Starting Over Planning For A New Child Support Enforcement System

#### A Description and Discussion

a presentation of the Office of Child Support Enforcement

# **The Planning Phase**

## The Planning APD

#### **Purpose of a Planning APD**

First: a planning APD provides the federal government with the initial start-up data necessary to fund a state's planning activities for a new automation project

Second: an APD provides the state and federal agencies with the kind of high level data generally used to monitor a project's progress

#### **Types of APD's**

Two Major Types of APD Submissions

- Planning APD
  Used to seek reimbursement for planning costs
- Implementation APD Used to seek reimbursement for costs of designing, developing, and implementing a system

#### **Planning APD**

 Generally used in support of major system development projects, as opposed to less complex computer acquisitions like hardware and software buys

This is a brief document of usually not more than 15-30 pages

Problem Statement
 Project Management Plan (PMP)
 Planning Budget
 Total Project Cost Estimate

The Problem Statement

- a. 1-3 pages of general discussion of the problem(s) faced by the agency and of the need to seek a remedy
- b. Cites examples of issues and problems being faced

#### The Project Management Plan (PMP)

- a. Provides a list of key personnel
- b. Provides an organization chart for the planning effort
- c. Provides a task-oriented list of planning activities to be conducted including project schedule information

## **A Project Schedule Example**



#### The Project Management Plan (PMP)

- The task-oriented list of activities to be conducted must include commitments to conduct a:
  - Needs Assessment
  - Feasibility Study
  - ✓ Alternatives Analysis
  - Cost Benefit Analysis

#### The Project Management Plan (PMP)

- Other task-oriented activities that a PMP might include are:
  - ✓ Developing RFP's / ITB's
  - ✓ Conducting procurements for:
    - Quality Assurance and IV&V
    - Software development
    - Project management support
    - Hardware and Software purchasing
    - Implementation APD development, etc.

Planning Budget

- Provide a budget spreadsheet showing costs broken-down by Federal Fiscal Quarter (FFQ) and summed to the Federal Fiscal Year (FFY).
- Best presentation is to have one page per FFY.
- Have last column of each budget spreadsheet show state and Federal shares for each FFY

#### **Budget Categories Include:**

- State staff,
- contractors (listed by contract), hardware and software,
- training,
- miscellaneous/supplies,
- travel,
- data center (listing both operations and development separately).

#### **The Implementation APD**

- 1. Executive Summary
- 2. Statement of Needs and Objectives
- 3. Feasibility Study (Includes a summary of the study and the Analysis of Alternatives)
- 4. Project Management Plan
- 5. Interface Requirements
- 6. Security
- 7. Budget (Including cost allocation, if needed)
- 8. Cost Benefit Analysis

# Feasibility, Alternatives and Cost Benefit Analysis

A Description and Discussion

# FEASIBILITY STUDIES

IN COMPLEX, LARGE SCALE APPLICATION DEVELOPMENT PROJECTS

## Feasibility Studies: Purpose

 The Preliminary Study That Determines Whether a Proposed Systems Project is Technically, Financially, and Operationally Viable

 The Foundation for Approval of the Project's IAPD

## **Feasibility Studies**

- Include an Alternatives Analysis, Identifying Viable Options for System Design and Development. Together, They Provide:
  - Analysis of the System Objectives, Functional Requirements, and System Design Concepts
  - Feasibility of Applying Automation To Economically Improve Program Operations
  - Evaluation of Each of the Alternatives and Selection of an Optimal Solution

## **Feasibility Study Process**

- Describe the Status Quo
- Define the Problem
- Define System Objectives
- Identify System Constraints and Assumptions
- Develop Initial Requirements
- Assess Project Feasibility

#### **Describe the Status Quo**

 Understanding of How the Current System Works

- Work Flow Analysis
- Technical Architecture of Hardware
- Software Components
- Manual Components
- Interfaces

#### **Define the Problem**

- What Functionality is Missing or in Need of Automation From the Current System
- What Functionality is in Need of Improvement or Modification in the Current System
- Obsolescence of Technological Platforms and Architectures

## **Define System Objectives**

#### Functionality for the New System

- Added
- Automated
- Improved
- Define Technical and Organizational Objectives
- Define Ranking Criteria to Evaluate Alternatives

