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The Dynamic Economic Model:

A flexible approach to investment analysis with Analytica

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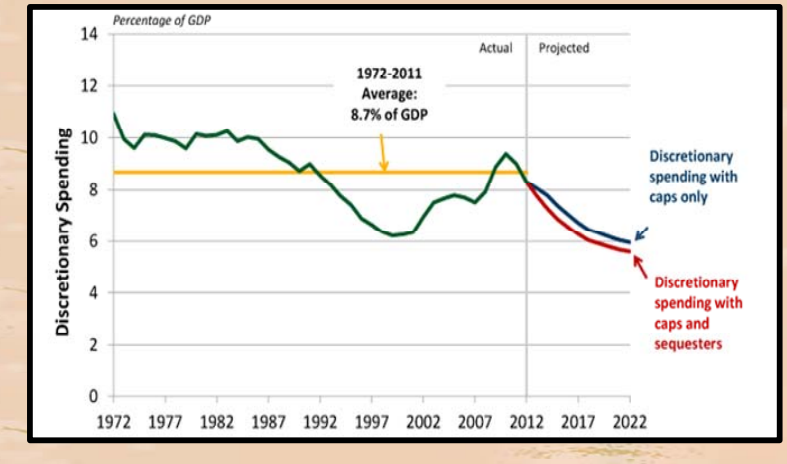
ICEAA TRIBUNE

no.203.078 Number One in Cost Estimation - Since 1990

CBO projects $845 billion budget deficit for 2013



Discretionary Spending Cut Indiscretion

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Continued Resolution Continues

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"I passed a continuing resolution on Marge's car so I could buy a new jacuzzi."

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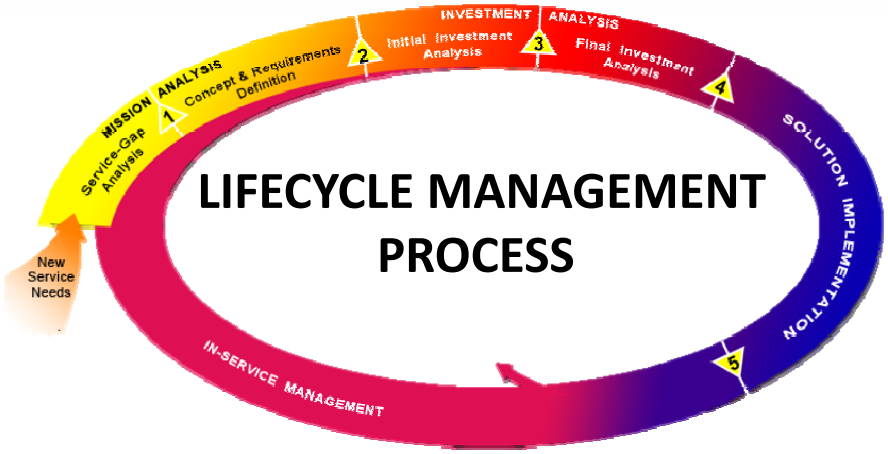
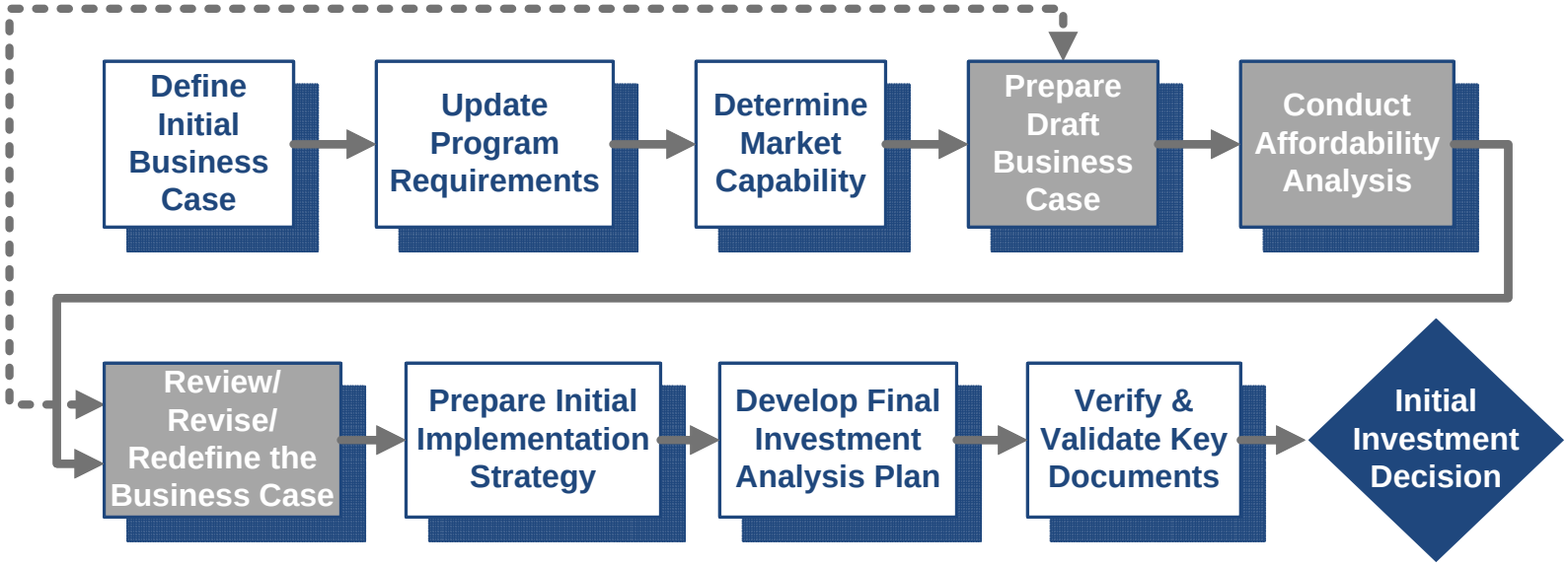
Start Early



