Risk Analytics at
The Department of Veterans Affairs

Catherine Chatfield, PMP, ARM-E

for

The Association of Federal Enterprise Risk Management

September 9, 2013

Agenda

- Analytics vs. Risk Analytics
- Risk Analytics Project Description
- Project Purpose
- Process
- “Nuggets” to date

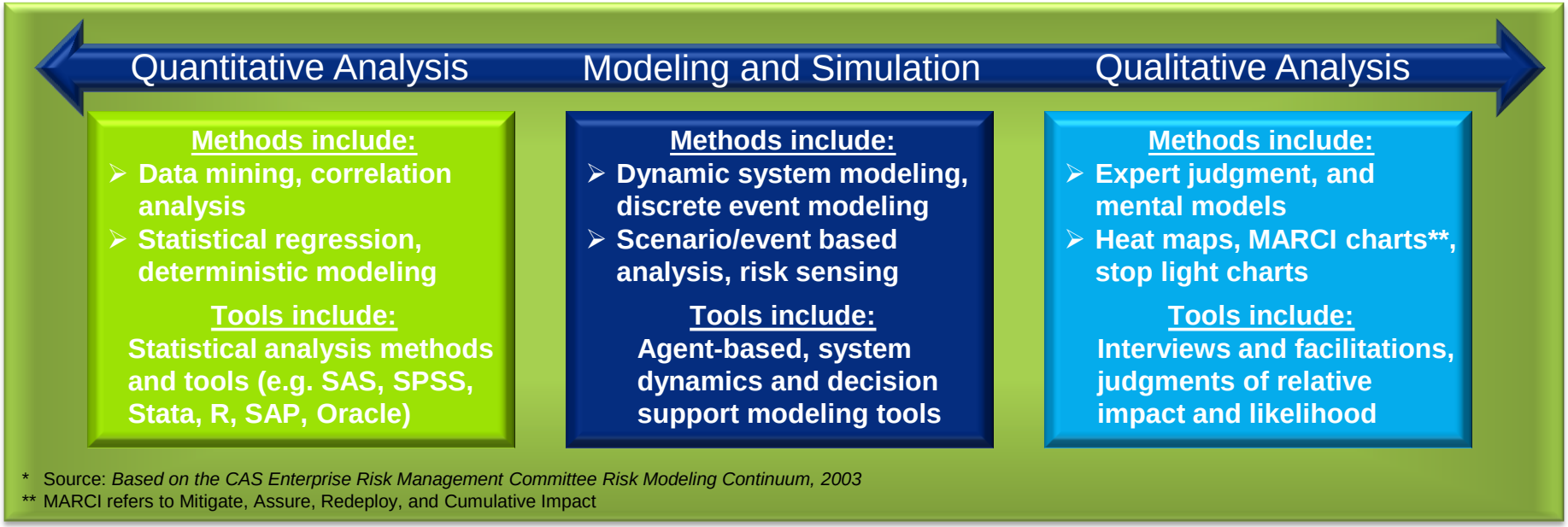
How does Risk Analytics differ from Analytics?

Risk analytics differs from analytics in terms of the sophistication level of the analyses

Risk analytics incorporates and extends beyond traditional analytics techniques (general descriptive statistics used for business intelligence reporting of past and current performance), to encompass advanced techniques including:

- Data mining
- Statistical analysis
- Scenario analysis
- Probabilistic forecasting
- Econometrics
- Event simulation

Risk Modeling Spectrum*



* Source: *Based on the CAS Enterprise Risk Management Committee Risk Modeling Continuum, 2003*

** MARCI refers to Mitigate, Assure, Redeploy, and Cumulative Impact

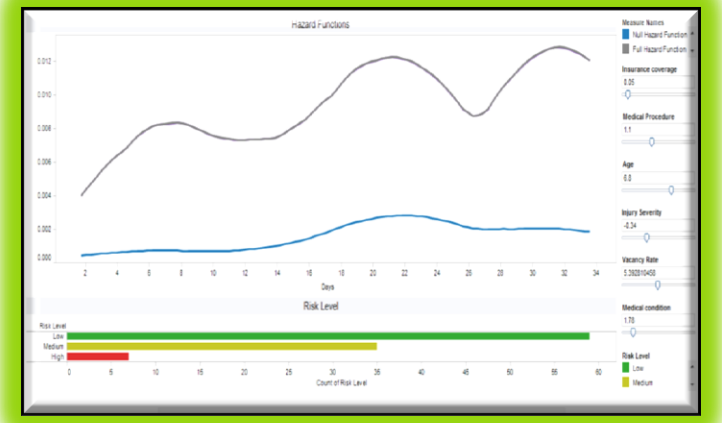
Risk Analytics Techniques along the Risk Modeling Spectrum