## **Identify System Constraints**

Law and Regulations

- Technological
- Socio-political
- Financial
- Operational
- Functional

# **Identify Assumptions**

- Cost and Budget
- Resources
- Functional and Programmatic
- Technical
- Organizational
- System Life

## **Identify Assumptions**

 Include All Assumptions That Will Affect the Analysis

 Document the Logic Underlying the Assumptions

## **Initial Requirements**

 Reorganize All of the Previous Work Into a List of Requirements the System Must Fulfill

- Ensure Requirements Definitions for the Current System Were Considered
- Identify the Universe of Existing and Theoretical Options

## **Assess Project Feasibility**

 Assess Project Feasibility Against the Universe of Options:

- Technical
- Political
- Impact on Users
- Cost
- Resources
- Risk
- Organizational

## Results

 Ability to Reduce the Universe of Potential Options to 2-4 Realistic Possibilities

 These Now Undergo Detailed Evaluation as Part of the "Analysis of Alternatives"

# **ALTERNATIVES ANALYSIS**

#### IN COMPLEX, LARGE SCALE APPLICATION DEVELOPMENT PROJECTS

## **Alternatives Analysis**

#### An Analysis Which Considers the Alternatives Available for Automation.

### **Development** Alternatives

- Status Quo
- Enhance Existing System
- New Development
- Transfer
- Hybrid

## **Technical** Alternatives

- Client Server vs. Main Frame
- Thin Client vs. Thick Client
- Web Technology vs Closed System
- Distributed vs. Centralized
- Custom vs. COTS

## **Alternatives** Analysis

 Map Requirements to Hardware, Software, Processes and Personnel.

- Determine Risks and Effects
- Rank Alternatives
- Delete Non-viable Alternatives

#### **Determine Risks and Effects**

Program Impact Equipment Impact Software Impact Information Impact Organizational Impact Operational Impact Developmental Impact

# COST BENEFIT ANALYSIS

IN COMPLEX, LARGE SCALE APPLICATION DEVELOPMENT PROJECTS

## **Cost Benefit Analysis**

Detailed Evaluation of the Costs and Benefits of Each Alternative Identified During the Alternatives Analysis Is Critical ...

... Pass or Fail Critical ! From a Federal Standpoint !
#### Costs

- Cost the Status Quo
- Cost Alternatives to Status Quo
- Identify and Characterize All Costs
- Determine Whether to Use Constant or Current Dollars
- Build Each Cost Profile Year by Year

#### Cost the Status Quo

 Cost of Maintaining Current System With No Enhancements.

 Used As Control Group to Evaluate Other Alternatives.

#### **Cost Alternatives to Status Quo**

#### Recurring Costs

#### Non-Recurring Costs

## **Identify and Characterize Costs**

- Hardware
- Software
- Training
- Personnel
- Database Conversion
- Other (examples in Guide)

## **Determine Constant or Current \$**

- Project Constant Dollar Cost and Benefits
- Convert Constant Dollars to Current Dollars
- Convert Future Dollars to Today's Dollars

# Build Each Cost Profile Year by Year

- Estimate Effort Based on Metrics

   COCOMO
   Price-S
   Function Points

  Compare to Similar Systems
  Run Experiments
- Measure Actuals

### Benefits

 Identify and Characterize All Benefits

- Tangible Benefits
- Intangible Benefits

# Identify and Characterize All Benefits

- Increased Collections
- Reduced Error Rates
- Reduced Costs
- Reduced Staffing
- Improved Security
- Improved Access
- Improved Interface

## **Tangible Benefits**

 Derive Cost Saving From Benefit
 Document Assumptions Used in Derivation

## **Intangible Benefits**

- List and Rate
- Examples
  - Worker Satisfaction
  - System Downtime
  - User Friendliness
  - Useful Life of System

### **Cost Benefit Analysis**

- Convert Costs and Benefits to Current Dollars
- Compare Quantitative Factors
  - Net Benefit (Cost)
  - Benefit/Cost Ratio Based on the Full System Life Cycle
  - Breakeven or Payback

