Introductory Notes on VisionEval

MoMo Conference, 2025

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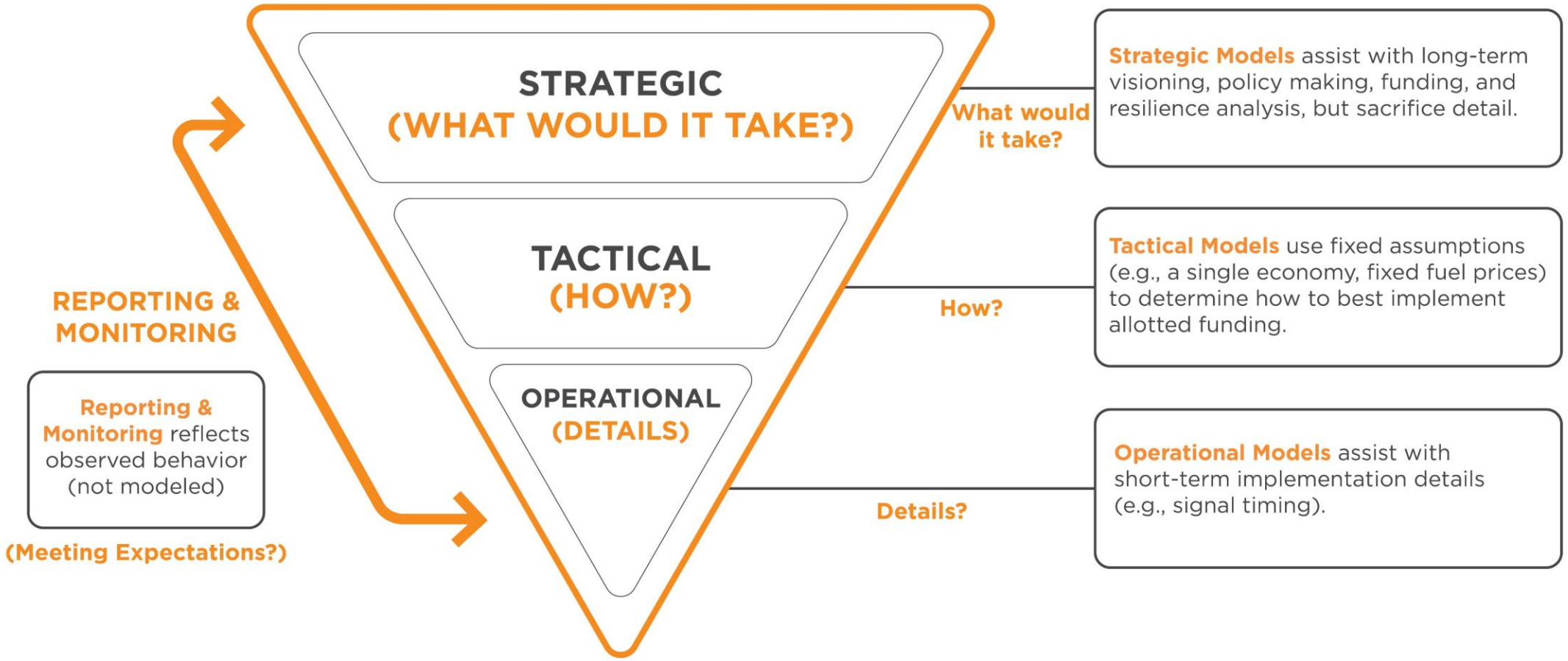
the science of insight

14 September 2024

Role of Strategic Modeling (Oregon Example)