VA Top Risk Register

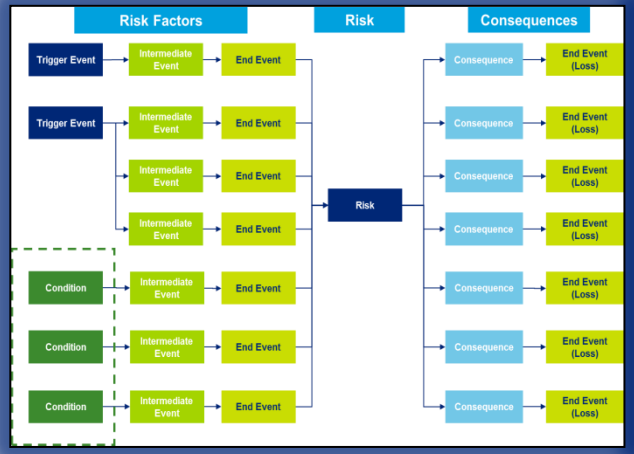
Risks Selected for Assessment*	Impact	Likelihood	Speed of Onset	Vulnerability
Travel Limits on Conferences and Training	Very High	Med	Med	Very High
Improper Payments*	Very High	High/Very High	Med	High
Execution of Integrated Acquisition Model	High	Very High	Fast	High
Co-managed Care (DoD and VA)*	High/Very High	Very High	Slow	High
Construction Schedule Delays	Very High	High	Med	Med/High
Physical and Personnel Safety and Security*	Very High	Med	Fast	Med
Mental Health Hiring	Very High	Med	Fast	Med
Controls over Third Party Insurers	High	Med	Slow	Med
Integrated Electronic Health Record (iEHR) Slippage*	High/Very High	Med	Fast	Med
Hiring, Retention, and Retirement	High	High	Med	Med
PIV Credentialing, Background Investigations, Identity Management	Med	Low	Fast	Med
Fiduciary Agent Misuse*	Med/High	Med	Fast	Low/Med
Disability Benefit Questionnaires (DBQ) Fraud*	Med	Med	Slow	Low/Med
Veteran Homelessness Goal	Med	Very Low/Low	Fast	Low
Burn Pits Health Impact Study*	Very High	Very Low	Slow	Low
Controls over 1358s (Fraud/Waste/Abuse)*	Very Low	Low	Fast	Very Low