### **Cost Benefit Analysis: Issues**

- Apply Assumptions, Costs, and Benefits Evenly Across All Alternatives
- Costs Are Not Always Known but May Be Estimated in a Range or With a Given Probability.
- Decide Evaluation Criteria Up-front
- Intangible Benefits May Matter

# COST BENEFIT ANALYSIS

#### **Evaluation Criteria**

## **Evaluation Criteria**

- Are Results Credible
- Are Assumptions and Estimates Reasonable
- Are Results Reproducible
- Are Assumptions Applied Evenly Across All Alternatives

## **Analysis Guide Evaluation Criteria**

- That a Status Quo is Thoroughly Described
- That All Reasonable Alternatives Were Considered
- That a Full Cost Benefit Analysis to at Least Two (2) Alternatives is Accomplished
- That Alternatives Were Evaluated on System Life Cycle Basis
- That Present Value Analysis Was Used

#### Analysis Evaluation Criteria (cont'd)

- That Cost and Benefit Projections Appear Reasonable
- That Net Benefits or Ratios Were Calculated for All Alternatives
- That the Study Resulted in a Clear Cost and Benefit Plan
- Results Are Summarized for Selection Justification in the IAPD

#### **OVERVIEW**

#### OCSE'S TYPICAL REVIEW PROCESS BASED UPON PAST EXPERIENCE

## **OCSE Typical FS Review**

- OCSE Review Process Is Approximately Eight (8) Weeks
- Uses OCSE Staff and Contractors to Conduct the Review
- Review Initiated Upon State Submittal of a Feasibility Study and Cost/Benefit Analysis
- Some Prior Review and TA of Preliminary Data (E.G. Evaluation Criteria)

#### **OCSE FS Review:** WEEK 1

 Assemble Team - OCSE Lead, OCSE Contractor Staff

 Start-Up Meeting to Discuss Overall Scope Collect Documentation - FS, CBA, Status Quo Document, Historical Data

### **OCSE FS Review:** WEEK 2

- Initial Contractor Staff Review of Documentation
- Develop Initial Set of Comments
- Develop List of Questions for State Staff
- Develop Agenda for On-Site Review with the State

#### **OCSE FS Review:** WEEK 3

- On-Site Review With State Staff
- Provide Initial Comments to the State
- Ask Questions Developed During Initial Review
- Interview State and Their Contractors On the Processes Used to Develop the FS
- Collect Additional Documentation

### **OCSE FS Review:** WEEKS 4-6

- Detailed Review of FS, CBA, and Other Documentation
- Follow-Up Conference Calls With State Staff, As Required
- Draft Report Developed by OCSE
  Contractor and Submitted to OCSE Lead

#### **OCSE FS Review:** WEEKS 7-8

- OCSE Lead Review of the Draft Report
- Additional Follow-Up Calls With the State As Required
- Incorporate OCSE Lead Comments Into Report
- Release Final Report

### **OCSE FS Review:** Documentation

- Final FS, CBA, and Status Quo Document
- Interim Versions of Documents
- White Papers
- Review Correspondence (Review Comments and Responses)
- Requirements Analysis Documentation
- Gap Analysis

#### **OCSE FS Review:** Documentation

- Spreadsheets and Other Tools and Work Products
- Alternative Evaluation Criteria, Evaluation Worksheets, Ranking Worksheets
- Evaluation Methodology Documents
- Analysis Assumptions and Constraints
- Meeting Minutes and Notes

OCSE REVIEWS OF NEW YORK, SOUTH CAROLINA, AND FLORIDA FEASIBILITY STUDIES

#### New York Review

- New York Already Had a Federally Certified Statewide System
- The State Developed a Feasibility Study to Analyze Alternatives for Potential Replacement of Their System
- Goals: To Make System More Technically Up-to-Date, Consolidate Platforms, and Enhance System Performance

#### • Two Part Study:

- Features Matrix and Cost/Benefit Analysis
- Alternatives Analysis and Recommendation

 Contractor Hired (Renaissance
 Now GovConnect) to Conduct the Analysis and Develop the Report

#### Evaluation Criteria - Two Categories

 Compliance - Ability to Meet Performance Goals, as Well as Functional and Technical Requirements and Level of Risk

