



## Effective Cost-Benefit Analysis Methodologies for Medicaid System Procurement

# PAY ME NOW OR PAY ME LATER

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# Cost-Benefit Analysis (CBA)

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## **cost-benefit analysis:**

- *noun* an analysis of the cost effectiveness of different alternatives in order to see whether the benefits outweigh the costs
  - ▣ cost-benefit analysis. (n.d.). WordNet® 3.0. Retrieved August 07, 2008, from Dictionary.com website: [http://dictionary.reference.com/browse/cost-benefit analysis](http://dictionary.reference.com/browse/cost-benefit+analysis)
- *noun* an analysis that differentiates a defined set of alternatives with respect to their impacts on an enterprise
  - ▣ FourThought Group, Inc.

# Overview

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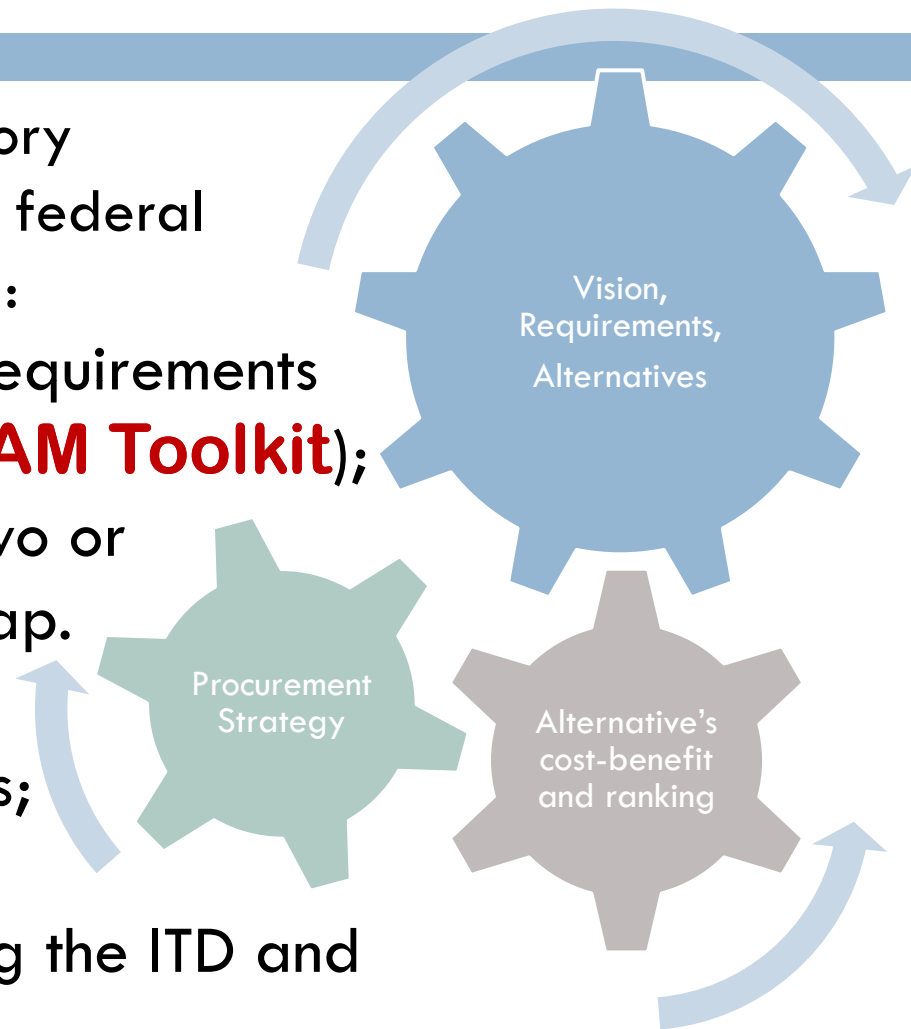
- CBA in the Procurement Process
- Constructing a Cost-Benefit Analysis
- Interpreting the Results
- Using these results in Next Steps
  
- Judy Higgins of VT - CBA client.
  