Very High — Vulnerability — Very Low

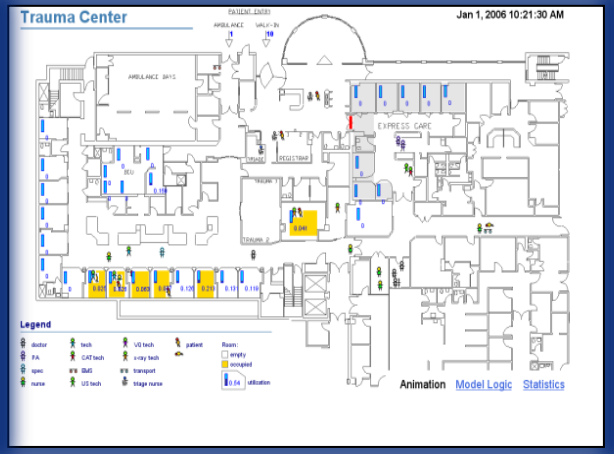
Duration Analysis



Event Tree Analysis

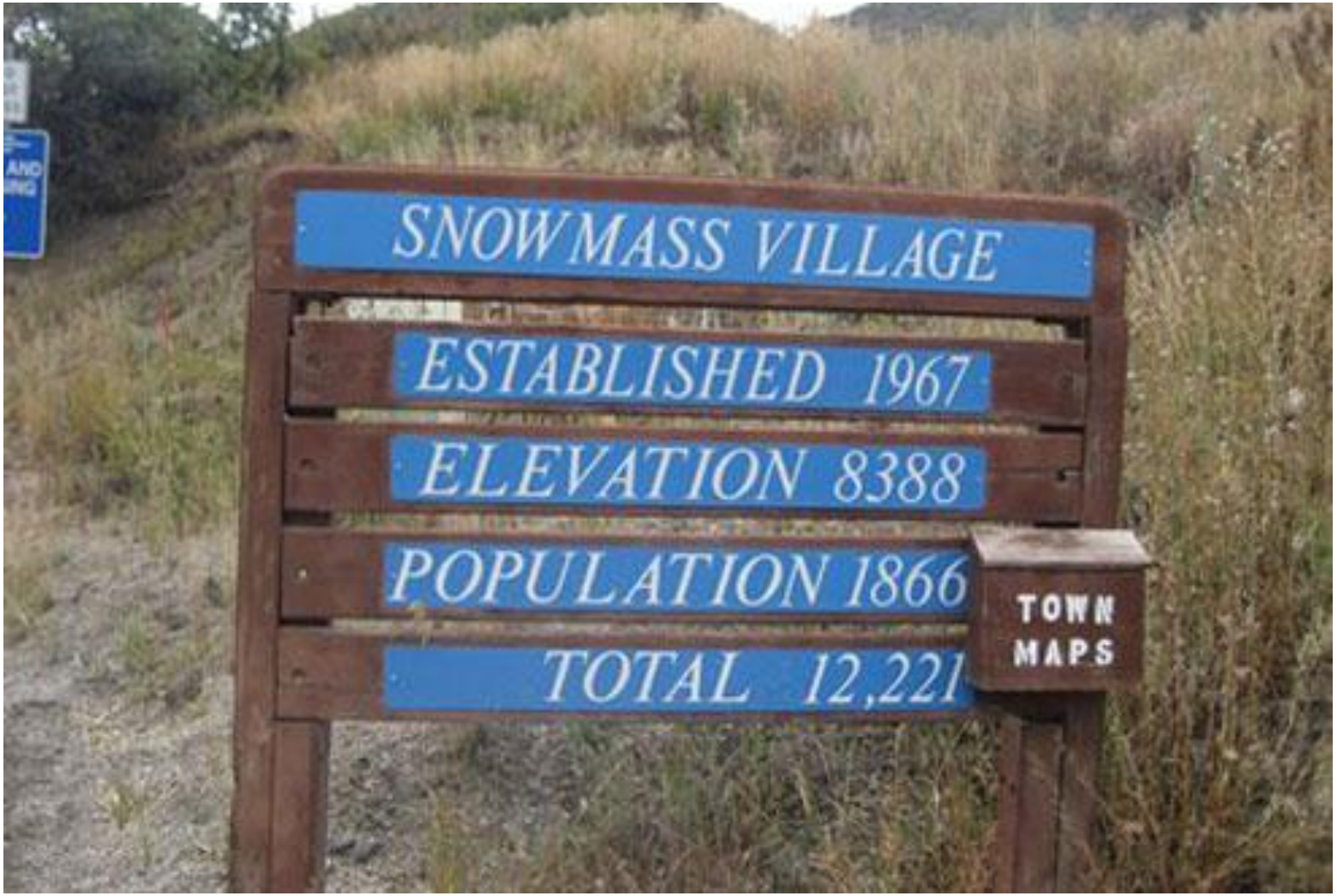


Agent-Based Model



Risk Sensing

Know what you want to measure
Know how to measure it



Our Current Work-in-Progress on Risk Analytics

- Provide a current state assessment and stakeholder analysis of VA's analytics and risk analytics capabilities
- Recommend a risk analytics strategy
- Develop a risk analytics pilot including documentation for selection, scope, procedures and results

- My Conditions of Satisfaction for the Pilot:
  - Create a "what-if" analysis to evaluate several variables
  - Ensure that the process can be transferred to other risk scenarios with minimal modification
  - Make it transparent so that others can use this in the future

Project Overview and Objective

Pilot objective:

