Structuring Portfolio Analysis and Management to Achieve High Decision Quality

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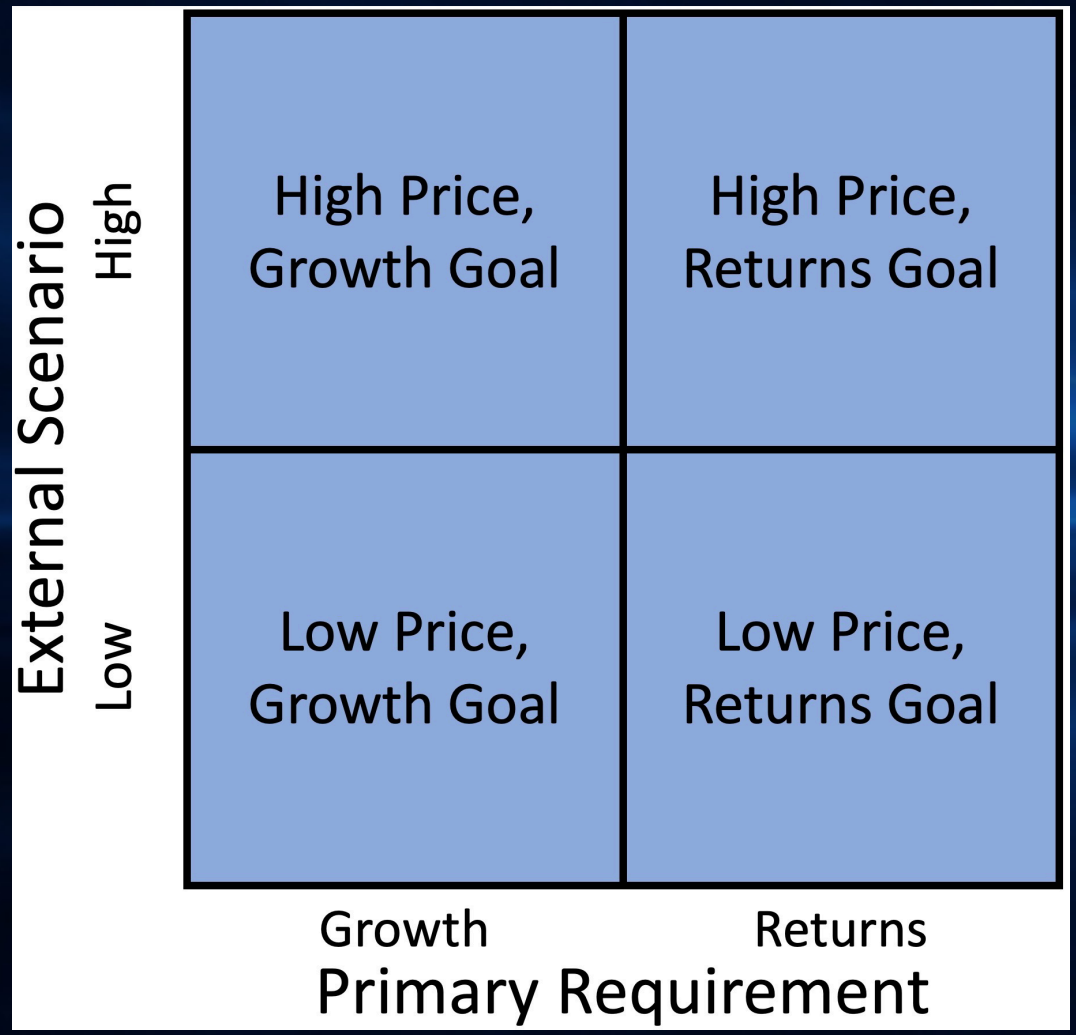
The Portfolio Work That Created an Oil SuperMajor

Instead of simply rolling up budgets and extending them for ten years, leadership wanted to understand portfolio alternatives in two bookend scenarios.

The rest of the story.



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The Three Enablers in 2004

Category	Data	Computing Power	Visualization
Goal	Option Inventory Collection	Construct Portfolios and Entity Comparison Analyses	Evaluate Trade-offs
Required	Data Infrastructure & Standards	Computing Power / Models	Visualization and Facilitation Expertise
Activities	Generate, Obtain, and Manage Data	Generate Analyses	Analyze, Filter, and Discuss Tradeoffs

