Using Decision Analysis to Improve Efficiency

Reducing Costs, Accelerating Schedules, and Making Better Decisions Faster

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Most Corporate Challenges Don't Present Themselves as Decision Analysis Problems

- Most activity is thought of as 'execution'
- Focus is rightly placed on speed and efficiency
- This is true even more in current economic climate
- DA techniques not always thought of as supporting these imperatives

However – DA can make a huge contribution through application in new and creative ways

Two Examples

- DA Used to Accelerate Schedule

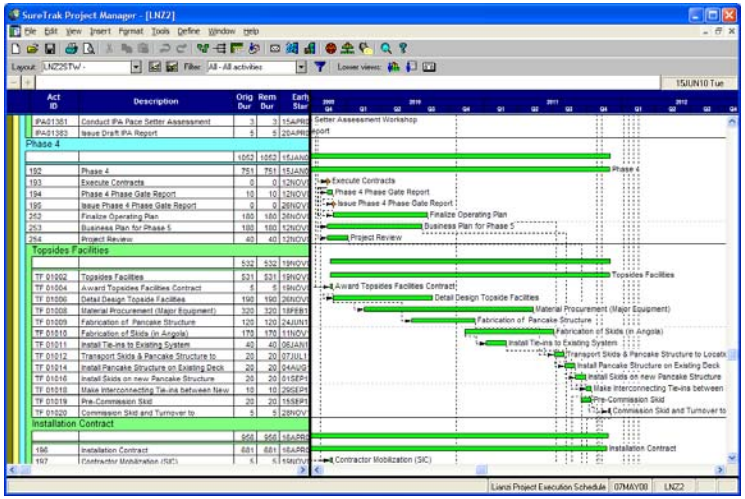
- Faster, More Efficient Decisions

During “Project Execution”, meeting or beating schedule is of critical importance.

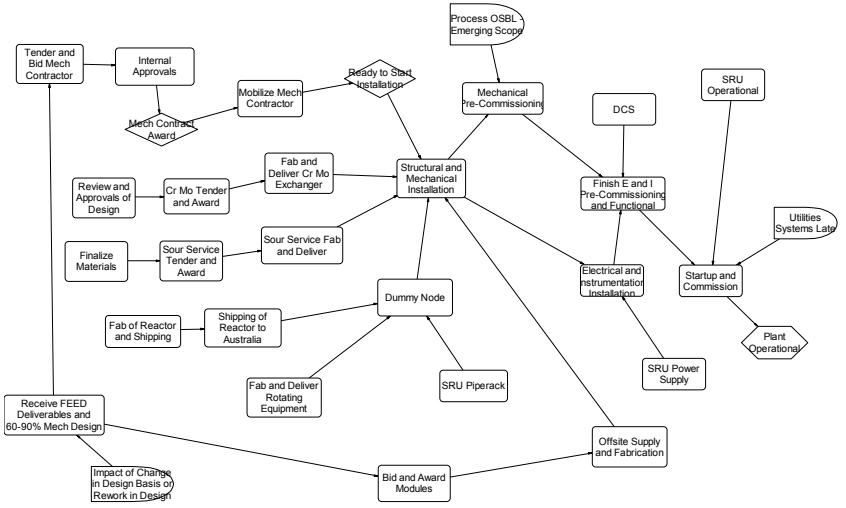
- Typical Status Quo
  - Detailed project schedule developed (often 1000’s of activities)
    - (or the other extreme, no project schedule)
  - Lack of project team alignment around the key elements of the schedule
  - Projects often finish late – and time is money!
    - “p50” planning leads to low chance of meeting target if multiple workstreams are required
      - chance of all workstreams meeting or beating their p50 dates is low

