Cost Benefit Analysis 101
Why Cost Benefit?

- Hallmark of good governance
- Demonstrate benefits justify expenditures
- Social net benefits
Review of the Relevant Regulations
Planning Advance Planning Document (PAPD)

“A commitment to conduct...cost benefit analysis...” (45 CFR 95.605)

Plan to Conduct:
- Requirements or Needs Assessment
- Feasibility Study
- Alternatives Analysis
- Cost Benefit Analysis
PAPD: The Initial Analysis

Statement of Needs and Objectives

- What do we need?
- Why do we need it?
PAPD: The Initial Analysis

Feasibility Study
- Will the system accomplish our goals?
- Do we have the resources?
- Is the investment warranted?
PAPD: The Initial Analysis

Alternatives Analysis

- Provide detailed descriptions of costs and benefits of status quo and each alternative
- Be reasonable in selection of alternatives
- Make the case for the alternative selected
- Begin building the baseline for cost-benefit measurement and reporting
Implementation Advance Planning Document (IAPD)

Must include a Cost-Benefit Analysis

Key elements:

- Statement of needs and objectives
- Results of feasibility study
- COST-BENEFIT ANALYSIS
- Schedule
- Proposed budget: development and operations
So What is Present Value Discounting?

- Equalizes comparison of alternatives when expenses and benefits are distributed unequally over time
- ACF requires use of 7% present value factor in alternatives analysis
- Present Value Discounting is **NOT** required once the State has selected its alternative
Initial CBA: Cost Analysis

- Identify and characterize all costs (use constant dollars)
- Build each cost profile year by year
- Prepare systems life cost profile (Baseline)
State of Nirvana: Cost Analysis

- Non-Recurring: Defined, one-time costs to the project.
- Recurring: Costs to the project that are incurred periodically or over a set period of time.
# State of Nirvana: Cost Analysis

## System Life Cost Baseline

<table>
<thead>
<tr>
<th>Description</th>
<th>Year 1</th>
<th>Year 2</th>
<th>Year 3</th>
<th>Year 4</th>
<th>Year 5</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-Recurring</td>
<td>300,000</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>300,000</td>
</tr>
<tr>
<td>Recurring</td>
<td>150,000</td>
<td>120,000</td>
<td>100,000</td>
<td>100,000</td>
<td>100,000</td>
<td>570,000</td>
</tr>
<tr>
<td>Total Projected</td>
<td>450,000</td>
<td>120,000</td>
<td>100,000</td>
<td>100,000</td>
<td>100,000</td>
<td>870,000</td>
</tr>
</tbody>
</table>

Note: Using Constant Dollars
Initial CBA: Benefit Analysis

- Identify and characterize all benefits
- Prepare systems life benefits profile (Baseline)
- Identify qualitative benefits
- Verify benefit categories and projections
State of Nirvana: Benefit Analysis

Quantitative: E.g., reduced need for clerical staff and file storage, improved staffing utilization, increased collections.

Qualitative: E.g., improved benefits integration, improved response times to CA/N reports, automated forms generation, better decisionmaking by social workers.
Time “Savings”

- Time savings through productivity improvements alone is not a viable benefit.
- Consider in your analysis what useful purpose was that time savings directed toward.
Benefit Analysis: Types

Identify and characterize all benefits. Types include:

- Increased collections
- Program cost savings
- System cost savings
- Program cost avoidance
- System cost avoidance
- Qualitative
Benefit 1: Increase Child Support Collections

Definition: Increase Child Support Collections

Baseline: Based on our current population of 1000. Approx. 75% of foster care population could be referred to child support. 20% of eligible cases are referred and 20% are collected with an average payment of $76.40 per month.
Benefit 1: Increase Child Support Collections

Measurement Plan: Actual collections will be measured. Estimate 75% of Year 3 population of 1000 could still be referred to child support. The automated interface with IV-D will result in 100% referral rate; 20% collected with an average payment of $76.40 per month.
## Benefit 1: Increase Child Support Collections

<table>
<thead>
<tr>
<th></th>
<th>Baseline Collections</th>
<th>Expected Year 3 Collections</th>
</tr>
</thead>
<tbody>
<tr>
<td>Child Welfare Population</td>
<td>1,000</td>
<td>1,000</td>
</tr>
<tr>
<td>75% Could Be Referred</td>
<td>1,000 x .75 = 750</td>
<td>1,000 x .75 = 750</td>
</tr>
<tr>
<td>Cases Referred</td>
<td>750 x .20 = 150</td>
<td>750 x 1.00 = 750</td>
</tr>
<tr>
<td>Cases Collected</td>
<td>150 x .20 = 30</td>
<td>750 x .20 = 150</td>
</tr>
<tr>
<td>Avg. Monthly Collection</td>
<td>30 x $76.40 = $2,292</td>
<td>150 x $76.40 = $11,460</td>
</tr>
<tr>
<td>Avg. Annual Collection</td>
<td>$2,291.70 x 12 = $27,504</td>
<td>$11,450.50 x 12 = $137,520</td>
</tr>
<tr>
<td>Net Annual Benefit</td>
<td>$137,520 - $27,504 = $110,016</td>
<td></td>
</tr>
</tbody>
</table>
State of Nirvana: Benefit Analysis