Business Case Development

- ❑ Concept Requirements Definition
- ❑ Initial Investment Analysis



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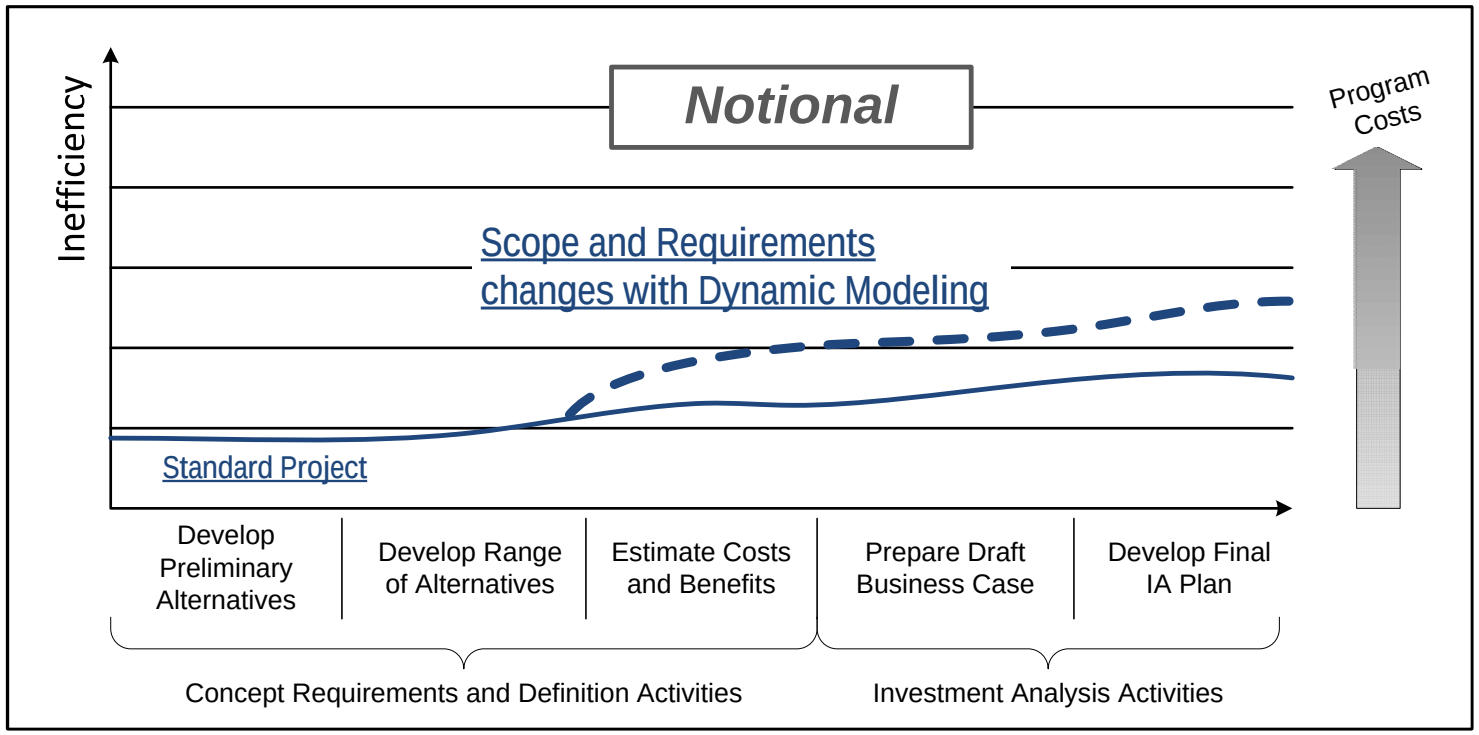
A new way of thinking

- **Limited flexibility to deal with requirement and scope adjustments increases LOE needed to remain on schedule.**
- **Too many changes will eventually lead to schedule slip.**

So how do we accommodate this uncertainty?



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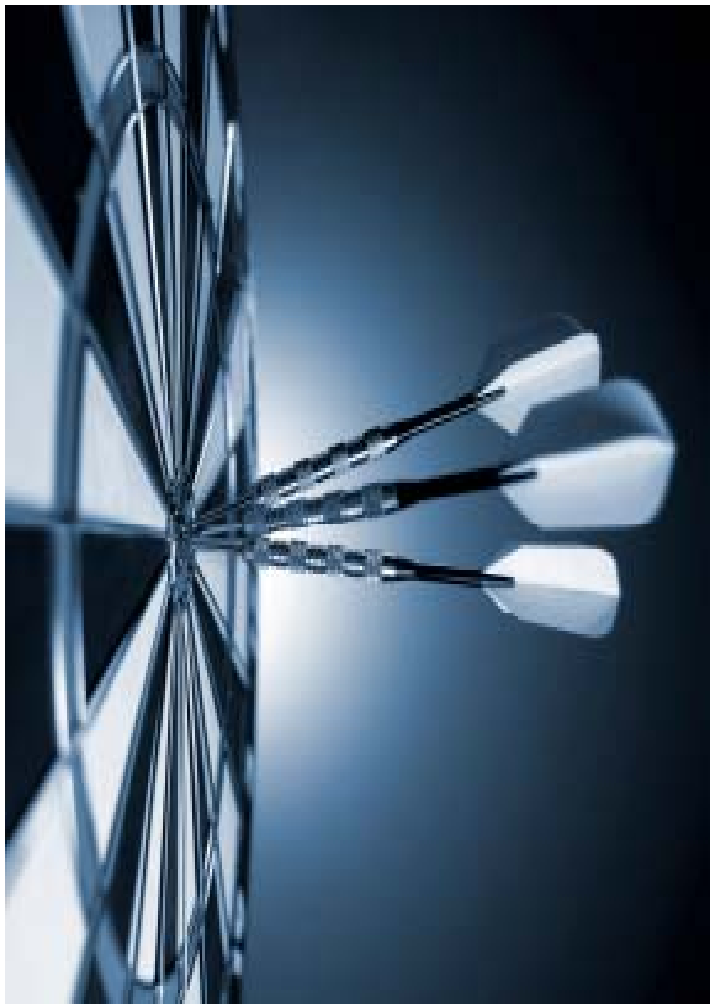
Federal Facility Consolidation Example