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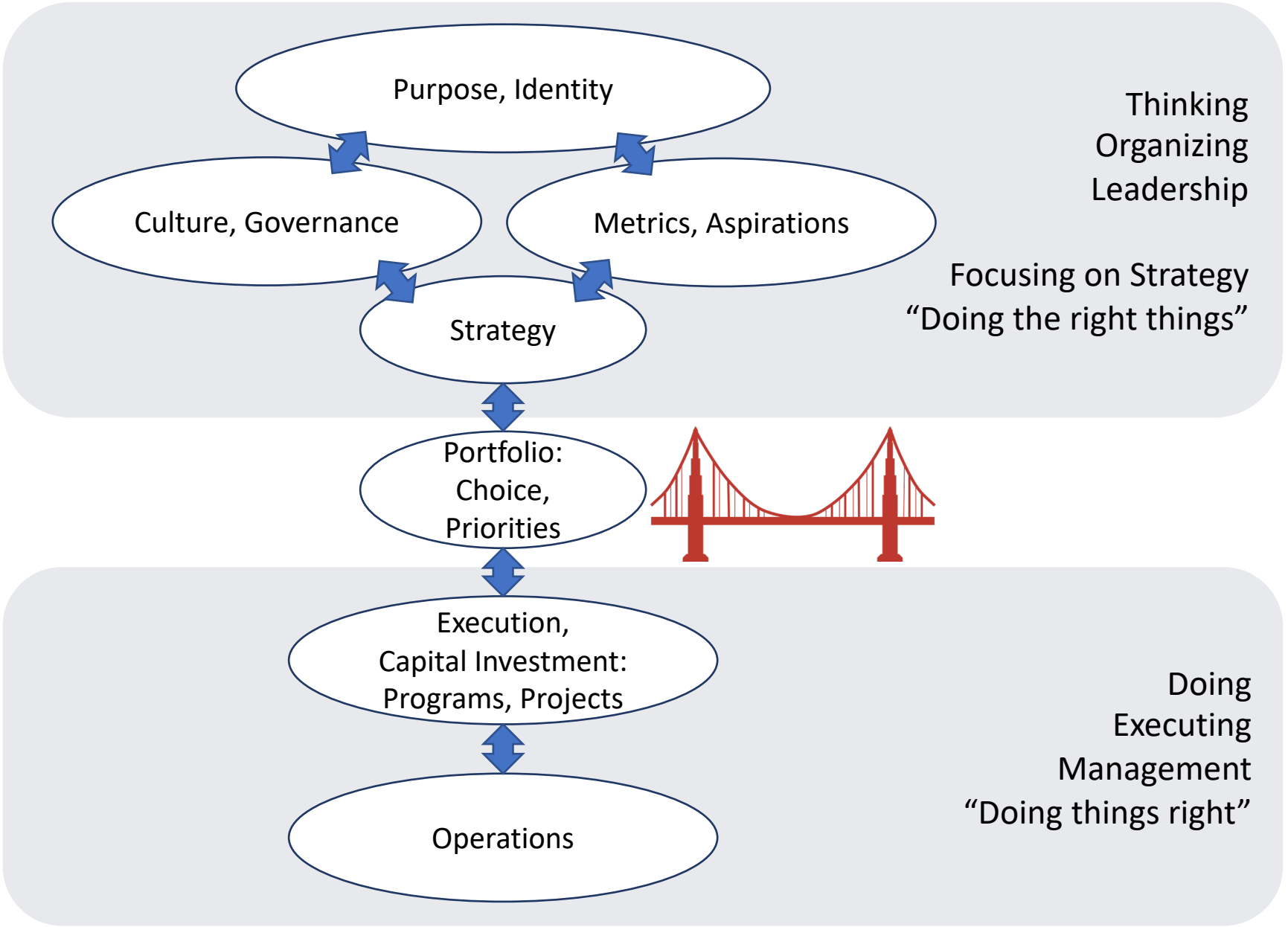
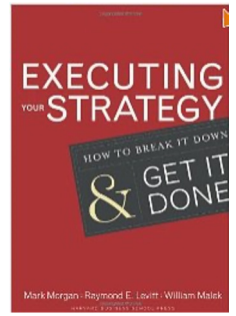
The Strategic Execution Framework

Aligning Actions with Strategy





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Realizations

- We further developed the three enablers – if you build it…
- Data, computing power, and visualization are necessary but not sufficient
- Time in the wilderness, go back to first principles – Jeff Keisler, DAAG 2007, “Portfolio Decision Analysis”

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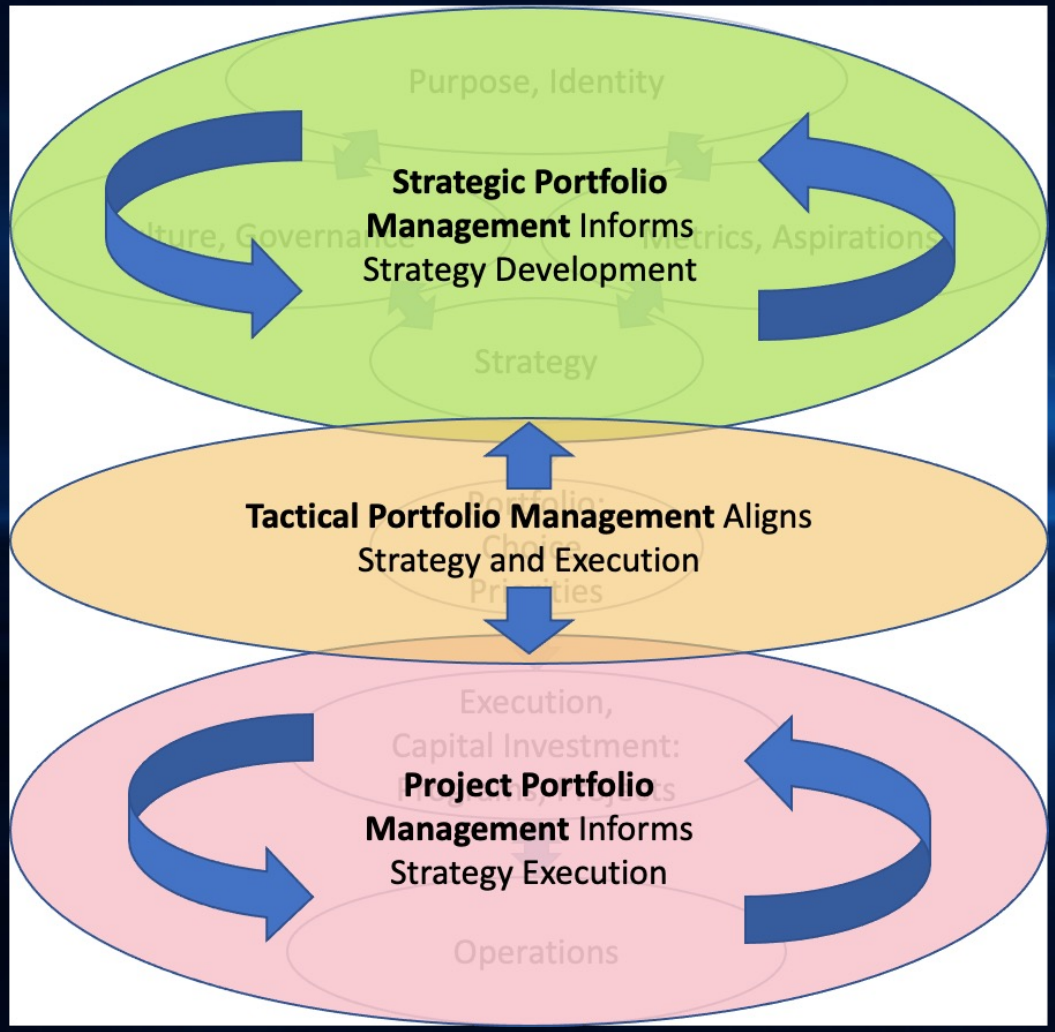
There are three distinct levels of portfolio analysis and management