<table>
<thead>
<tr>
<th>Description</th>
<th>Year 1</th>
<th>Year 2</th>
<th>Year 3</th>
<th>Year 4</th>
<th>Year 5</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Benefit 1</td>
<td>0</td>
<td>0</td>
<td>110,000</td>
<td>110,000</td>
<td>110,000</td>
<td>330,000</td>
</tr>
<tr>
<td>Benefit 2</td>
<td>25,000</td>
<td>65,000</td>
<td>70,000</td>
<td>80,000</td>
<td>85,000</td>
<td>325,000</td>
</tr>
<tr>
<td>Benefit 3</td>
<td>10,000</td>
<td>15,000</td>
<td>20,000</td>
<td>50,000</td>
<td>70,000</td>
<td>165,000</td>
</tr>
<tr>
<td>Benefit 4</td>
<td>0</td>
<td>5,000</td>
<td>15,000</td>
<td>30,000</td>
<td>50,000</td>
<td>100,000</td>
</tr>
<tr>
<td>Total Projected</td>
<td>35,000</td>
<td>85,000</td>
<td>215,000</td>
<td>270,000</td>
<td>315,000</td>
<td>920,000</td>
</tr>
</tbody>
</table>

Note: Using Constant Dollars
Initial Cost Benefit Analysis

- Present total projected costs and benefits
- Calculate breakeven point
## State of Nirvana: Initial Cost Benefit

### System Life Cost Profile Baseline

<table>
<thead>
<tr>
<th>Description</th>
<th>Year 1</th>
<th>Year 2</th>
<th>Year 3</th>
<th>Year 4</th>
<th>Year 5</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-Recurring</td>
<td>300,000</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>300,000</td>
</tr>
<tr>
<td>Recurring</td>
<td>150,000</td>
<td>120,000</td>
<td>100,000</td>
<td>100,000</td>
<td>100,000</td>
<td>570,000</td>
</tr>
<tr>
<td>Total Projected</td>
<td>450,000</td>
<td>120,000</td>
<td>100,000</td>
<td>100,000</td>
<td>100,000</td>
<td>870,000</td>
</tr>
</tbody>
</table>

### System Life Benefits Baseline

| Total Projected   | 35,000   | 85,000  | 215,000 | 270,000 | 315,000 | 920,000|

**Note:** Using Constant Dollars
## State of Nirvana: Initial Cost Benefit

### Projected Breakeven in Year 5

<table>
<thead>
<tr>
<th>Description</th>
<th>Year 1</th>
<th>Year 2</th>
<th>Year 3</th>
<th>Year 4</th>
<th>Year 5</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cumulative Total Projected Benefits</td>
<td>35,000</td>
<td>120,000</td>
<td>335,000</td>
<td>605,000</td>
<td>920,000</td>
<td>N/A</td>
</tr>
<tr>
<td>Cumulative Total Projected Costs</td>
<td>450,000</td>
<td>570,000</td>
<td>670,000</td>
<td>770,000</td>
<td>870,000</td>
<td>N/A</td>
</tr>
<tr>
<td>Difference</td>
<td>(415,000)</td>
<td>(450,000)</td>
<td>(335,000)</td>
<td>(165,000)</td>
<td>50,000</td>
<td>N/A</td>
</tr>
</tbody>
</table>

Note: Using Constant Dollars
Initial CBA: Submitting the Results

Submission to ACF

- Executive summary with alternatives considered, comparative costs and benefits, and reasons for alternative selected
- Results of the alternatives analysis
- Narrative description of costs and benefits, including how they were derived
- Cost and benefit profile spreadsheets
What if Projected Benefits Will Not Exceed Costs?

- ACF will not automatically disapprove IAPDs with cost benefit analyses that fail to breakeven.
- If the system will not breakeven, a State must prove that the measurable outcomes are worth the cost of investment, and that those costs are reasonable.
Cost Benefit Analysis Revisited

Updating the Initial Analysis
Advance Planning Document Update (APDU)

Key elements (45 CFR 95.605):

- “A report which compares the estimated cost-savings from the State’s approved APD to actual cost-benefits to date....”

- “Once the State begins operation...the cost-savings shall be submitted 2-5 years after statewide operation until the Department determines projected cost savings have been achieved.”
Cost Benefit Measurement

- How are we doing?
- Are we doing what we said we would do?
- Goal: Measure and compare actual costs and benefits of system development, implementation, and operation to the costs and benefits projected during the analysis.
Cost Benefit Measurement

Steps in the process include:

- Identify all costs and benefits
- Build the profile year by year
- Compare cost benefits achieved to those projected
State of Nirvana: Cost Benefit Measurement

Through Year 3: Costs were more than anticipated.