Objective

Reduce overall facility footprint & optimize operations

Scope

49 existing facilities re-aligned into between 1 and 7 future facilities

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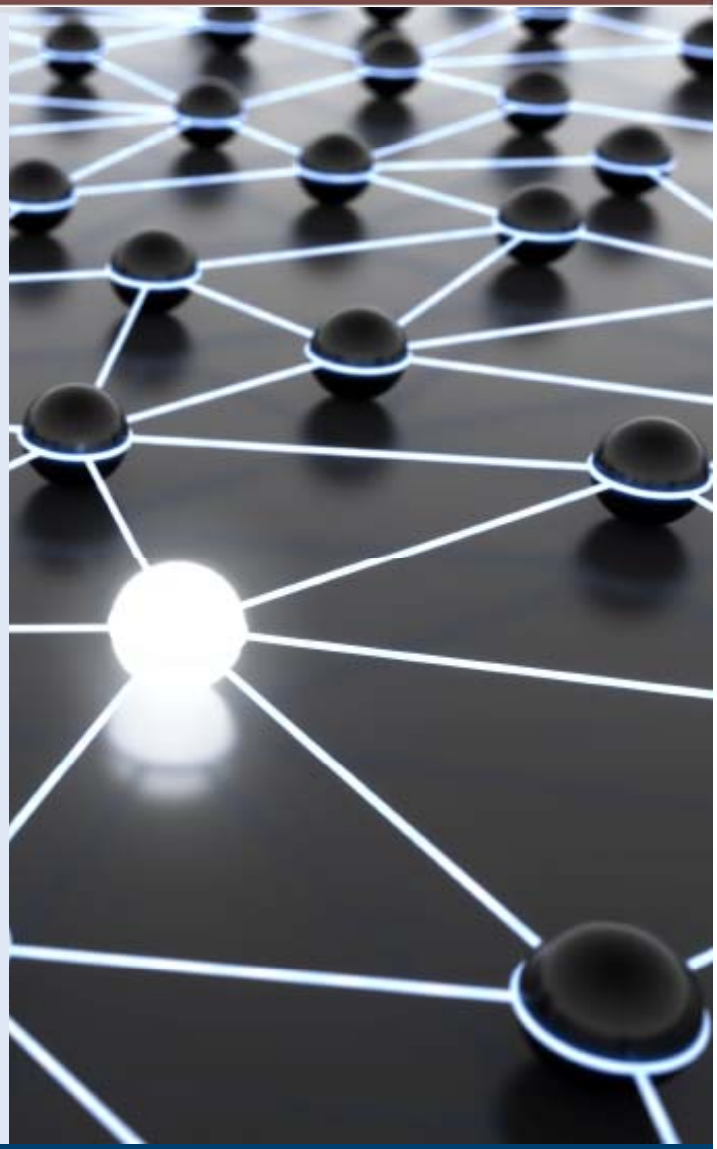
A Dynamic Business Case

- **Business Case Factors**
  - Facilities
  - People
  - Equipment
- **Alternative Definition**
- **Donor/Receiver Matrix**
- **Key Schedule Milestones**



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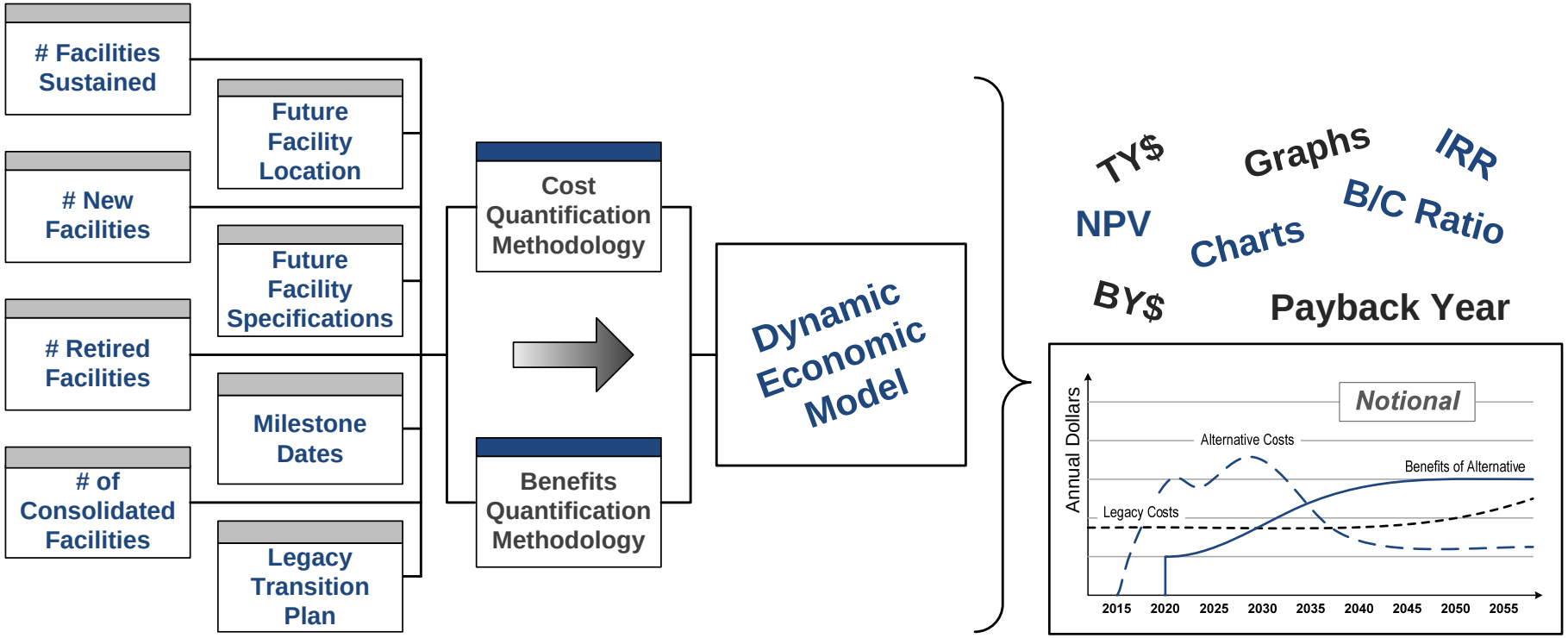
Solution Framework