Strategic Portfolio Management – Performed at the highest management levels. Rough approximations ok; looking for directional insights.

Tactical Portfolio Management – Linking strategy with operations. Authority to Choose.

Project Portfolio Management – Performed at the operational level. Detailed data. Making decisions today. Authority to Execute.



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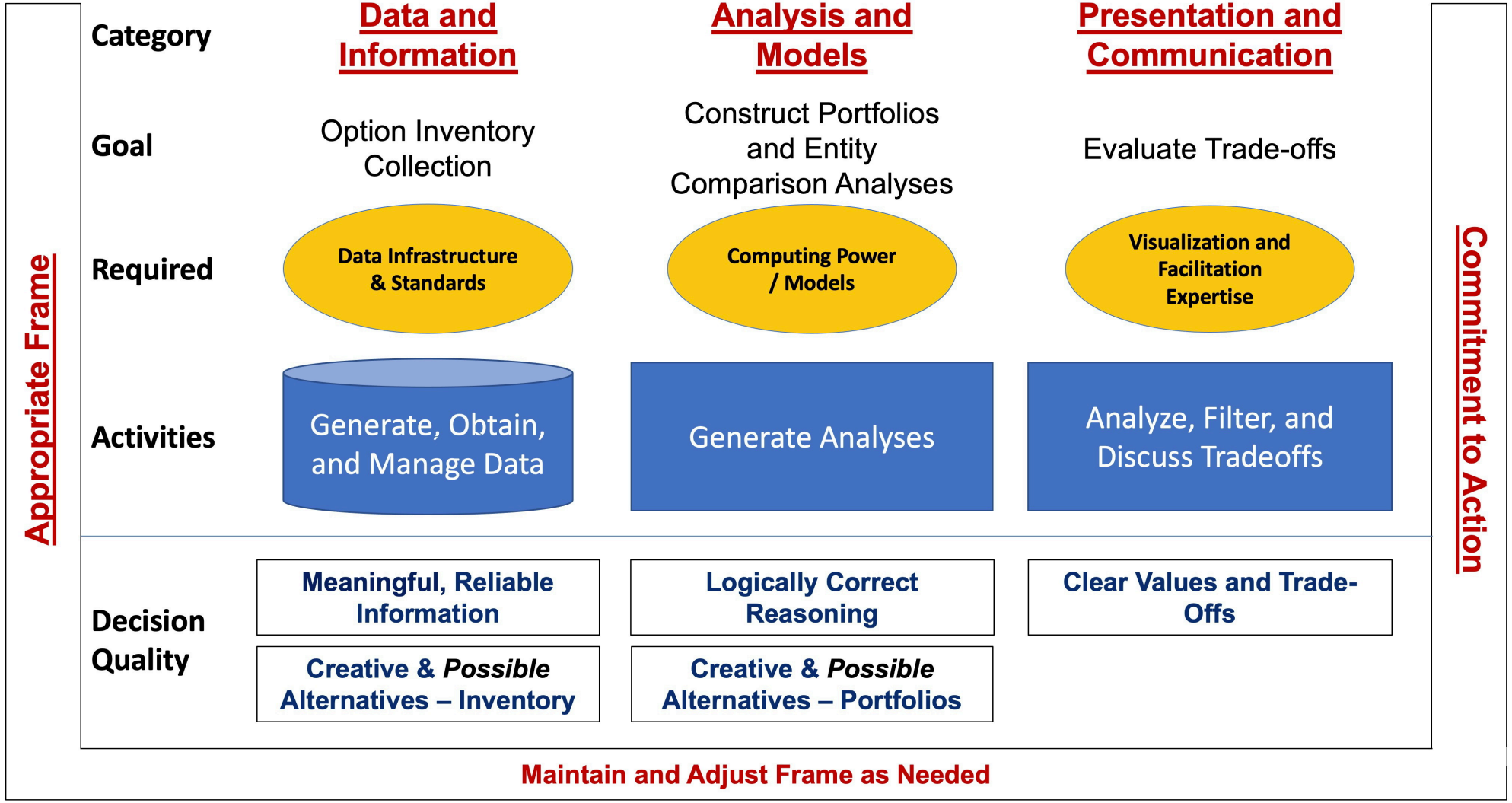
The Five Enablers



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Framing Drives the Analytic Frame

- Deadline
- Purpose
- Decision Criteria
- Values
- Working Inventory
- Entity Granularity, Scope, Optionality, Exclusions
- Accounts (e.g., production, cash flow capex)
- Data Provenance
- Timespan of inputs
- Probability and Uncertainty
- Metadata
- Organizational Decision Process
- Visualizations
- Leader Interactions
- Output interfaces and accuracy
- **Analytical Process**