- Looking forward – MITA and the CBA

# The CBA in the Procurement Process

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In most cases, a CBA is a mandatory analysis when requesting state or federal funds for an IT project and should:

1. Follow Federal and State requirements (**OMB Circular A-87, CAM Toolkit**);
2. Provide dollar-values for two or more solutions to a road-map.
3. Provides for “one to one” comparisons across solutions;
4. Estimate strategic and tactical data for developing the ITD and the RFP.



# Constructing the Analysis

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- Build the Alternatives
  - ▣ How far is the “As Is” from the “To Be”?
  - ▣ Type of Approach – Buy, Build, Transfer
  - ▣ Operational Impacts – email vs. paper, no workarounds
  - ▣ Status Quo – the special case.
- Measure the Alternatives
  - ▣ Time to – implement, certify, operation
  - ▣ Financial - NPV, Break-Even, ROI...
  - ▣ Risk of the Approach
- Compare the Alternatives
  - ▣ You can always have fruit salad...
  - ▣ Apples to Apples, Oranges to Oranges



# Building the Alternatives

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- How **\$far\$** is it from “As Is” to “To Be”?
  - As Is – what you have now, the **status quo**
  - To Be – where you would like to be in  $t$  years.
  - What does the road-map say?
- Types of approaches to the road map
  - Traditional Approaches
  - Buy vs. Build vs. Transfer
- Operational Impacts
- **Status Quo** – the special case.



# “As Is” or “To Be”, What is the question...

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- Measured directly from MITA road-map assessments.
  - Gap Analysis - As Is or To Be - What is the Question, by Ball, Dorothy - FourThought Group
  - i.e. If your state has a low tolerance for risk, these exercises would steer you towards a tried solution, versus building something brand new and untested.
- The top two or three alternatives (including “Status Quo”) that arise from this process should proceed to CBA.
- If you pass more than four alternatives to the CBA, you may need more vision work before proceeding.

# Some standard Approaches...

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- ❑ Build a custom system;
- ❑ Buy and modify a system;
- ❑ Transfer and modify a system;
- ❑ Outsourcing the system in whole or part;
- ❑ Partner with another state for system operations;
- ❑ Enhance the existing system;
- ❑ Commercial Off-The-Shelf Component integration.
- ❑ Hybrid of some or all of the above;
- ❑ Status Quo – stay “as is”.

# Measurable approaches

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When boiled down to greatest common factors, every approach is some mix of the following project activity types and share common standards of measurement (budgets and schedules):

- for DDI:
  - ▣ Buy a system
  - ▣ Transfer a system
  - ▣ Custom build a system
- For Maintenance
  - ▣ In-house
  - ▣ Outsource



# *Standardized* standard approaches

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The usual alternatives:

- build a **Custom** system – (B: 10%; T: 0%; C: 90%);
- **Buy** and modify a system – (B: 80%; T: 0%; C: 20%);
- **Transfer** and modify – (B: 5%; T: 75%; C: 20%);
- Outsourcing the system...;
- Partner with another state...;
- Enhance the existing system – (B: 30%; T: 50%; C: 20%)
- Commercial Off-The-Shelf Component integration.
- Hybrid of some or all of the above (B: 1/3; T: 1/3; C: 1/3);
- Status Quo – stay “as is” – (B: 0%; T: 0%; C: 0%).

# Maintenance Alternatives

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The only real options for maintenance are:

- Outsource 0% to 100%
- In-House 0% to 100%

Either way, one option is the inverse of the other, because what you don't do in-house, you pay someone else to do.

# Finding data for an approach

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- Existing IAPDs and successive updates with similar approaches;
- CMS Financial Management Reports;
- Medicaid Contract Status Reports;
- CMS Data Compendia;
- State reports to CMS (CMS-64 etc.)