- **Interchangeable inputs and methodologies magnifies the advantages achieved from automated model creation**



- **Analytica© software tool was a perfect fit!**

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Why Analytica?

- Quick GUI Development
- Influence Diagrams
- Monte Carlo
- Dynamic Arrays
- OLE Linking

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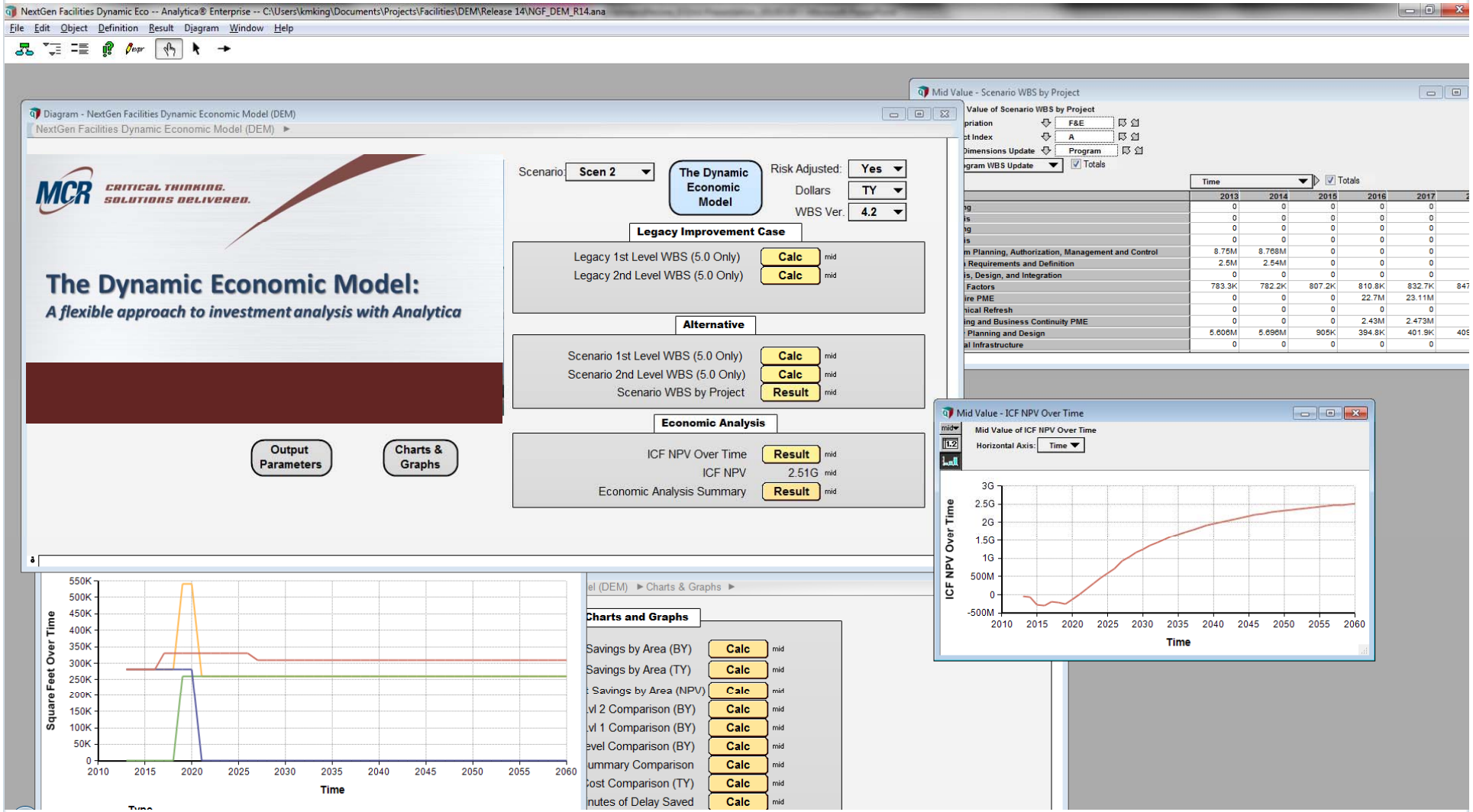
User Interface