Source: Oregon DOT, adapted by RSG

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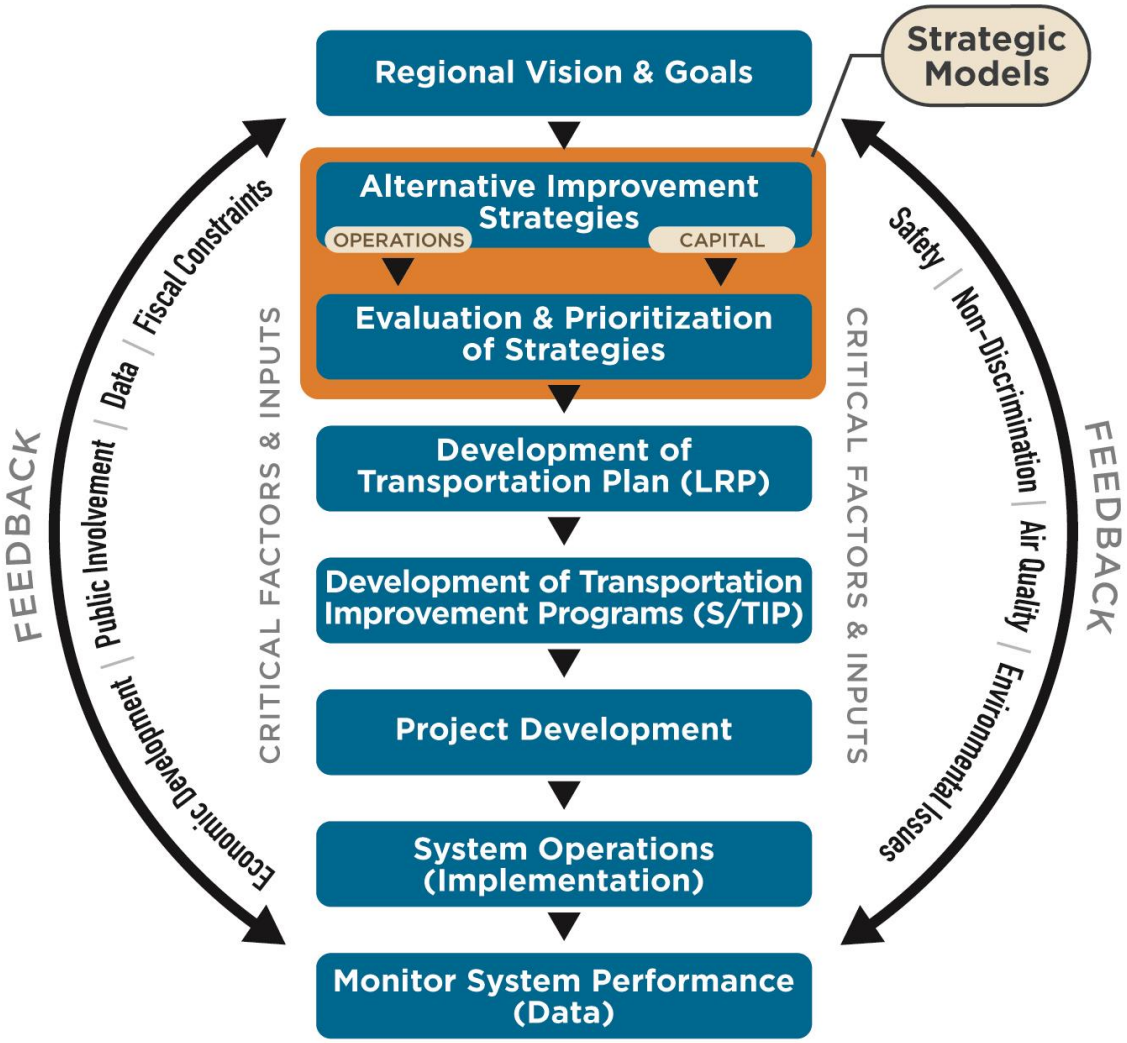
Strategic Modeling in the Planning Process