# Operational Impacts

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- Operational impacts can be estimated by using budget accounts, cost allocation, or can be as loose as estimates of increased productivity using average salaries and activity levels.
  - ▣ Valence is the direction of the impact on the enterprise. Increase costs (-) or increase productivity (+)?
  - ▣ Magnitude is the degree to which the impact effects the organization. (e.g. how much paper can you save by using e-mail EOBs instead?).

# Operational Impacts

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- Error Rates (+/-)
- Materials Costs (+/-)
- Backlog Reduction/Elimination (+/-)
- Client Quality of Service (+/-)
- Reduce Pain Points (+/-)
- Introduce New Pain Points (+/-)

# Sources of operational data

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- Your own state-specific reports
  - CMS 64 submissions
  - Cost Allocation Worksheets
  - Time Studies

# Status Quo – the special case?

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- Holds all the standard assumptions about your enterprise *should it continue with today's solution into the future...*
- As a measured alternative, it provides a steady point of reference for comparing alternatives to each other.
- Costs appear as pain points or inefficiencies.
- Benefits, at this stage of the current systems life, are usually few, so be sure to classify appropriately.

## Example

*The current system still has a significant book value:*  
(+) *for the status quo as a benefit or reason to keep it;*  
(+) *for the alternative to “enhance” the existing system;*  
(-) *for the alternative to buy or transfer a whole new system.*

# Possible Measures for an Alternative

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A multi-characteristic approach works best, but scale to the size of the project starting with:

1. Time to “measures”: implement, certify, operate;
2. Financial measures : Net Present Value (NPV), Break-Even Years, Return on Investment (ROI);
3. Risk of the above measures
  - ▣ Range of schedule measures
  - ▣ Range of financial measures

# Time Measures

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- Examine by simple iterations of the Software Development Life Cycle (SDLC)
- If you are using a “multi-service” approach, use multiple SDLC’s in more and more granularity as appropriate but be careful...
  - ▣ ...don’t go deeper than you can cost or estimate for alternatives – especially market-based ones...
  - ▣ ...Procurement, Design, Development, Implementation, & Maintenance may be granular enough.

# Financial Measures

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- NPV: Benefits minus Costs with respect to time and discounted into today's dollars;
- Break-Even Years: The year when Net Present Value goes from negative to positive.
- ROI: Net Present Value at a defined point in time (i.e. 10 years), divided by DDI costs.

# Risk Measures

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Unexpected variability of a measure which includes both potential worse-than-expected as well as better-than-expected measures.

- Implementation between 2 and 2.75 years
- ROI from -5.0% to +15.0%;
- Break-even between 4.75 and 6.75 years or 2 years;
- NPV between \$100,000 and \$300,000
- Total DDI between \$X and \$Y million.