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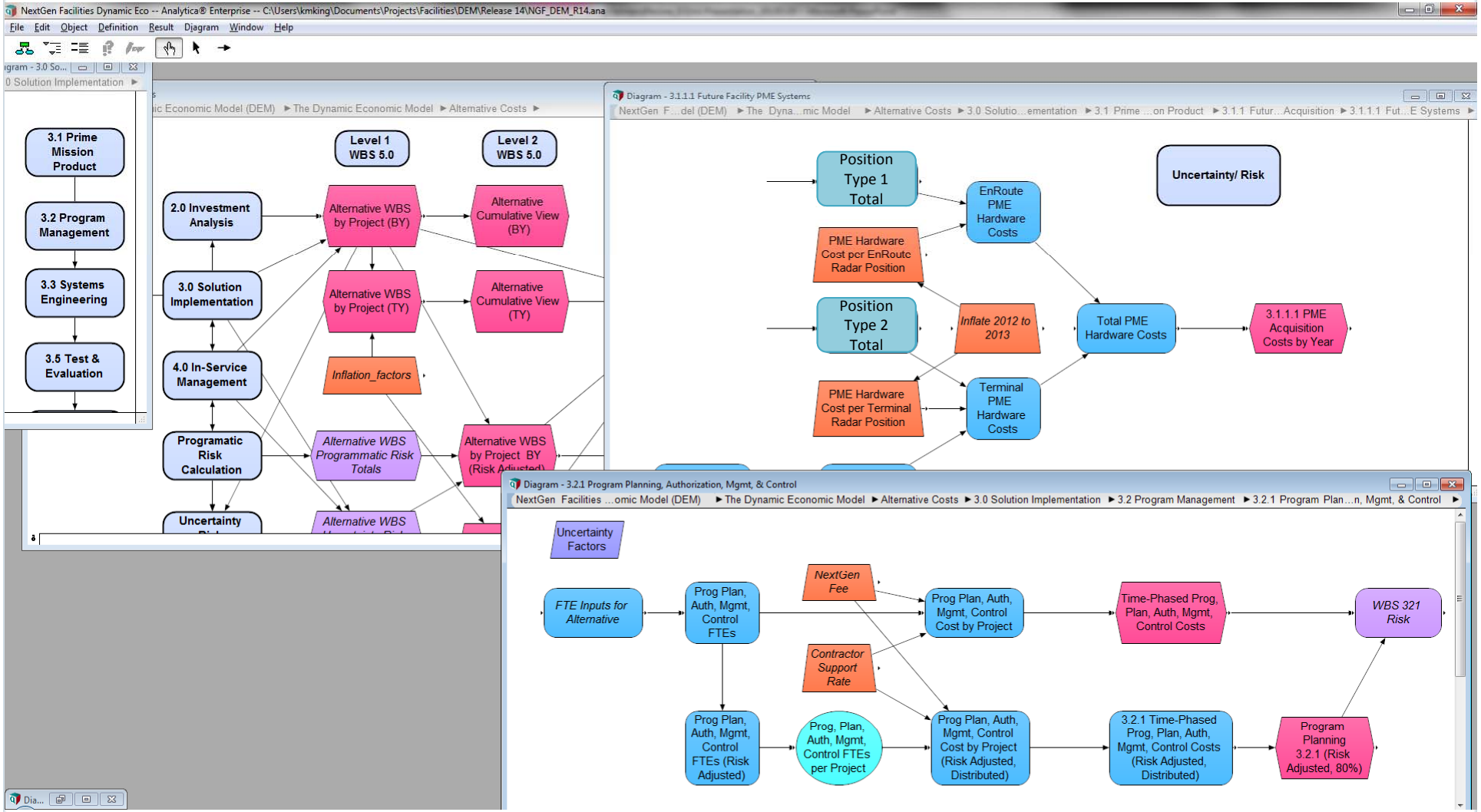
Influence Diagrams



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Monte Carlo

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Dynamic Methodologies

- **Assists in providing accurate cost estimates across the range of potential input values**
  - Examples
    - 11-point construction estimate
    - Equipment Acquisition Parametric Equation
    - Transition schedule framework

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Dynamic Methodologies

- **11-Point Construction Cost Estimate**
  - Developed by Architecture and Engineering firm
  - Provides construction related cost estimates for all possible future facility sizes

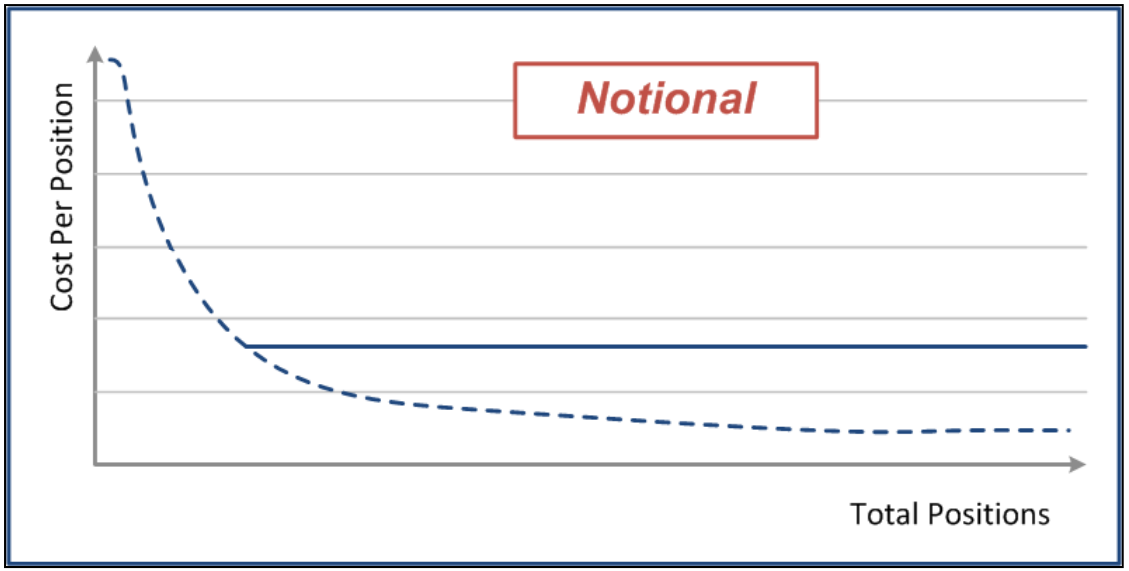
Cost Category	Point 1 (51 to 75 pos.)	Point 2 (76 to 100 pos.)	Points 3 - 10	Point 11 (301 – 325 pos.)
Site Selection	$780,000	$999,000	……..	$2,940,000
Main Building Construction	$45,600,000	$56,500,000	……..	$122,800,000
Supporting Facilities	$6,200,000	$6,860,000	……..	$7,240,000
Parking Garage	$9,800,000	$10,760,000	……..	$29,140,000
……..	……..	……..	……..	……..