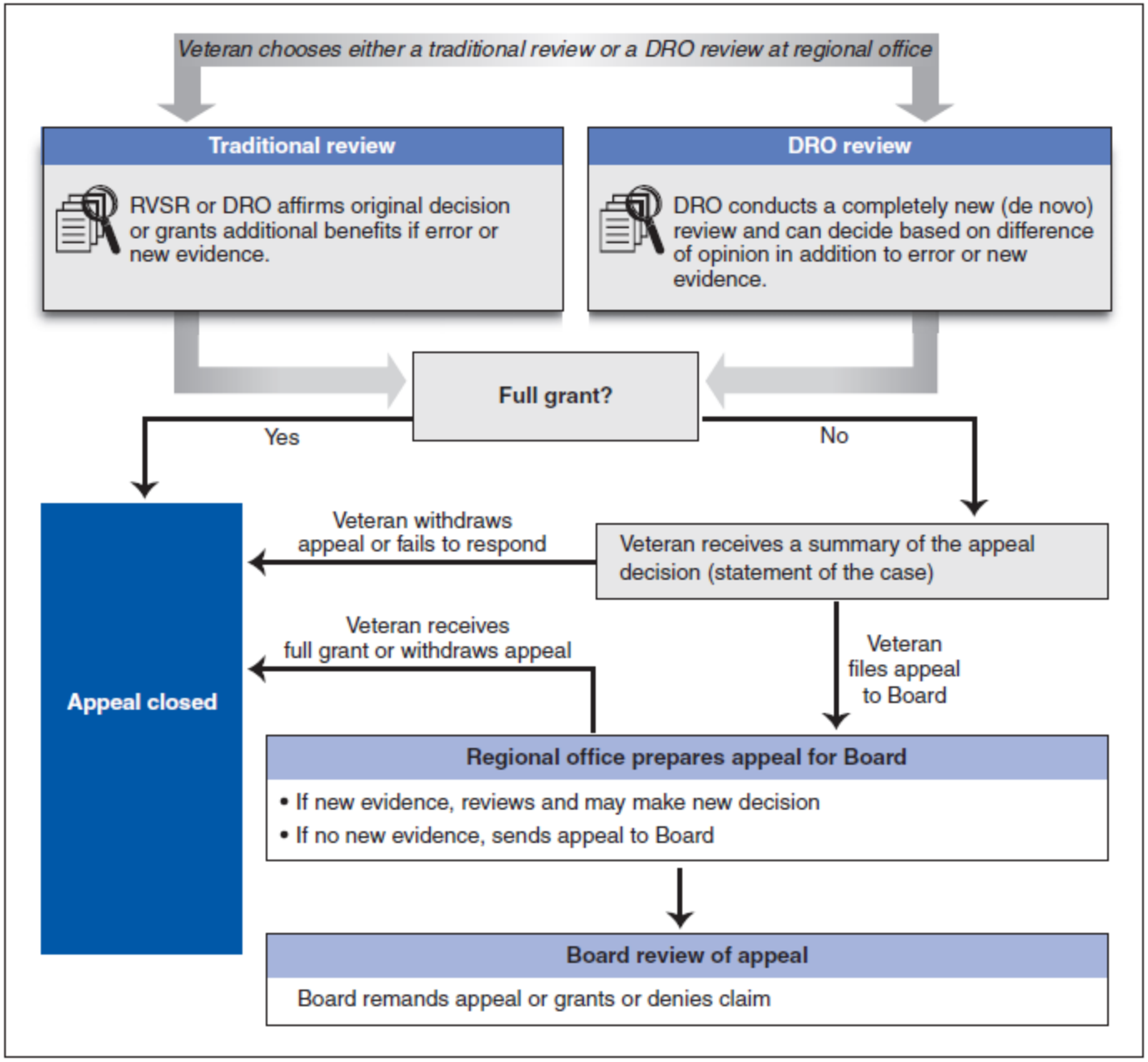
Apply risk modeling and simulation to better understand one of VA's risks

- Decompose the risk to identify the drivers and influences
- Quantify the potential range of outcomes of the risk if unmitigated
- Facilitate what-if scenario analysis to evaluate mitigation actions

Risk pilot complements the risk management project (RMP) in that it:

- ✓ Models factors influencing appeals processing time
- ✓ Identifies patterns and trends in appeal types
- ✓ Provides an alternative approach to defining the appeals backlog