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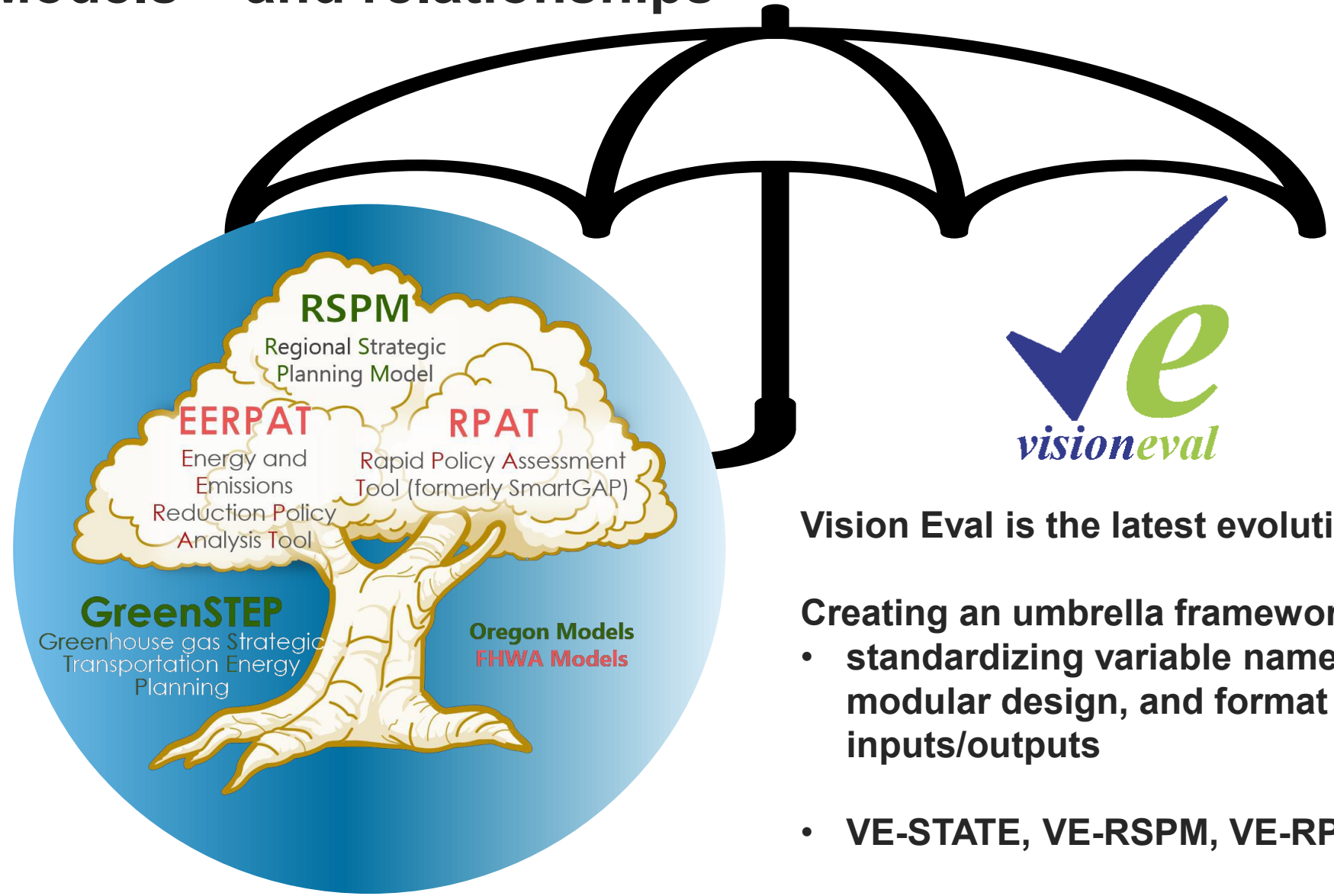
The Models – and relationships



Vision Eval is the latest evolution

Creating an umbrella framework

- **standardizing variable names, a modular design, and format of inputs/outputs**

- **VE-STATE, VE-RSPM, VE-RPAT**

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VisionEval Overview

- VisionEval is a quantitative, strategic travel model used for long range planning.
- It focuses primarily on the demand side of the transportation system. So, it runs quickly (run hundreds of scenarios in a short timeframe)
- Estimated on readily available data including National data such as the National Household Travel Survey (NHTS) then calibrated to local conditions (PUMS, HPMS, travel surveys, travel models).
- Results can be viewed in an interactive visualizer and are available in output files (CSVs, SQL, Excel, etc., for use in Python, Shiny, Tableau and upcoming PowerBI versions)
- VisionEval is open source and is supported by a federally funded Pooled Fund effort with several DOT and MPO members across the country. See https://visioneval.github.io/ and documentation at https://visioneval.github.io/docs/