Dynamic Methodologies

- **Equipment Procurement Parametric**
  - Created using historical comparative analysis
  - Provides equipment cost estimates given full range of potential radar positions

Limitations

Unknown equipment types and future personnel counts



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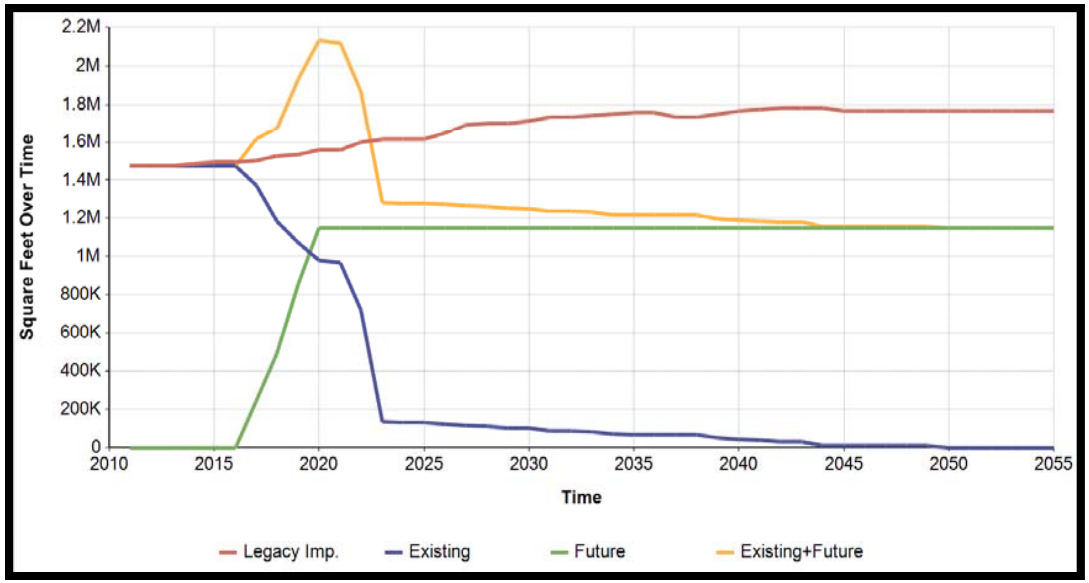
Dynamic Methodologies

- **Transition schedule controls the time-phasing for all costs and benefits**
- **Given the uncertainty of the project the model needed to be capable of handling changes to project schedule and total facility counts.**