DA techniques can add huge value via Schedule Risk Analysis

STEP 1: Boil the detail schedule down to a more strategic level



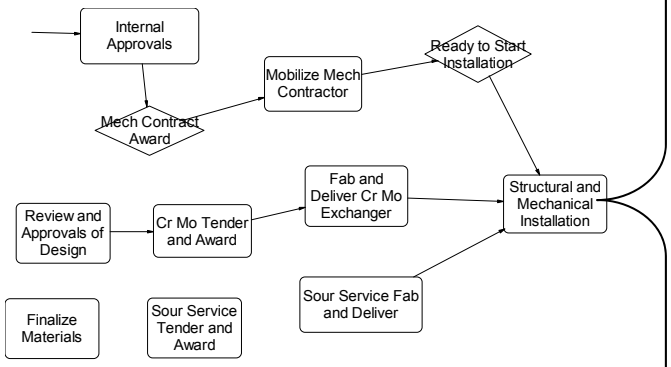
25-50 Key Activities

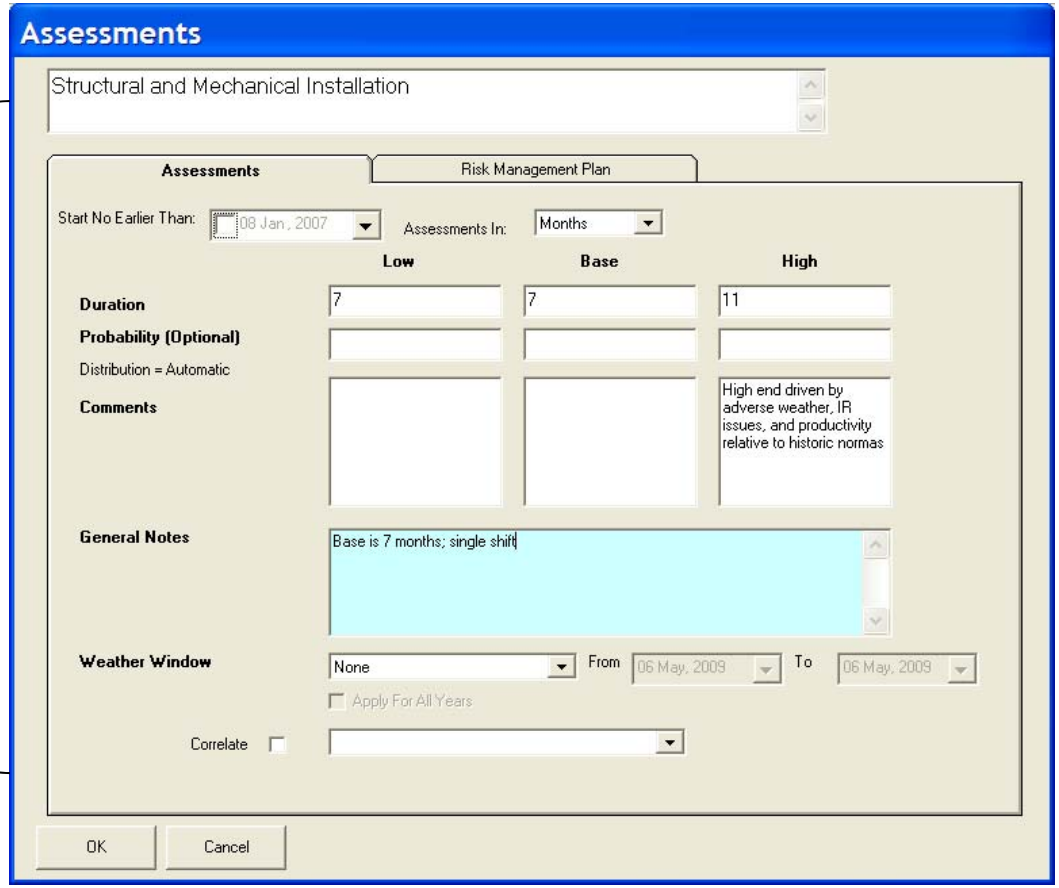


DA "lens" helps this process by focusing on key distinctions and groupings of activities

Systematically “Risking” the schedule identifies areas of risk (and opportunity).