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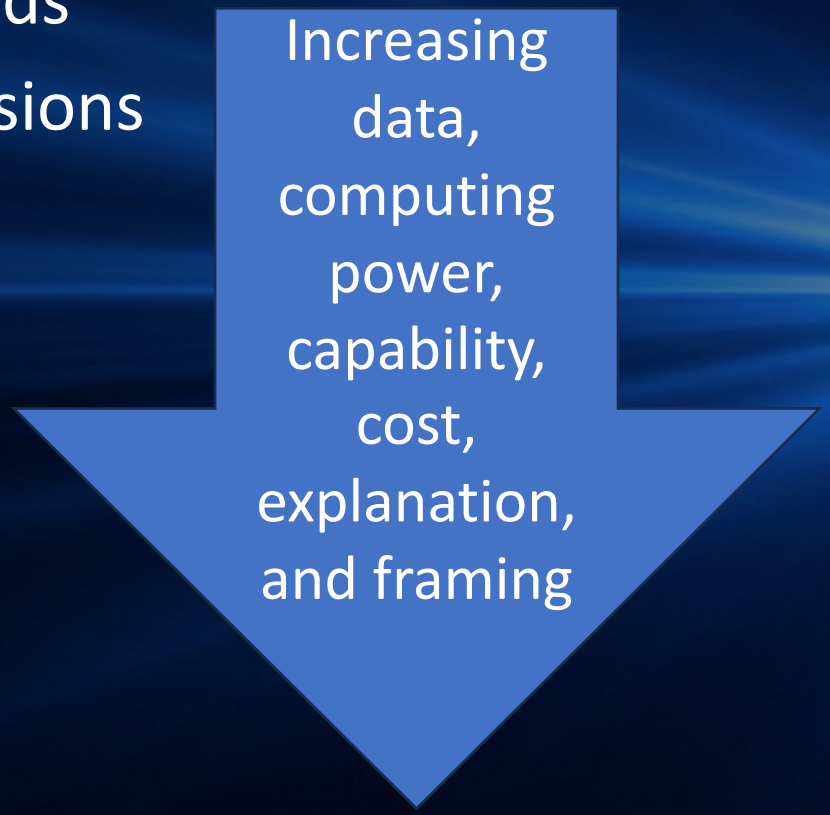
Analytic Frame – The Types of Analyses

- Standalone analysis – feeds into all other methods
- Comparison – single dimension, multiple dimensions
- Rollups
  - Deterministic and stochastic
- Interactions
  - Optimization
  - Simulation
  - Stochastic Optimization



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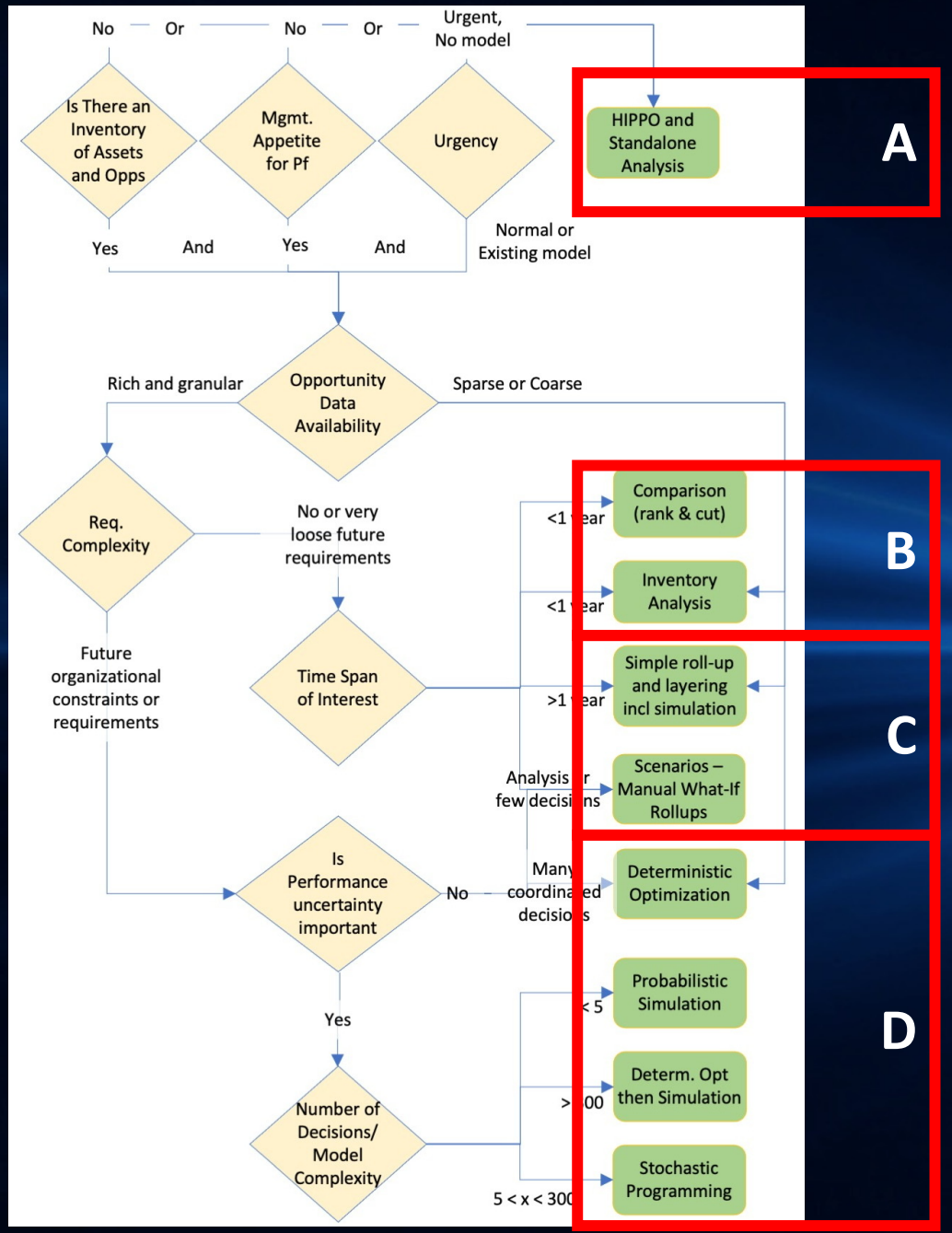
Decision Tree to Focus on the Most Appropriate Analytical Method



