

# Understanding BMS Results

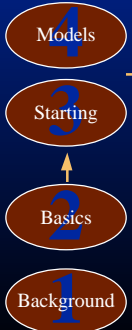
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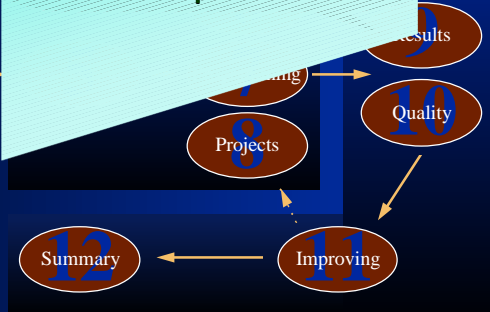
## What We'll Cover

Getting Started

Day 1



Costs and benefits  
Levers of power  
Results and reports in Pontis



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# What Are the Cost and Benefit of a Decision?



Avoiding definitional  
problems which  
muddy up the  
waters

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## Definitions of "Costs"

- Direct costs
- Avoidable costs
- Budgetary requirements
- "Full" costs
- First costs
- Life cycle costs
- Social costs

**COST**



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## Definitions of "Benefits"

- Avoided costs
- Budget reductions
- Social benefits
- Payback period
- Internal rate of return
- Net present value
- Extended "service life"

**BENEFITS**



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## Importance of Consistency

Alternative	Cost	Benefit
1. Start a spot painting program	\$100,000 per year	Extend bridge lives by 5 years
2. Replace bridge 12345	\$500,000	Save \$30,000/year in maint.; allow trucks > 30T
3. Widen 5 bridges	\$500,000	Save \$25,000/year in maint.; reduce accident risk

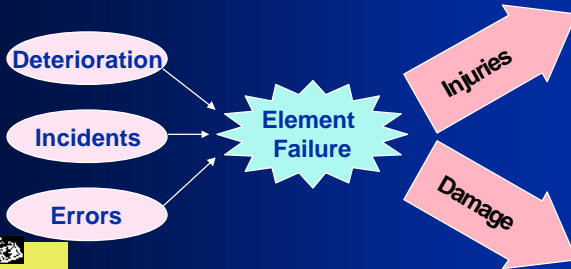
**Which one would you choose?**

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## Risk and Vulnerability

In a sufficiently large bridge population improbable events are certain to happen.



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## Pontis Definitions

### Costs

- Budgetary requirements
- Direct and indirect first costs

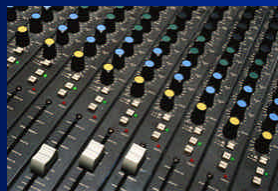
### Benefits

- Average annual net avoided costs
- Future agency costs
- Future user costs

### Benefit/Cost Ratio

- $\text{Future net benefits} / \text{Current costs}$
- Any project with positive net benefits is good

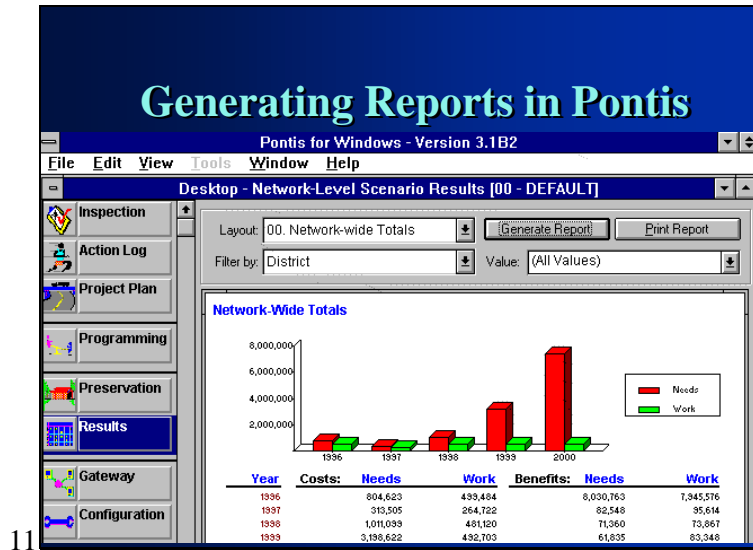
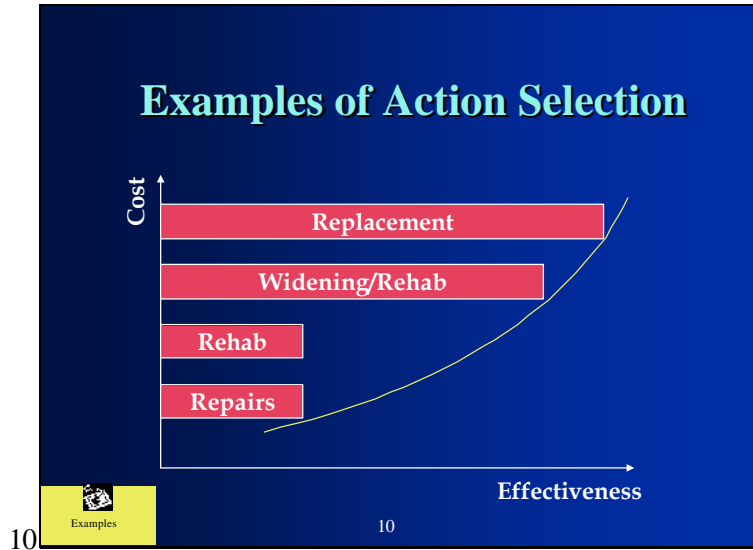
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## The Levers of Power

How Adjusting One  
Factor Affects the  
Others

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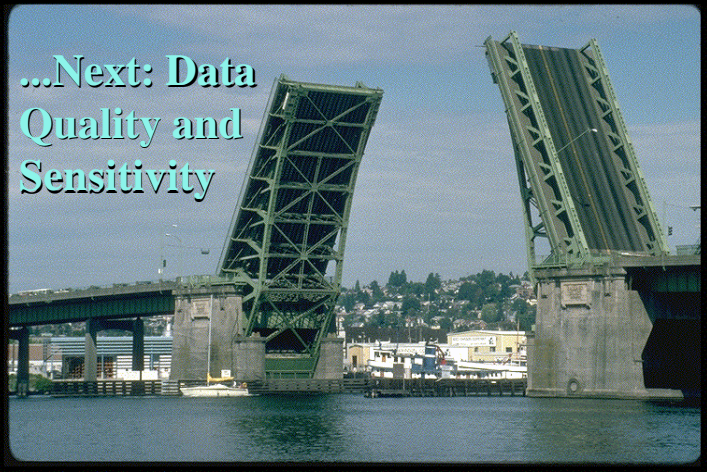
## Stand-up Break!



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## ...Next: Data Quality and Sensitivity



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