 Economic Value - Criteria By Which the Economic Viability of Each Alternative Could Be Assessed, Including Costs and Benefits

#### Compliance (2400 Points)

- Performance Goals 800 Points: Meeting
  Federally Mandated Performance Goals
- Functional Compliance 700 Points: Meeting
  Federal Certification and State Requirements
- Business Compliance 200 Points: Meeting
  Federal Automation Expectations to Support
  the Child Support Businesses Processes

- Technical Considerations 200 Points: General System Characteristics, On-going Maintenance, Size and Scope of the Application, and Systems Operations
- System Development Risk 300 Points: Based On Development Process and Environment, and on the State's Program Constraints (E.G. Resources, Interfaces)
- Confidence Level 200 Points: Meeting Program, Equipment, Software, Information, Organization, Operations, Development, Security, and Privacy Confidence Levels

Economic Value (600 Points)
 – Total Cost - 400 Points
 – Cost/Benefit Ratio - 200 Points

#### Four Options Considered

- OPTION 1: Enhancement to Current System (Non-COTS Software Enhancements Only)
- OPTION 2: Develop New System with Open Architecture
- OPTION 3: Combination of New and Legacy System Architecture
- OPTION 4: Transfer an Existing Certifiable System (Massachusetts' "COMETS" and Los Angeles' "ARS")

#### New York's FS Results

 Concluded That Option 3, the Hybrid Approach, Would Be the Most Beneficial to the State.

#### Driven By the Following Conclusions:

- Option 1 Does Not Provide Enough Benefit.
- Options 2 and 4 are Contractor Managed and Therefore Incur the Cost of Quality Assurance and Project Management for Both the State and the Contractor

#### New York's FS Results

 Options 1 and 3 Are Able to Start Accruing Benefits Periodically During Development, Whereas Options 2 and 4 Only Begin Accruing Benefits at the End of the Development Cycle.

 Option 4 Requires a High Degree of System Re-engineering.

## New York - OCSE Findings Status Quo Not Defined

- Option 1 Was a Modified Version of the State's Current System
- Enhancements Allowed Provided They Do Not Require New Hardware or COTS Software
- This Does Not Meet Federal Guideline for Status Quo
- Recommendation Rework Option 1 With No Changes to the Legacy System or Split Into Two Options
# New York - OCSE Findings Inconsistent Assumptions & Constraints

- Assumed Options 1 & 3 Would Be State Managed, 2 & 4 Would Be Contractor Managed
- In the Analysis, Option 3 Given Superior Cost Rating For Costs Saved By Using State Management
- In Fact, Any of the Options Could Be State Managed
- Recommendation Separate Management Models From the Development Choice

# New York - OCSE Findings Improved Collections Calculations

- Improved Collections Expressed as X% Improvement Over Time
- In Fact, This Should Be Expressed as Exponential Over Time, Not Linear
- There Is, In Actuality, Some Finite Number of Cases That Can Be Collected (<100% of Total)
- Improvement Efforts Will Not Approach This Limit Evenly, But as Some Sort of Diminishing Returns Over Time
- Recommendation Re-Think to More Accurately Reflect a Non-Linear Improvement Rate and the Finite Number of Cases That Can Be Collected

## New York - OCSE Findings Number of Releases in Option 3

- Option 3 Was Combination of New and Legacy Architecture
- Scheduled for Completion In 29 Months
- 20 Different Overlapping Program Releases Scheduled in This Time Frame
- Risks Associated With This Aggressive Approach Not Addressed
- Impacts Configuration Management, Quality Assurance, and Training
- Recommendation Rework Options 1 & 3
  With a Manageable Number of Releases

# New York - OCSE Findings Re-Use Percentage

- "Reasonableness" Check on the Figures Indicated Transfer System Appeared to Score Lower Than One Might Expect
- Analysis Revealed This Was Due to an Estimate of 80% Rework Required for a Transfer System
- Figure Based Upon State, Federal, and Contractor Past Experience.
- Recommendation Because It Has Such a Devastating Impact on the Transfer Option, the 80% Estimate Should Be Listed As An Assumption.