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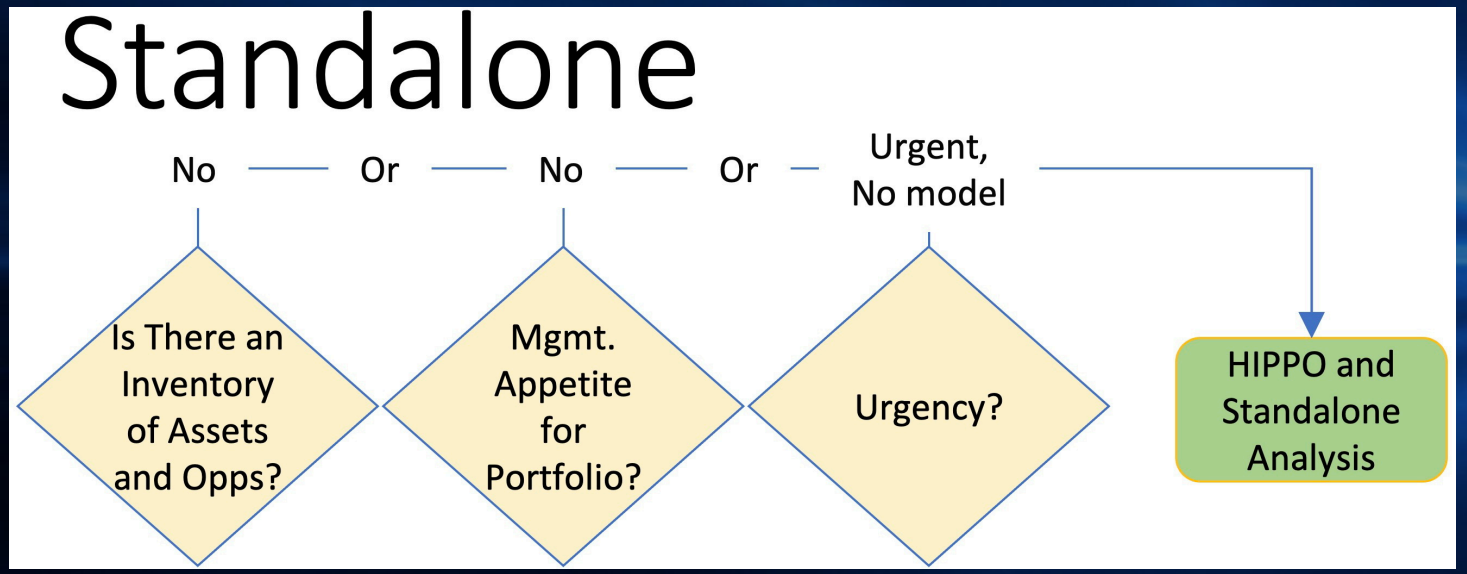
Part A
Standalone

Making project decisions based on standalone economics

Is it portfolio? If the discount rate is tied to some concept of opportunity cost.

Stermole says that you should use the discount rate equal to the IRR of opportunities thought to exist. William Sharpe said to use WACC.

Better is what DAs do, make several standalone alternatives, then decide between them using incremental economics.



Standalone cash flow analysis is a requirement for all the other portfolio techniques