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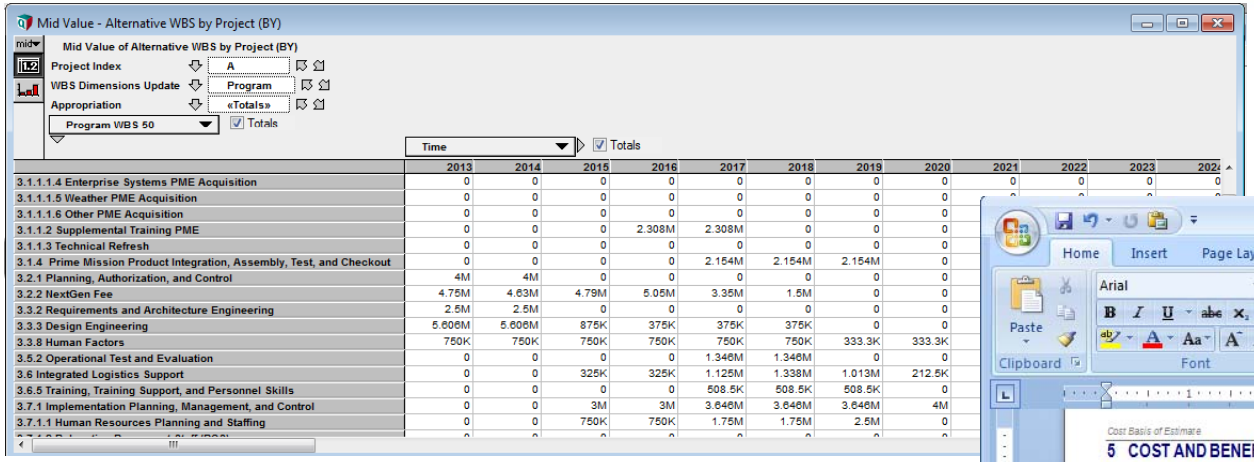
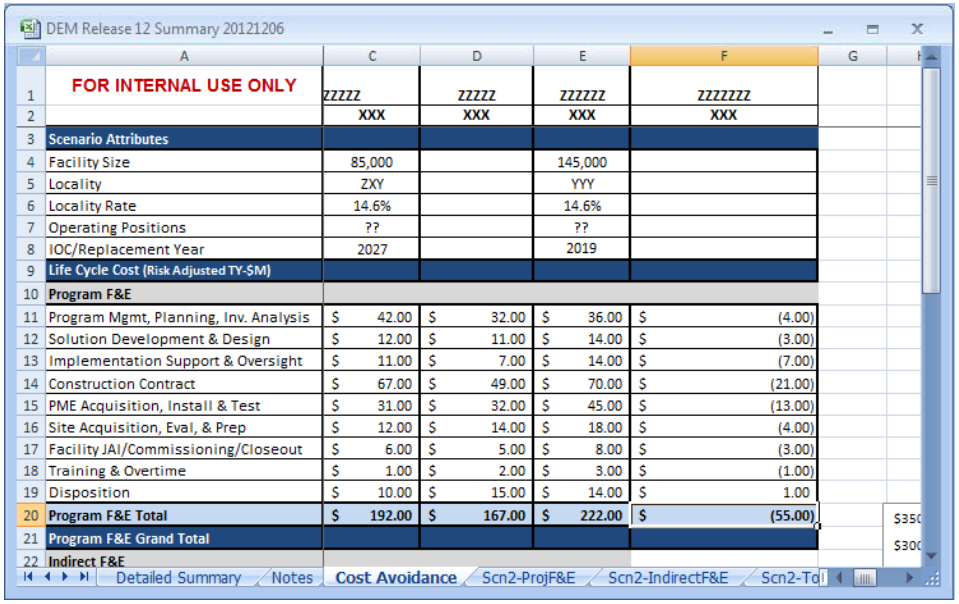
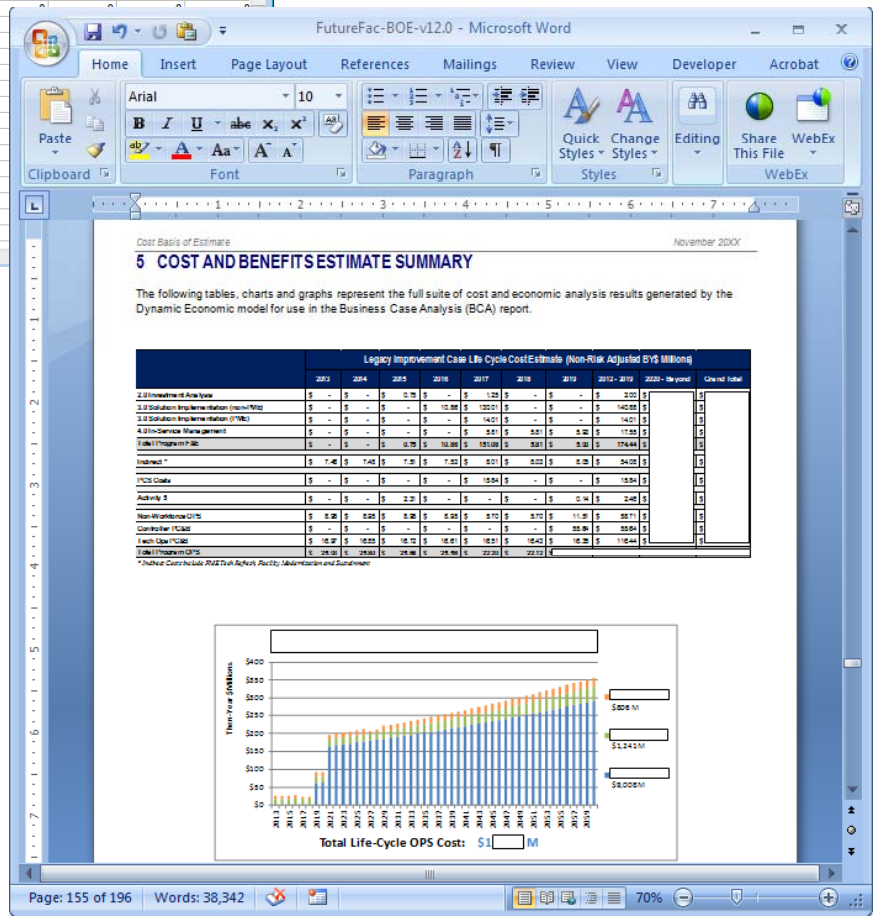
OLE Linking







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Analysis Examples

- Minimum configuration for operations
- Legacy Reconstruction timing
- Impact of Location
- What-if Combinations
- Operating Positions Uncertainty

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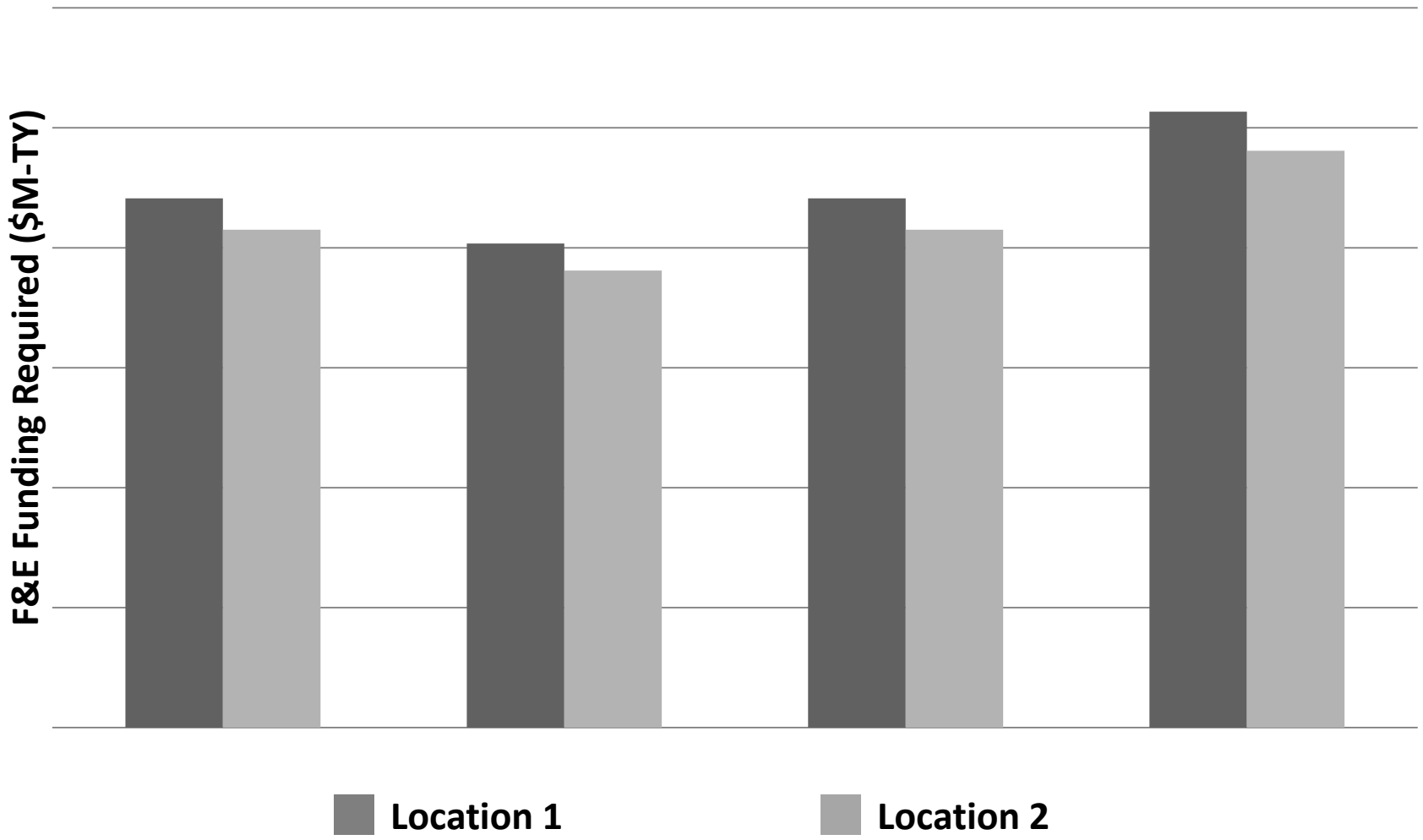
Minimum Configuration