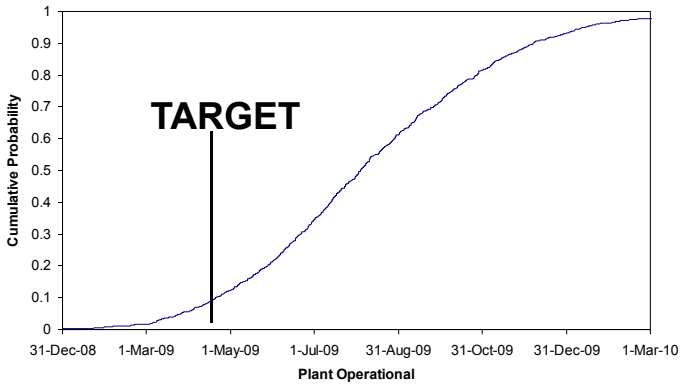
STEP 2: Probability assessment of durations of key activities – and drivers



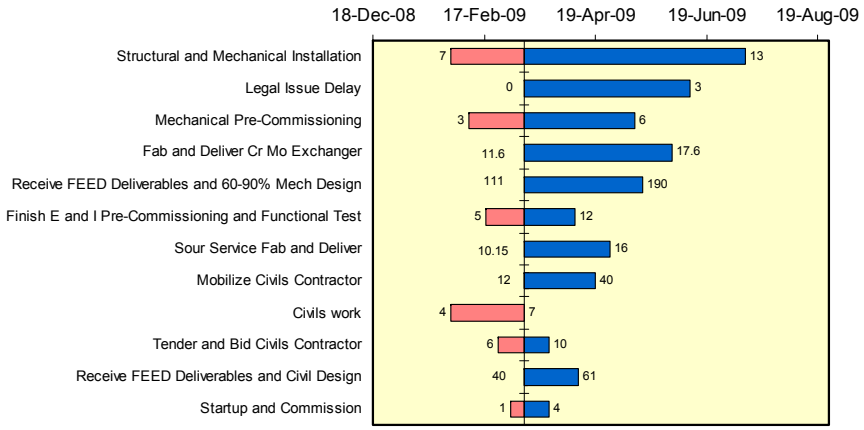


Results are used to drive the search for creative alternatives and mitigations.

STEP 3: Run probability model on high-level schedule model



Plant Operational



Search for acceleration options.

Example Acceleration Options

- Accelerate/mitigate mechanical engineering
- Tender/bid mechanical contract early
- Delegate bulks & module fab to contractor
- Sole source for major long leads
- Single SRU/DHTU Contractor
- Overseas labor / improved productivity
- Higher supervision ratio
- Site permitting / transportation

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DA can then support cost/benefit analysis around these opportunities.

STEP 4: Drive action based on analysis of options

	Impacts vs. Unmitigated (weeks) p10	p50	p90	Out of Pocket Costs
Accelerate/mitigate mechanical engineering	-2.1	-2.1	-4.1	$ 40
Tender/bid mechanical contract early	-3.9	-4.3	-6.3	$ 20
Delegate bulks & module fab to contractor	0.0	0.0	-0.4	$ 15
Sole source for major long leads	-1.4	-0.9	0.0	$ 10
Single SRU/DHTU Contractor	*-0.7*	*-1.3*	*-3.4*	*$ 5*
Overseas labor / improved productivity	*-0.7*	*-1.3*	*-3.4*	*$ 10*
Higher supervision ratio	*-1.0*	*-1.6*	*-3.6*	*$ 15*
Site permitting / transportation	*-0.6*	*-0.9*	*-1.9*	*$ 25*

Results lead to new alternatives, different decisions in project execution, faster schedules and higher project team alignment.

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Two Examples

- DA Used to Accelerate Schedule

- Faster, More Efficient Decisions

For the vast number of ‘routine decisions’, Decision Analysis in its traditional form is not warranted

- Example ‘Routine’ Decisions – made dozens or more times each year
  - Product Entry into New Region
  - Small Capital Investment
  - Repair / Replace
  - Etc.

- Typical Status Quo
  - No analysis, or, at best, a variety of ‘home grown’ approaches on different people’s desktop
  - No uniform approach
  - **Time wasted:**
    - **Developing justification each time**
    - **Executives comparing disparate requests**

Decision Analysis, deployed creatively, can improve the speed, efficiency and quality – of these recurring decisions.