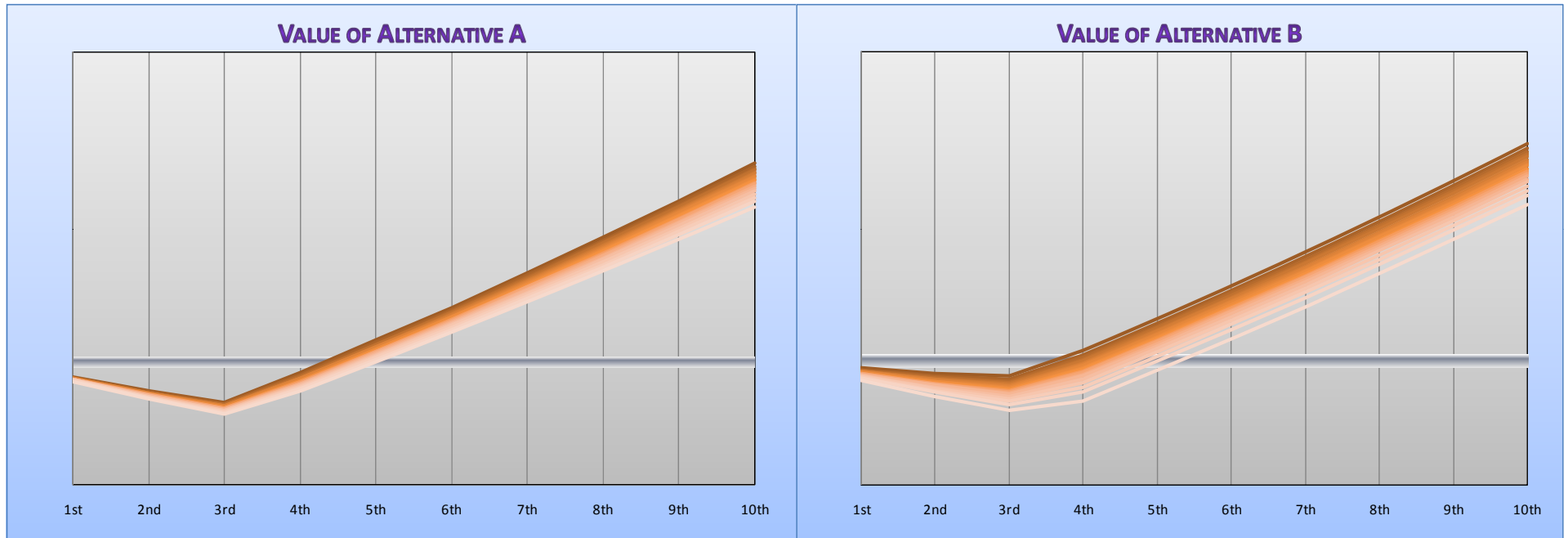
# Comparing alternatives

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- Now that there are a list of Alternatives measured in NPV just sort them and have done with it...may the best one win...right?
  - ▣ Sure! If you want to, and that is all the information you need now to decide and for small projects, it may be enough.
  - ▣ But don't forget, we spent a lot of time sculpturing "**Status Quo**" to do some work for us...! He's what you might call  $NPV_0$ .
  - ▣ So, relate all alternatives to the same standard and you get  $(NPV_i - NPV_0)$  which now tells us:
    - What alternatives are better than today (and worse)
    - Just how much better they are than today (or worse).

# Comparing Alternatives Graphically

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- You can see in each graph:
  - NPV at any given year
  - Break Even Expectations
  - Expectations of Risk

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# Selecting the right alternative

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- The financial analysis allows the steering committee to have another set of facts to differentiate various road-map alternatives to the same enterprise goal.
- Incorporate financial results with visioning results for a holistic view of “best” options.
- Take that “best” option and use it to define a procurement strategy and to request funds from cost-sharing partners.

# Inputs to the (IAPD) ITD...

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- Estimates of alternative costs done under the “approach” section of the CBA is a springboard for the ITD by providing high level data for the:
  - Project Schedule
  - Staffing Plan
  - DDI and Maintenance Budgets
  - Cost Allocation Plan
  - and other initial planning data...

# Inputs to the RFP

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The CBA provides a generalized description of the types of projects your state feels comfortable implementing, and thus the strategy to procure those systems. Does your state want...

- A highly innovative, custom build from 60% to 90%, and never been tried in another state.
- Partially innovative, buy or transfer 50% to 80% of an existing core already working in one or more states, some customization and/or other pre-fabricated pieces...
- Low-risk, transfer most 70% to 90% of an existing system that has two or more successful implementations, some modification or COTS integration for state needs...

# Using these Methods in Vermont

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- Comments from Judy Higgins of the Office of Vermont Health Access (OVHA)
  - ▣ What types of questions did the cost-benefit analysis answer for you?
  - ▣ Did it bring about a change in course away from some types of solutions that may have been already favored?
  - ▣ Did it reinforce procurement strategies that the committee already favored?
  - ▣ What would you consider the most beneficial part of the CBA and/or the CBA process?

# Impact of MITA on the CBA

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MITA Gap Analysis results can be correlated to:

- Resources necessary to stay “As Is”
- Resources necessary to achieve “To Be”.

Established history using this framework will allow for more standardized estimation and optimization of resources as a function of targeted enterprise change.

- In other words...

“As Is” - “To Be”, THAT is the question...

# Questions?

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