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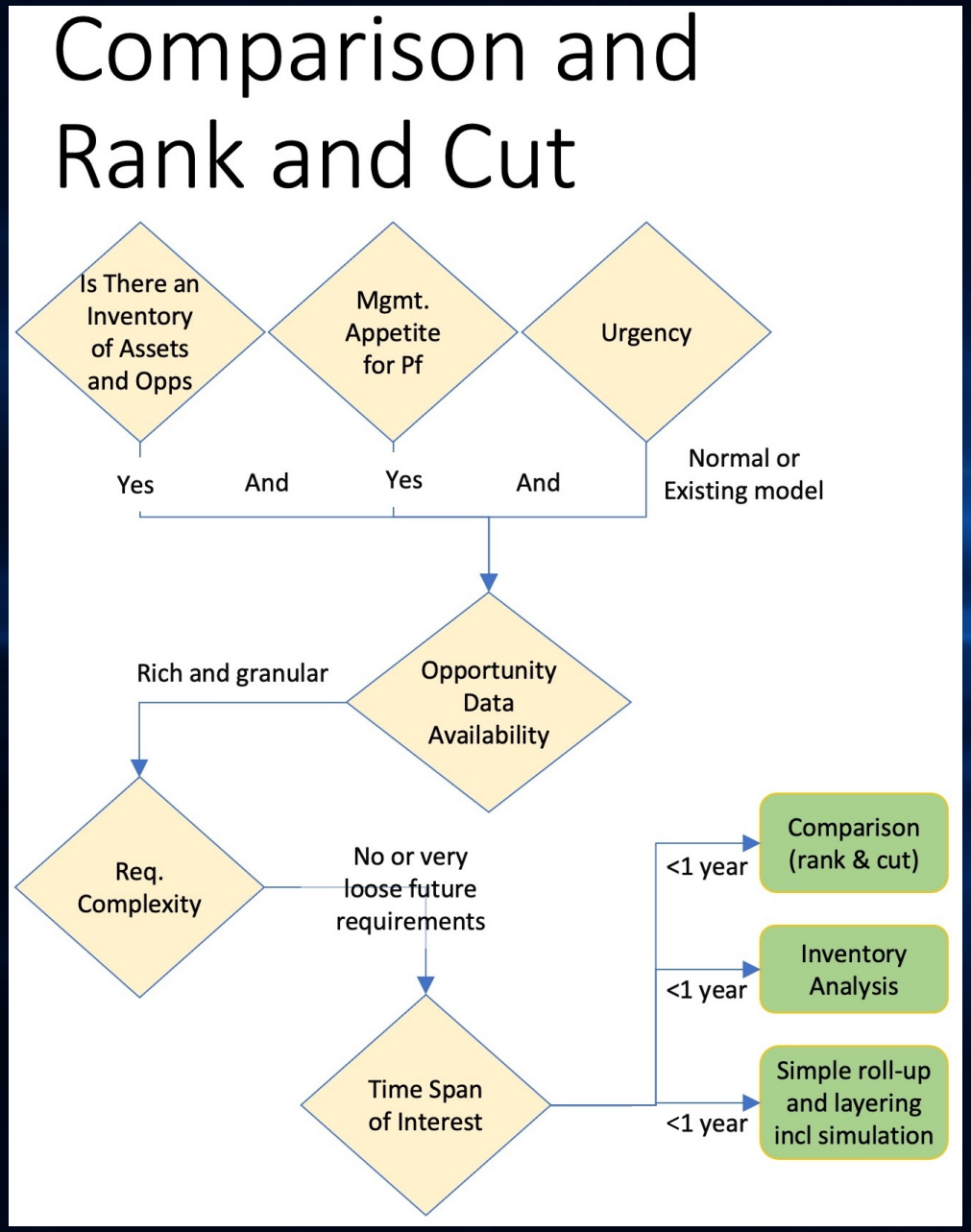
Part B
Comparison and Rank and Cut

- Rank and Cut
  - Single Attribute
  - Multi – MODA, MADA, AHP
- Multidimensional Plots
- Inventory Analysis – Graphical Methods – Landscape (look for deficiencies, excesses, imbalances)
- This is our first glimpse of simulation. It is quite useful in exploration to know what to expect from an exploration program in terms of discovered resources, for example.



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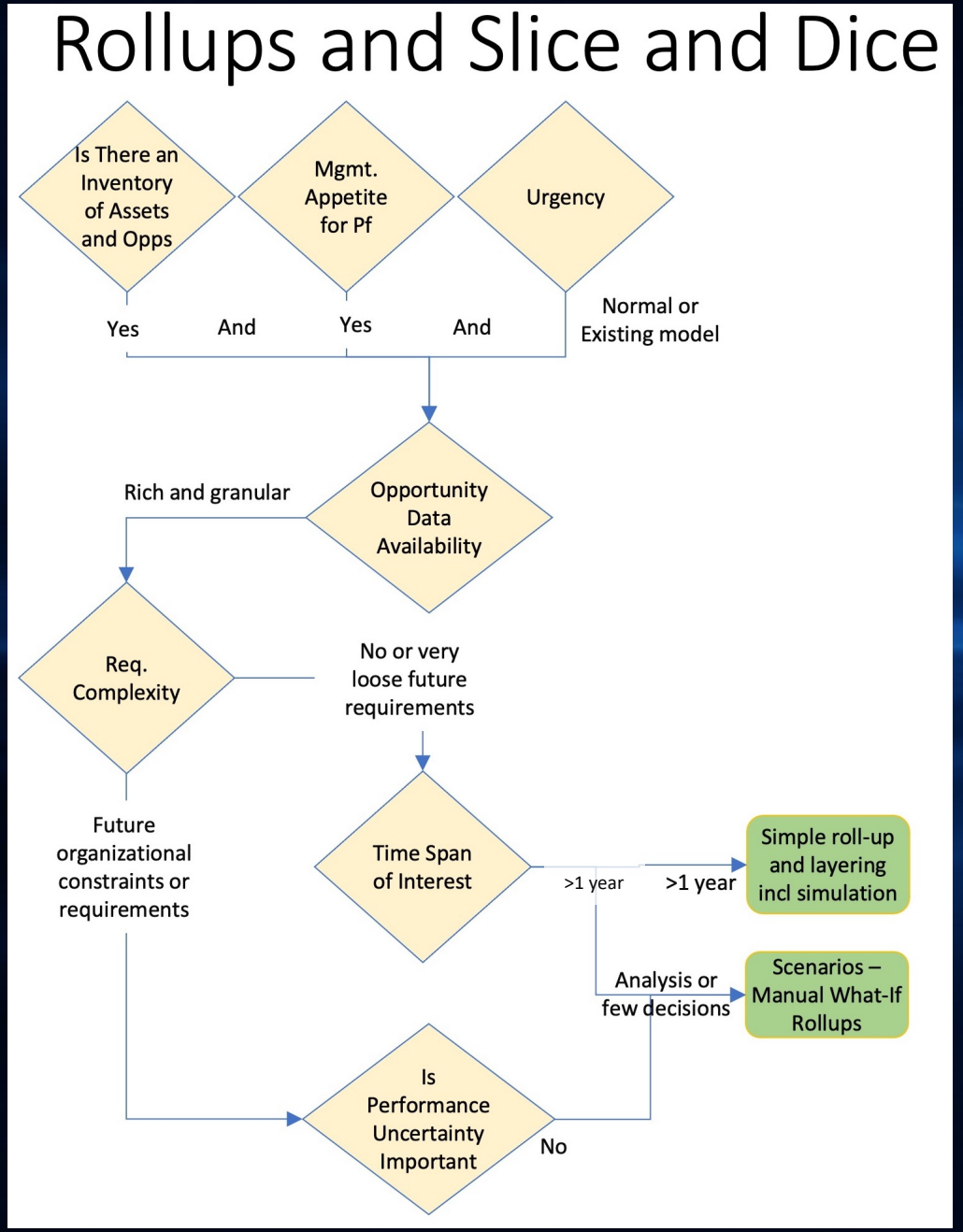
Part C
Rollups and Slice and Dice (*Time Dimension*)