STEP 1: Frame and structure the decision one – in generic form

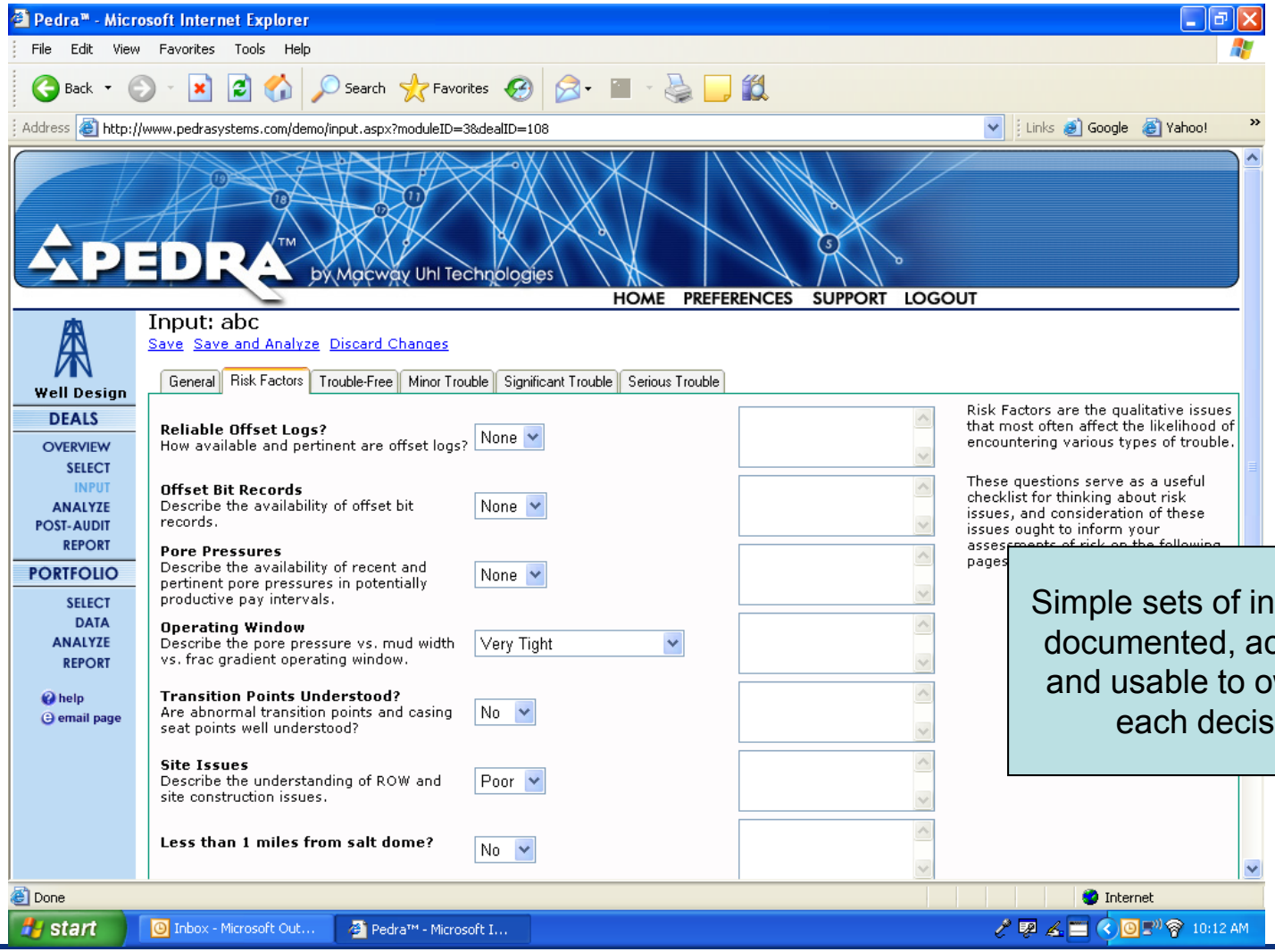
- Alternatives
- Key Input Variables
  - Limited to 10-20
  - .
- Analytic Model
- Standardized Metrics, Outputs and Sensitivities

Step 2: Create common decision models with easy user interfaces, and make them available broadly.