# New York - OCSE Findings Cost Avoidance

- Some Benefits Were Quantified by Multiplying the Number of Hours Saved by the Given Employee's Hourly Rate
- Employees Were Full Time State Staff
- Must Take Care To Do This Only If the Employee's Time Saved Can Be Used Processing Other Cases or Performing Other Savings-Generating Activities
- Recommendation Recalculate as a Function of Extra Income Generated Rather Than Salaries Saved.

## New York - Status

- Feasibility Study Withdrawn
- The State Terminated Their New System Development Effort For Financial Reasons
- Current Emphasis is Achieving PRWORA Certification With Their Existing System

## South Carolina Review

- South Carolina Does Not Have a Federally Certified Statewide System
- Previous Development Effort Ended in Failure
- The State Developed a Feasibility Study to Examine Alternatives for Their Statewide System Solution
- Contractor Hired (AMS) to Conduct the Analysis and Develop the Report

- Six-Phased Approach
  - Identify Viable Options
  - Compare the Functional and Technical Merits of Each Option
  - Evaluate Risks
  - Determine Costs and Benefits of Each Option
  - Assess the Technical Currency of Each Option's Architecture
  - Score Each Option Based on Assigned Weighting Factors

# South Carolina's FS Approach Documentation Developed

#### Baseline Requirements Report

- Functional and Technical Requirements
- Opportunities For Enhancement
- System Objectives
- System Constraints
- System Assumptions
- Performance Measures Defined By Key Stakeholders

## South Carolina's FS Approach Documentation Developed

#### Evaluation Framework Report

- Defines the Options to Be Assessed
- Details the Research and Analysis Methodology
- Establishes the Evaluation Criteria
- Specifies the Scoring (Weighting) and Ranking Methodology Used to Arrive at the Recommended Option

South Carolina's FS Approach Documentation Developed

#### Course of Action Plan (CAP)

- Feasibility Study
- Gap Analysis
- Cost/Benefit Analysis
- Ranking of Alternatives
- Status Quo Report
  - Separate Volume Containing Federally Required Status Quo Data

### Evaluation Criteria - Four Categories

- Comparative Assessment 20 %: Meeting Functional and Technical Requirements, Including Federal Certification
- Cost/Benefit Analysis 32.5 %:
  - Total Cost
  - Total Benefit
  - Cost/Benefit Ratio
  - Break Even Point

### Evaluation Criteria (continued)

- Risk Assessment 15 %: Based on Technology, Staffing, Project Organization, Business, and Implementation Risks
- Technical Currency 32.5 %: Meeting Specific Technical Requirements:
  - Component Based Design
  - N-Tier Architecture
  - Clusters of Servers
  - Object-Oriented Architecture
  - Visual Programming
  - RAD Tools
  - Web Presence

Three Options Considered:

- OPTION 1: Modified CSES Continue Development Using Uncompleted Software From the Failed Project (Transfer System)
- OPTION 2: "Custom Integrated System"
  - New Centralized System
- OPTION 3: "Custom Linked System" -Alternative System Linking a New Statewide Court System to a New IV-D System

## South Carolina's FS Results

- Concluded That Option 2, the New Custom Integrated System Approach, Would Be the Most Beneficial to the State
- Driven By the Following Conclusions:
  - Option 1 Does Not Provide a Long Term, Technically Viable Solution
  - Options 1 and 2 Are Able to Start Accruing Benefits Earlier Than Option 3
  - Option 3 is Not Eligible For Federal Financial Participation

# South Carolina - OCSE Findings Weighting Factors Issues

- Weight of CBA and Risk Expected to Be Higher Given State's Past Experience
- Weighting Factors Were Changed Twice During the Course of the Analysis
- Most Significant Change Added the "Technical Currency" Factor
- This Changed the Final Outcome of the Analysis from the Modified CSES to the Custom Integrated System

# South Carolina - OCSE Findings Assumptions and Constraints

- Some Assumptions Appear Unrealistic and Arbitrary
  - Design and Development of the Custom Integrated System is Only 1/3 Longer Than Modified CSES, Which is 70% Complete
  - In Part Due To Initial Schedule Estimates Rounded to the Nearest 12-Month Period