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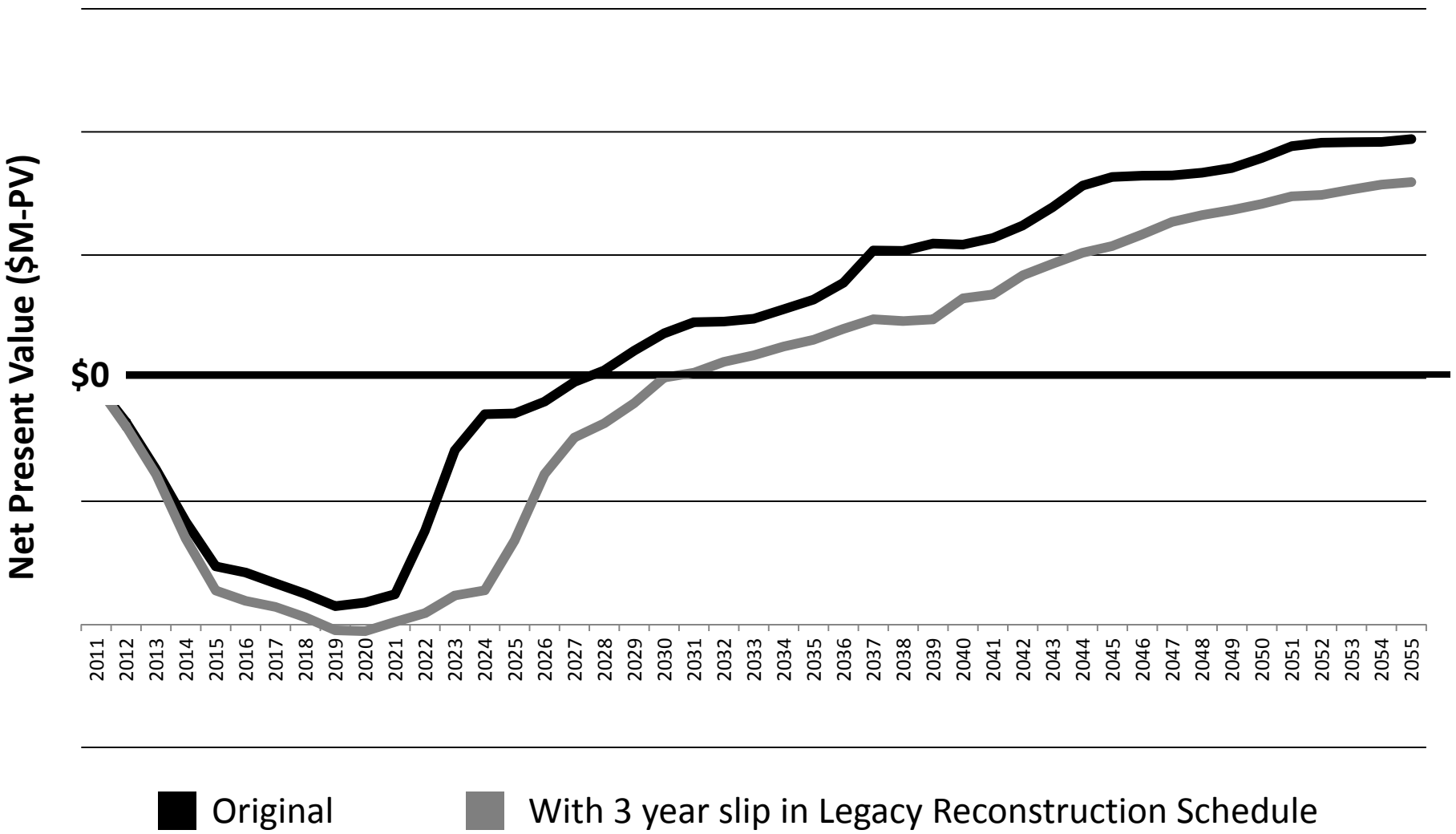
Legacy Reconstruction Slip



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QUESTIONS

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