- Read only Excel files on common server
  - Simple, easy to implement

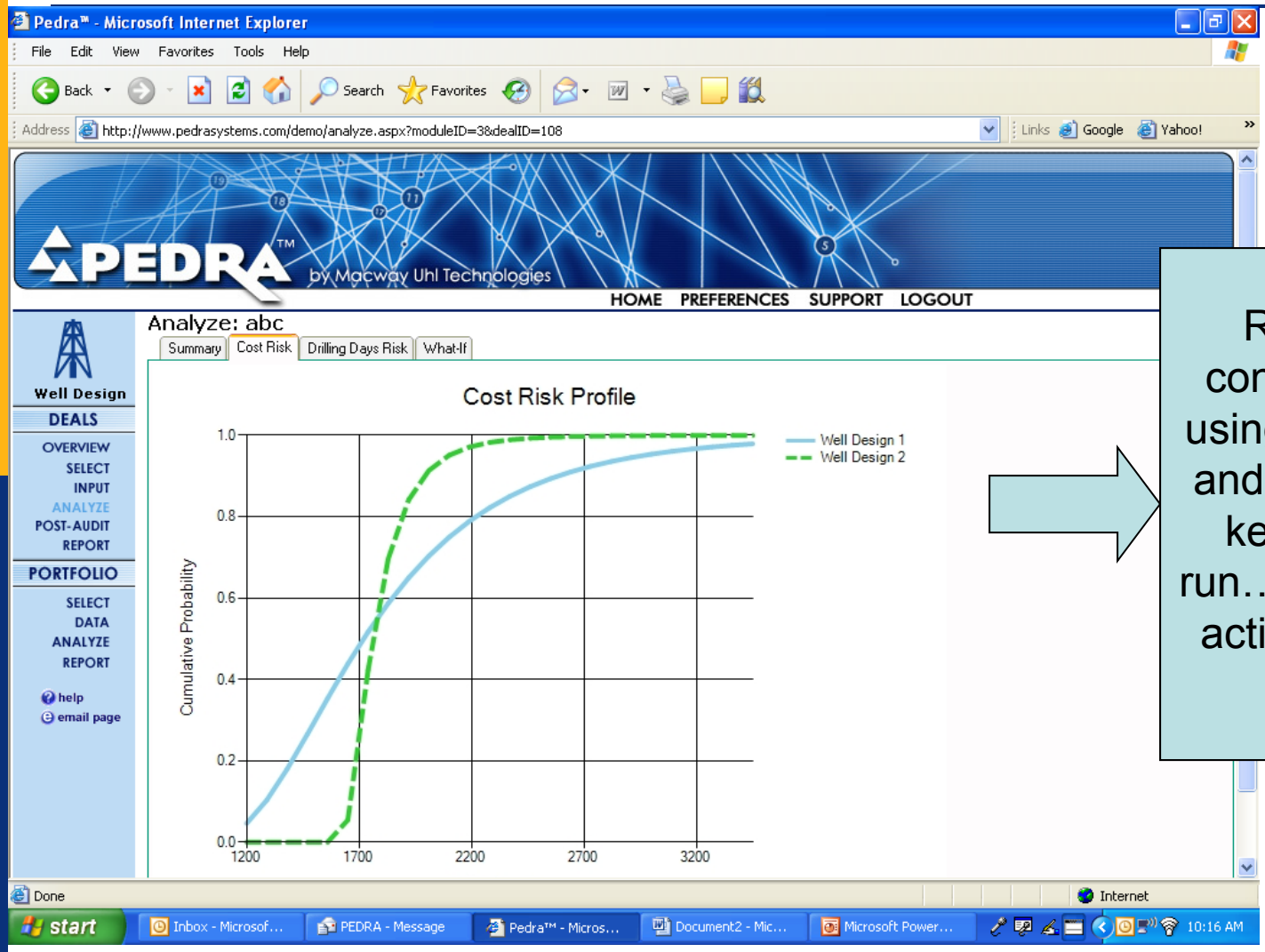
- Web-based systems
  - Low-cost, with additional database features