South Carolina - OCSE Findings Assumptions and Constraints

- System Constraints Not Clearly Defined
  - For the Status Quo, No Attempt is Made to Clarify and Summarize Constraints
  - References to Constraints Appear In Various Sections of the Report
- Recommendations -
  - Consolidate Assumptions and Constraints
  - Eliminate Excessive Rounding of Data

# South Carolina - OCSE Findings Benefit Data Incomplete

- Evaluation of Quantitative Benefits Was Limited to Increases in Collections
- Recommendation Other Benefits Could Be Included:
  - Use of Integrated Database in Option 2 Would Reduce Cost, Risk, and Data Redundancy
  - N-Tier Technology May Reduce Programming Time and Errors
  - Increased Productivity
  - Increased Caseload Capacity

# South Carolina - OCSE Findings Number of Reports

- Number of Reports Required is Higher for Option 1 Than for Option 2
- AMS Indicated This Was Because Option 2 Would Be Capable of Generating More Reports
- CAP is Inappropriately Basing Requirements on System Capabilities
- Recommendation Apply Consistent Requirements To All Options.

## South Carolina - Status

 Based on Re-Examination of the Analysis, the State Concluded That Option 1 Was More Economically Feasible and Produced Less Risk

 Currently In Process of Procuring a Development Vendor for Option 1

## Florida Review

 Florida Already Had a Federally Certified (FSA '88) Statewide System

- The State Developed a Feasibility Study to Analyze Alternatives for Potential New System Development
- Contractor Hired (TRW) to Conduct the Analysis and Develop the Report

## Florida's FS Approach

**Evaluation Criteria:** 

- Two Primary Categories
  - Meeting System Objectives Ability to Meet Objectives Taken From the ACF Feasibility Study Guide

Cost/Benefits Analysis

- Subjective Ratings Applied
- No Weighting Applied

## Florida's FS Approach

Four Options Considered - OPTION 1: Transfer Existing CSE Software From State Mainframe to a Department of Revenue Platform - OPTION 2: Transfer From Another **State (Not Identified)** - OPTION 3: Develop New System - OPTION 4: Status Quo

## Florida's FS Results

 Concluded That Option 3, New System Development Would Be Most Beneficial to the State

- Driven By the Following:
  - Cost Effectiveness
  - Flexibility
  - Allows a UNIX Environment
  - Best Environment for GUI Front End

## Florida - OCSE Findings

- Upon Submittal of Final FS Report (December 1998), OCSE Met With State
- Key OCSE Comment: Cost of New System Development Appeared Low Based on Experience From Other States
- State Withdrew the Study and Decided to Re-Work the Analysis

## Florida - Status

 New Study Revealed Cost of New System Development Would Be Significantly Higher Than Original Analysis

- As a Result, the State Withdrew Plans to Develop a New System
- Currently in Process of Acquiring a Vendor to Modify Existing Statewide System

### References

- Title 45 Public Welfare and Human Services Code of Federal Regulations (CFR), Part 307--Computerized Support Enforcement Systems
- Title 45 Public Welfare and Human Services Code of Federal Regulations (CFR), Part 95--General Administration-Grant Programs (Public Assistance and Medical Assistance)
- Title 45 Public Welfare and Human Services Code of Federal Regulations (CFR), Part 74 - Uniform Administrative Requirements for Awards and Subawards to Institutions of Higher Education, Hospitals, Other Nonprofit Organizations, and Commercial Organizations; and Certain Grants and Agreements with States, Local Governments and Indian Tribal Governments

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- U.S. Department of Health and Human Services, Administration for Children and Families, Office of Child Support Enforcement – Addendum to State Systems APD Guide for Child Support Enforcement Systems, March 1999
- Action Transmittal OCSE-AT-90-11, Policy Clarification Relating to Automated Child Support Enforcement Systems, October 9, 1990

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- U.S. Department of Health and Human Services, Administration for Children and Families, Office of Child Support Enforcement – Automated Systems for Child Support Enforcement: A Guide for States, Revised April 1999, Updated December 1999
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- U.S. Department of Health and Human Services, Administration for Children and Families - Companion Guide 3: Cost/Benefit Analysis Illustrated for Child Support Enforcement Systems, September 2000