incorporate lessons learned
 - Programmed future revisions in decision criteria to reflect lessons learned from trial

- **NRC Developed detailed guides for IT cost/benefit and risk analysis**
 - Formed program and IT staff teams to evaluate proposed IT investments and write executive summaries for top-level management

Appendix A: List of Attendees

List of Attendees

Agency Web Sites

<u>Agency</u>	<u>Web Site</u>
USDA	www.usda.gov
Commerce	www.doc.gov
DoD	www.dtic.mil/c3i/
EPA	www.epa.gov
DOE	www.doe.gov
GAO	www.gao.gov
GSA	www.gsa.gov
NASA	www.nasa.gov
HUD	www.hud.gov
State	www.state.gov
USCG	www.dot.gov/dotinfo/uscg
FDA	www.fda.gov/
SSA	www.ssa.gov/
Treasury	www.ustreas.gov/
US Army	www.army.mil/
VA	www.va.gov/
NIH	www.nih.gov/
HHS	www.os.hhs.gov/
DoED	www.ed.gov/
NRC	www.nrc.gov/
RS	www.irs.ustreas.gov/
FEMA	www.fema.gov/

Appendix B: List of Acronyms

Acronym List

IRM	Information Resources Management
IT	Information Technology
ITC	Information Technology Council
ITM	Information Technology Management
ITMRA	Information Technology Management Reform Act
MAISRC	Major AIS Resource Council
NASA	National Aeronautics and Space Administration
NRC	Nuclear Regulatory Commission
OMB	Office of Management and Budget
PA&E	Program Analysis and Evaluation
PDM	Program Decision Memoranda
PIR	Post Implementation Review
POM	Program Objective Memoranda
PPBS	Planning, Programming, and Budgeting System
PRG	Program Review Group
QDR	Quadrennial Defense Review
R&D	Research and Development
ROI	Return on Investment
USCG	U.S. Coast Guard
USDA	Department of Agriculture
WAN	Wide Area Network
Y2K	Year 2000