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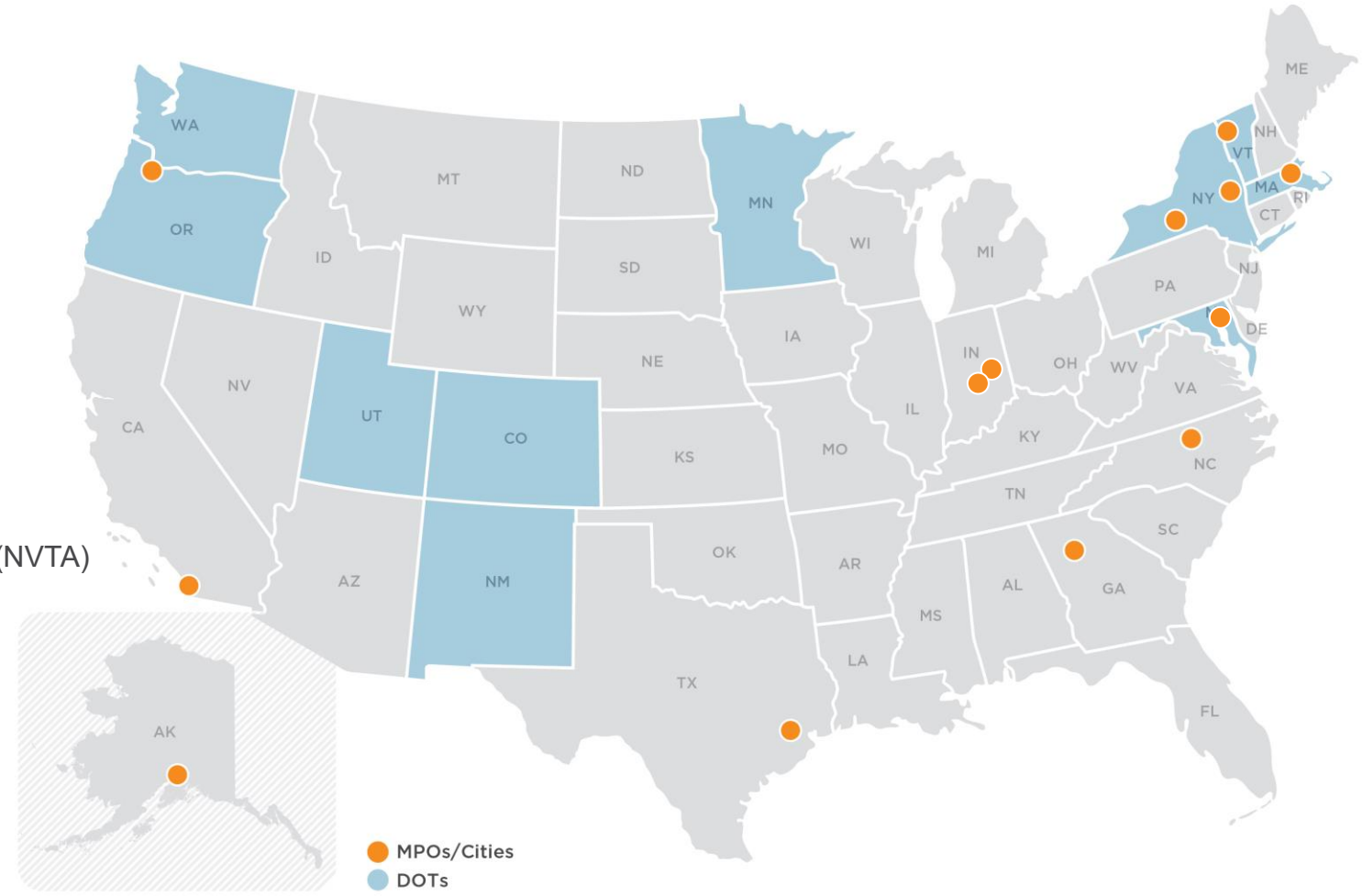
Applications of Strategic Models

DOTs

- Vermont*
- Maryland*
- Utah*
- Colorado*
- Washington
- New Mexico*
- Oregon
- New York
- Massachusetts

MPOs/Cities

- AMATS (AK)
- Portland Metro (OR)
- Ithaca (NY)
- Capital District (NY)
- Chittenden County (VT)
- ARC (GA)
- Madison Council of Governments (MCCOG)
- Indy MPO (IMPO)
- H-GAC (TX)
- MAPC (MA)
- SANDAG (CA)
- City of Burlington (VT)
- City of Durham (NC)
- Northern Virginia Transportation Authority (NVTA)



Strategic Modeling in Scenario Planning

- **Predictive:** Attempts to answer ***what will happen?*** Predictive planning is used to adapt and prepare for situations that are expected to occur. Based more on trends and extrapolating existing behaviors into the future.

- **Normative:** Attempts to answer the question ***how can a specific target be reached?*** Normative planning is used for situations where the outcomes of policy actions or investment decisions are relatively certain. For example, implementing smart growth policies in response to population growth.

- **Exploratory:** Attempts to answer ***what can happen?*** Through a wide range of alternative scenarios based on possible developments and stakeholder goals. What are the effects of changing several variables. Identifying boundaries to gain confidence on the magnitude of changes.

Strategic Modeling

Not sure if I want to include “Predictive” in this list.

Börjeson, L., et al. (2006). “Scenario Types and Techniques: Towards a User’s Guide.” Futures 38, pp. 723-739.

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Exploratory Planning (developed for the private sector)

Exploratory planning starts with a clearly described vision such as the Quality-of-Life Framework or the Wasatch Choice Vision. This vision remains prominent throughout the process.

- A qualitative exercise is used to identifying the important factors that will shape the future, distinguishing between those controlled by policy and other factors, and distinguish between predictable and highly uncertain factors.

- Next a strategic model is used to efficiently explore a wide range of policy futures given multiple factors (further explained on the next slides).

- Often the strategic modeling work coincides, and iterates, with a Delphi approach where qualitative assessment of non-modeled impacts are considered (e.g. changes in housing preferences, etc.).

- The resulting policy choices are then further analyzed using a traditional travel model to refine a project list and understand the operational implications.

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