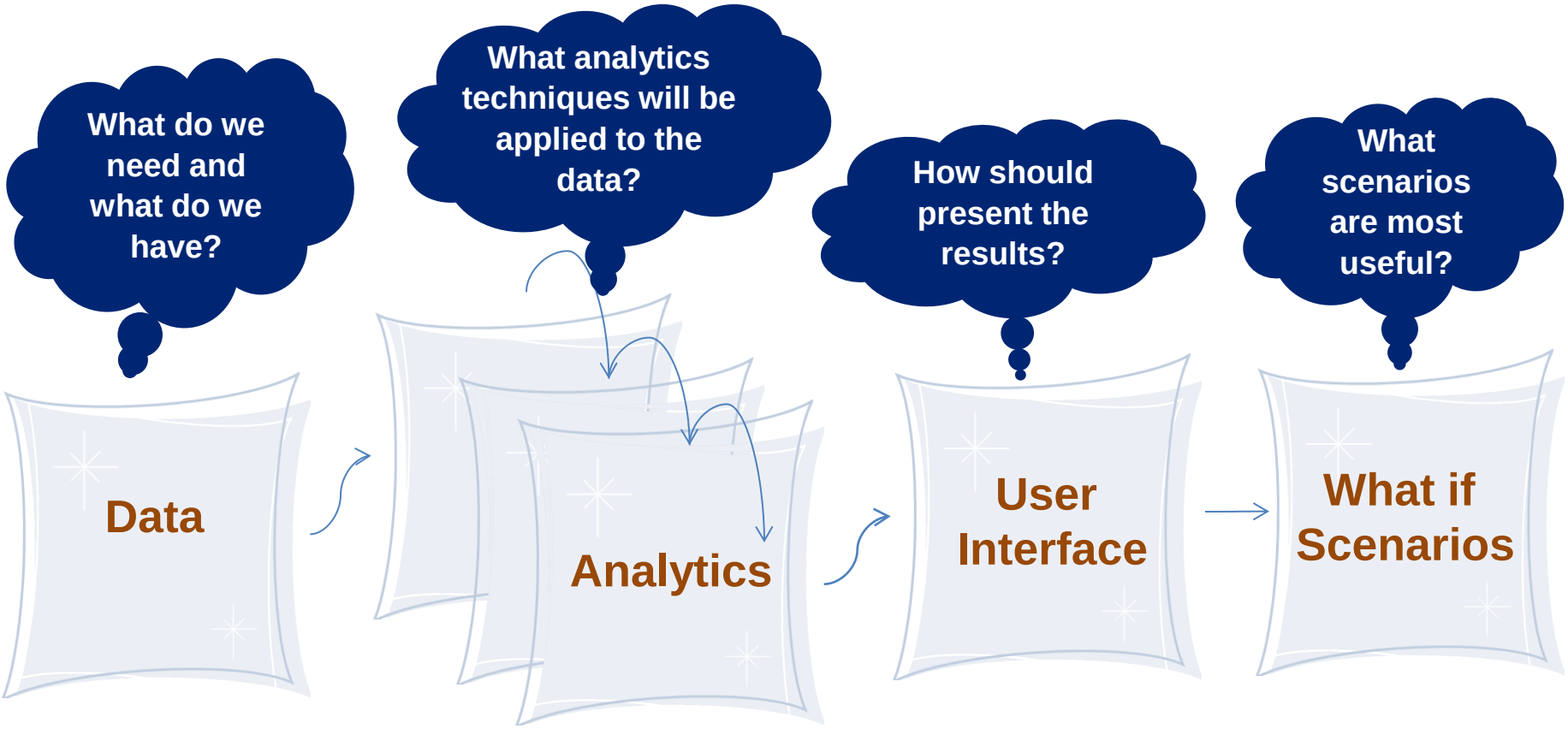
GAO Analysis of VBA Process



Source: GAO analysis of VBA process.

Storyboarding – Description and Purpose

Storyboarding is a technique that helps to find the path between the raw data and usable, actionable information.



Approach and Expected Outcomes

Approach:

The risk analytics pilot will apply the statistical modeling technique known as *duration analysis* on VACOLS appeals data to model 2 independent appeals processes:

- VBA appeals processing
- BVA appeals decision

Expected outcome	Benefits
Improved understanding of the factors influencing duration an appeal is in the queue	• Set of time metrics against which performance can be measured • Holistic view of the appeals resolution process
For every appeal, estimate the time to process and the time to arrive at a decision	• More equitable and efficient distribution of workload for VBA appeals processors and BVA attorneys
Ability to perform simulations and what-if scenario analysis	• Examine effects of mitigation strategies and various combinations of duration, volume, and staffing on appeals inventory
Analysis of trends and patterns in types of appeals	• Projections for appeals inventory

“Nuggets” to date

- Simple doesn’t mean easy
  - Think about elicitation as a process and needing to address bias in the way that we ask our questions
- Doesn’t need to be fancy
  - Examples of how Excel is meeting the need for some
- Huge value in the conversation on “outputs” vs. “outcomes”
- Developing a methodology doesn’t have to be “either/or”. It could be “and” depending on how long it takes to implement a process or methodology. Think about how to keep your decisions as open and as flexible for as long as possible
  - E.g., SAS vs. STATA

And at the end of our journey, we are hopeful that we've been looking at the risk the right way