Step 2: Capture the specific input data needed for that particular decision…



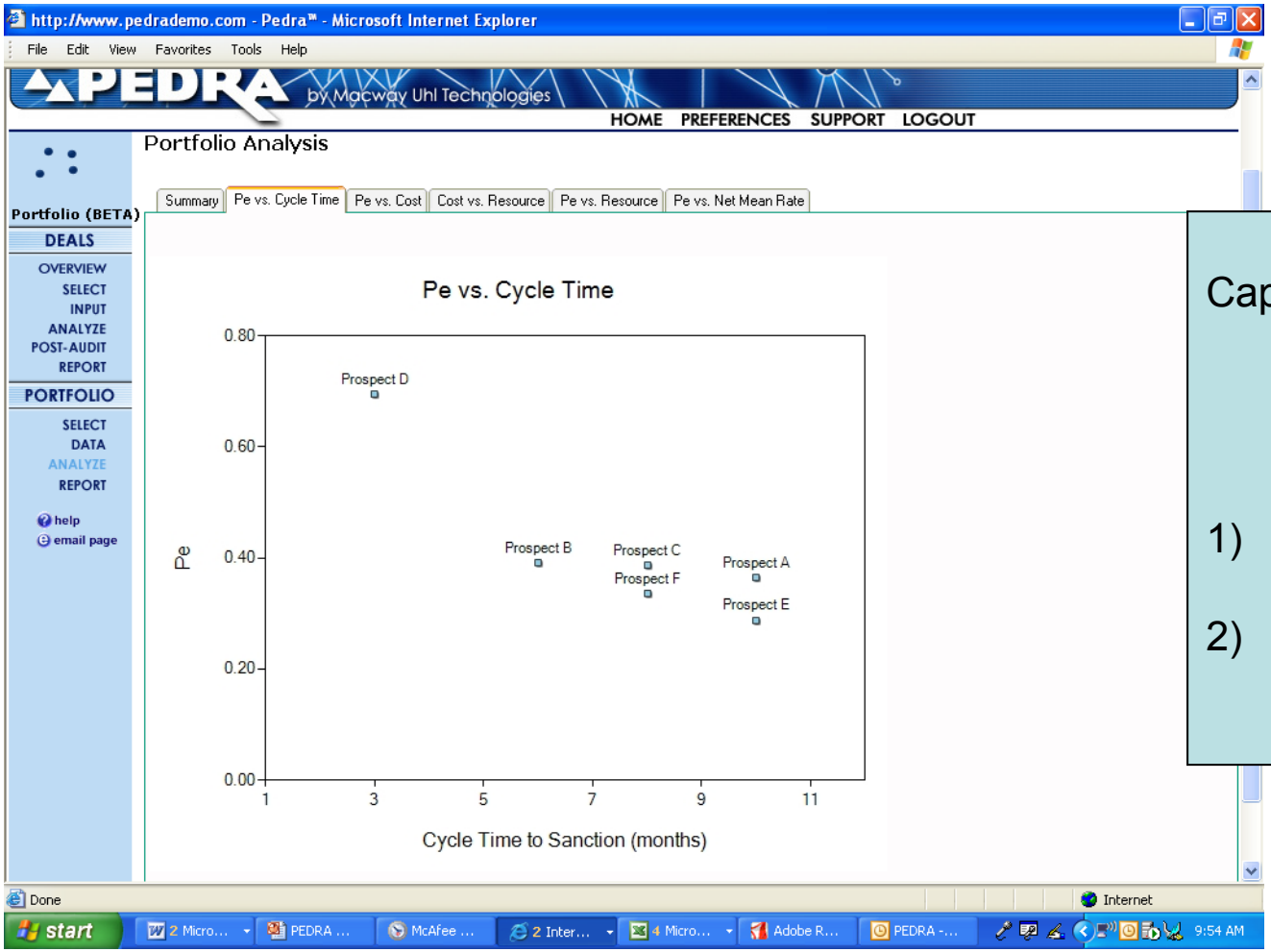
Simple sets of inputs, well documented, accessible and usable to owners of each decision.

Step 3: Capture the specific input data for decisions as needed…and use the standardized results to drive action.



Results are in consistent format, using common logic and approach, with key sensitivities run…..leads to quick action (rather than iteration….)

Step 4: Capturing data around large number of similar decisions leads to continuous learning and improvement.



Capturing data around many decisions of similar structure enables:

1) Virtual peer reviews
2) Easy 'look backs'

For More Information

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