- Simple Rollups for Information
  - Deterministic or Stochastic
- Comparing Decision Scenarios (add on a new opportunity)
- Rollups are the transition into interaction techniques.



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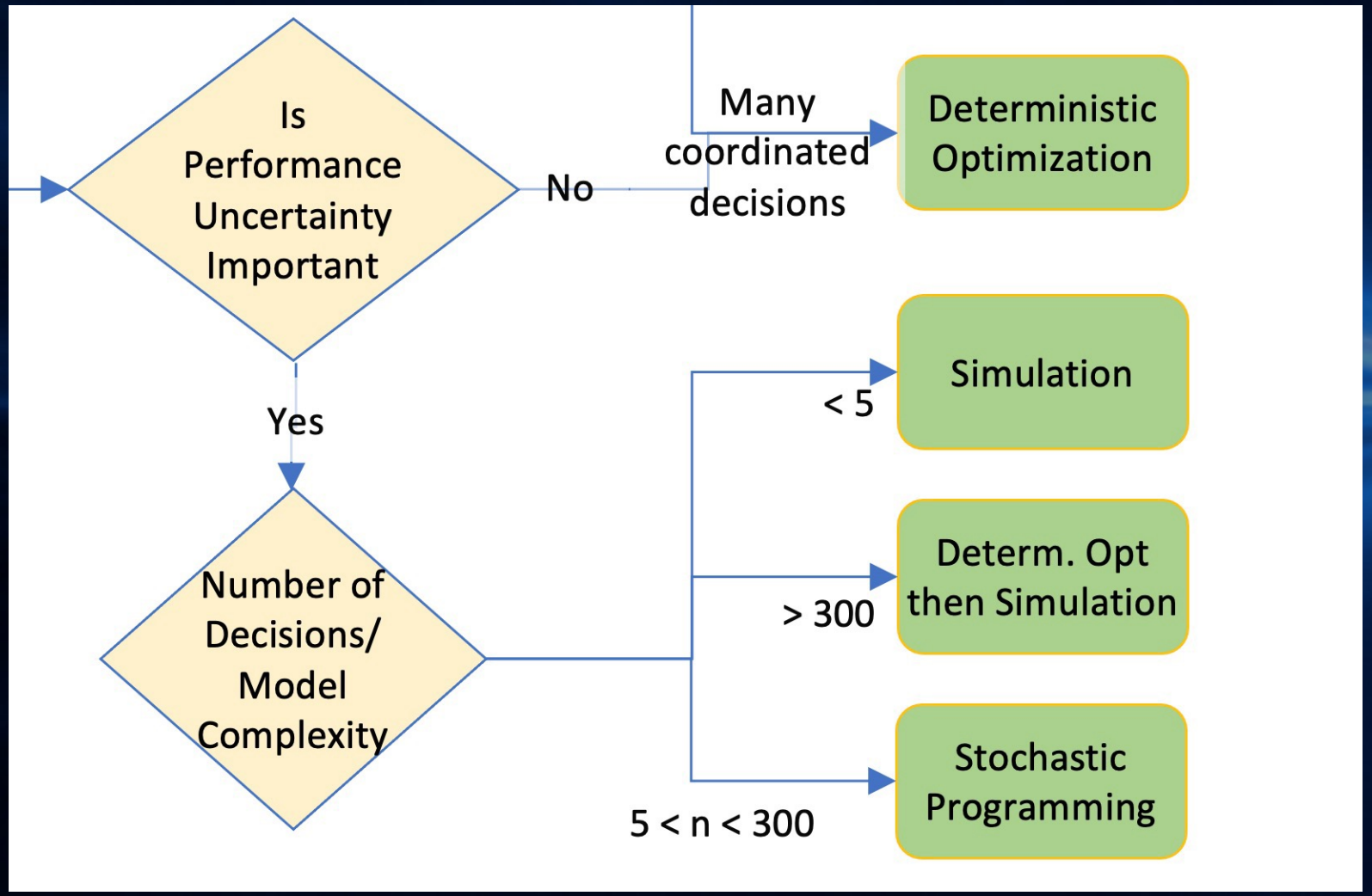
Part D Interactions

Deterministic Optimization (LP or NLP)

Simulation of Scenarios (few decisions)

Deterministic Optimization, **followed by** Simulation (many decisions)

Stochastic Programming (sweet spot from about 5 to 300-ish decisions)



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Framing – What Are We Doing Here? Achieving Clarity

- Is this a one-off analysis, a pilot, or developing an ongoing portfolio practice?