<table>
<thead>
<tr>
<th>Description</th>
<th>Year 1</th>
<th>Year 2</th>
<th>Year 3</th>
<th>Year 4</th>
<th>Year 5</th>
<th>To Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-Recurring</td>
<td>350,000</td>
<td>0</td>
<td>0</td>
<td>TBD</td>
<td>TBD</td>
<td>350,000</td>
</tr>
<tr>
<td>Recurring</td>
<td>150,000</td>
<td>110,000</td>
<td>110,000</td>
<td>TBD</td>
<td>TBD</td>
<td>370,000</td>
</tr>
<tr>
<td><strong>Actual Total</strong></td>
<td>500,000</td>
<td>110,000</td>
<td>110,000</td>
<td>TBD</td>
<td>TBD</td>
<td>720,000</td>
</tr>
<tr>
<td><strong>Total Projected</strong></td>
<td>450,000</td>
<td>120,000</td>
<td>100,000</td>
<td>100,000</td>
<td>100,000</td>
<td>870,000</td>
</tr>
<tr>
<td><strong>Difference</strong></td>
<td>50,000</td>
<td>(10,000)</td>
<td>10,000</td>
<td>TBD</td>
<td>TBD</td>
<td>50,000</td>
</tr>
</tbody>
</table>
State of Nirvana: Cost Benefit Measurement

Through Year 3: Benefits were less than expected.

<table>
<thead>
<tr>
<th>Description</th>
<th>Year 1</th>
<th>Year 2</th>
<th>Year 3</th>
<th>Year 4</th>
<th>Year 5</th>
<th>Total To Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Actual Benefit Total</td>
<td>10,000</td>
<td>80,000</td>
<td>185,000</td>
<td>TBD</td>
<td>TBD</td>
<td>275,000</td>
</tr>
<tr>
<td>Total Projected</td>
<td>35,000</td>
<td>85,000</td>
<td>215,000</td>
<td>270,000</td>
<td>315,000</td>
<td>920,000</td>
</tr>
<tr>
<td>Difference</td>
<td>(25,000)</td>
<td>(5,000)</td>
<td>(30,000)</td>
<td>TBD</td>
<td>TBD</td>
<td>(60,000)</td>
</tr>
</tbody>
</table>
Benefit 1: Increased Child Support Collections

Need to explain variance

- The expected increase in IV-D collections fell short of projections due to the impact of policy changes associated with ASFA. The move to more timely TPR resulted in less time for us to establish child support orders.
State of Nirvana: Cost Benefit Measurement

<table>
<thead>
<tr>
<th>Description</th>
<th>Actual to Date (through Year 3)</th>
<th>Current Projected (through Year 5)</th>
<th>Baseline of System Life</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Benefits</td>
<td>270,000</td>
<td>860,000</td>
<td>920,000</td>
</tr>
<tr>
<td>Total Costs</td>
<td>720,000</td>
<td>920,000</td>
<td>870,000</td>
</tr>
<tr>
<td>Difference</td>
<td>(450,000)</td>
<td>(60,000)</td>
<td>50,000</td>
</tr>
</tbody>
</table>

Current Projections are based on actual costs and benefits through Year 3.
ACF Evaluation of Cost Benefit Measurement

- Has the State described the probable cause when significant variances from the projected costs and benefits occur?
- Has the State planned or initiated corrective action to reduce costs or enhance benefits OR has the State changed projections?
- Has or will the system break even?
CBA Revisions

- What if initial assumptions about costs and benefits turn out to be wrong?
- How do you present a substantially modified analysis?
- ACF will use “reasonable person” standard to evaluate a revised analysis.
## Benefit Schema: What to Consider?

<table>
<thead>
<tr>
<th>Measurable</th>
<th>Qualitative</th>
<th>Quantitative</th>
</tr>
</thead>
<tbody>
<tr>
<td>OK</td>
<td>OK</td>
<td>OK</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Immeasurable</th>
<th>Qualitative</th>
<th>Quantitative</th>
</tr>
</thead>
<tbody>
<tr>
<td>OK</td>
<td>N/A</td>
<td></td>
</tr>
</tbody>
</table>
Benefit Analysis: What to Avoid

Avoid common errors such as:

- Double Counting
- Counting Sunk Costs
- Omitting Costs
- Uneven Application of Cost Categories
- Productivity Improvements Alone
Green Light

- Improved collection of IV-D funds
- Avoid overpayment of IV-A funds to families of children in care
- More efficient use of less restrictive placement resources
- Eligibility automation produces staff savings
Green Light

- Increased recoupment
- Reduced cost for duplication, mailing, and file storage space
- Do not have to build CW accounting system, AFCARS system, or CA/N system
- Do not have to build system to track ASFA outcomes
Green Light

- Improved access to information for case workers and management reporting
- Reduced investigation and intervention response time in CA/N cases
- Expanded recruitment and support for service and placement providers
- Tool for monitoring contractor performance
Caution

- Fewer clerical/data entry staff needed
- Reduced data entry
- Improved prevention efforts - avoid the costs of child maltreatment
- Case workers spend less time on case data entry
Wrong Way

- Avoid AFCARS penalties
- Transfer of our system saved other State(s) and Federal government money
References


References


Questions or Comments?