- If it's one-off or a pilot
  - Get what you can, but ultimately do your best with what you have

- If it's ongoing
  - Data and probability standards, supportable math model(s), org capability (managers and practitioners), change management (including roles)
  - If there is no budget or progress towards these, they may not be serious (beware portfolio theater)

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Framing Ties into Commitment: Pitfalls of Implementation

- Change Management – Good change managers are hard to find
- Failure to Plan for Success – Succession, Continuing Development
- Unrealistic Expectations / Frame – Plan vs Forecast, Exsupero ursus
- Culture – Decentralized vs Centralized, Authority to Choose vs Execute
- Development Process – Careful. You can agile yourself into a blind alley or go way too slow with waterfall

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Framing Ties into Commitment: Pitfalls of an Ongoing Portfolio Practice

- Lack of a Frame and Answer Seeking – There should be a relevant problem to be solved. Analysis efficiency may risk insights.
- Expectations Management (unjustified belief in the accuracy of the model) and Data Issues – Plan vs forecast, opponents throwing sand
- Excessive Process Focus (too worried about the how) – genetic algorithm, simplex, stochastic. Who cares? We need candidate sets we can compare.
- Lack of Alignment, Focus, and Buy-in from Decision-Makers – Management Commitment (resources) to all enablers, Lookbacks

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What Are Asset Portfolio Analysis and Management

- Portfolio Analysis is a “hard” skill
  - Explicitly using tools, methods, and systems-thinking to guide decisions to best align with well-formulated business needs. Portfolio analysis helps guide better decisions by putting investment decisions into an organizational context.
- Portfolio Management is a “soft” skill
  - Making asset, project, and strategy decisions, informed by Portfolio Analysis, that “stick” and improve the likelihood of reaching your organization’s goals.

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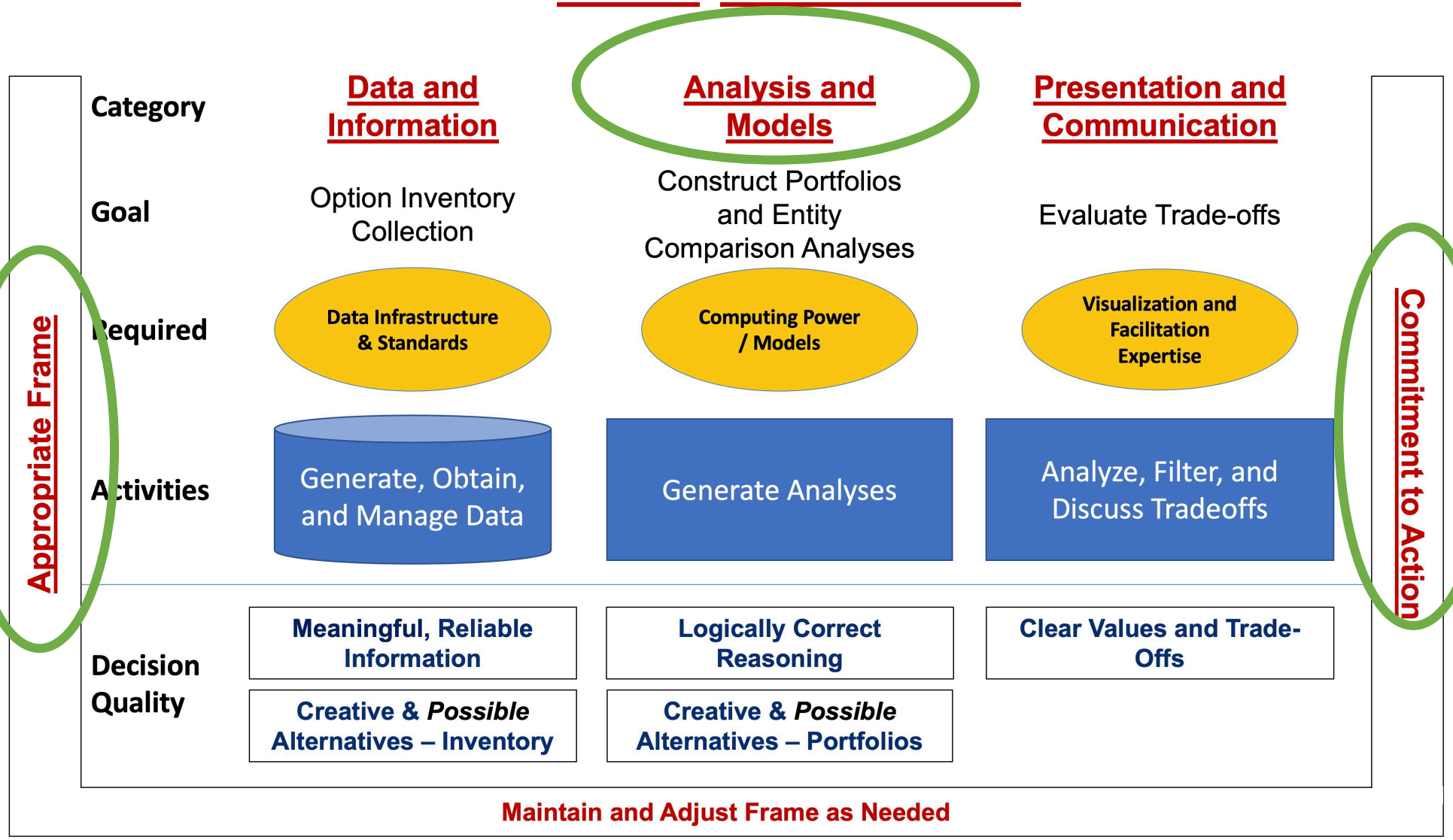
The Five Enablers



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Questions?

- If you dedicatedly pursue a vision for a long time, it will look like destiny to everyone else. - ?
- Every society honors its live conformists and dead troublemakers. – Mignon McLaughlin
- The reasonable man adapts himself to the world; the unreasonable one persists in trying to adapt the world to himself. Therefore, all progress depends on the unreasonable man. – George Bernard Shaw

Be on the lookout for Strategic Business Portfolio Management

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