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AFP MODEL SUPERVISION TOOLS



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INTRODUCTION

A coordinated, corporate-wide financial modeling program can lower operational costs and increase effectiveness through numerous benefits. Rather than individually owned tools, we should view models as wing-to-wing decision-making processes (inputs, calculations, final outputs) to better align the entire work process with our overall corporate financial objectives and, at the same time, lower enterprise risk.

This supplement to the AFP Guide to Financial Modeling and Model Supervision is intended to help your team build better models. It includes supervisor principles to consider during the build and implementation stages. Practitioners should apply and modify these principles in a manner that best fits their organizations.

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MODEL SUPERVISION TOOLS

PRE-IMPLEMENTATION: MODEL BUILDING PRINCIPLES

Because model building is part art and science, it helps to identify the phases that models pass through en route to becoming valuable decision support tools. Consider the following questions at each phase of the build:

PURPOSE The first phase is all about defining what question(s) the model will address. Identifying and refining the core questions is essential since these become the cornerstone upon which the model is built.

Example: calculate the direct costs tied to expected customer orders over the next six months.

- Why are you modeling this, what challenge will it resolve, and how does it align with the strategy?
- Do you have input from relevant functions on how to build and what outcomes to expect?
- Do you have clear time, resources and expectations of the end product, including the degree of precision?
- Has anything like this been modeled in the past? Are any parts of past models useful?

DATA PROFILE The second phase focuses on establishing a draft data profile. While added dimensions ensure a model is comprehensive, they also increase everything about the model: build time, validation, and the risk that a model runs into issues caused by missing data, undefined data intersections, or contradictory raw data.

Example: abbreviate state names, check records for blank fields, and document different the relationship among data sets.

- **Definition:** What are the sources of standard assumptions (e.g., discount rate, interest rate, inflation, asset lives)? Do you understand them, and can you rationalize their use in the model? Are any of your constants potentially a variable, if certain conditions exist?
- **Structure:** What data elements will be included, and what dimensions/elements/stewardship of the data should be taken into account?
- **Content:** Are there any missing variables? Are they easy to procure, or do you need to calculate and maintain?
- **Relationships:** Are data linked? Updated automatically/manually, continuously/batch? How reliable/neutral are the sources for input data?

STRUCTURE The third phase is building the skeleton of the model. Just as the human body owes as much to tendons and connective tissue as it does to bones, the ultimate success and “usability” of a financial model is based in part on the data elements included and how easily the model can flex and respond to users’ needs to refine scenarios and customize the model so that it answers a range of questions.

Example: show a prototype of the model to the supply chain team to ensure it is conceptually correct and meets the business need.

- Does the model meet design objectives?
- Did another person validate the model? Do the results conform to estimations from simpler models?
- Do you sense any cognitive bias either from the source or in your own framework?
- Is there unneeded complexity into the model?
- Is the model secure or is it accessible to others who can edit or change it?
- Did you look at sensitivity and distribution of outputs?

Later phases of model building focus on monitoring; that is, extending, refining, and updating models. Investing time up front on a model’s purpose, data profile, and structure can help drive user acceptance and propel a model toward the ultimate measure of success: becoming a trusted decision support tool.

MODEL SUPERVISION TOOLS

POST-IMPLEMENTATION: MODEL REVIEW PRINCIPLES

FP&A departments should dedicate resources to properly manage and govern financial models throughout the organization.

TECHNICAL REVIEW

A technical review of a model focuses on the IT environment, use of language and applications, and a review of data inputs, assumptions and calculations. Further, a technical review is not complete without thorough testing and third-party validation of the model (i.e., not the model builder).

Validators may include third-party experts, IT or finance auditors, and skilled finance practitioners from other teams that have some distance and objectivity relative to the initial request.

OPERATIONAL REVIEW

Operational review elements include the environment in which a model is implemented and updated, input processes, risk and control points as a first line of defense, and finally model output and its potential impact on downstream models.

Model users provide a first line of defense when they employ control tabs in their workbooks or use balancing formulas to tie numbers, and should be encouraged to provide feedback.

RISK REVIEW

Risk review elements include an assessment of intermediate and final model output, tolerances and thresholds, a review of the mathematical, statistical or financial theory and assumptions employed, and documentation of weaknesses and limitations of both the model and its underlying approach.

A risk management framework that includes operational risk provides the structure to monitor model risk. The next step is to assign that oversight to a risk management department, or an individual with a risk role as part of the job description.

MONITORING AND BUSINESS REVIEW

Monitoring review points include periodic testing of models, ongoing challenge of assumptions, review of relevancy and effectiveness of the model, and a review of change management protocol currently employed. Include the impacted business units to ensure the model continues to meet the business need.

A schedule of performance assessments can outlast personnel changes and reorganizations.

DOCUMENTATION

Models with comprehensive and well-conceived documents are considered to have less risk. Technical complexity should not inhibit communication of a model's assumptions, processes and output, and regulators now expect formalized documentation and communication programs.

"Without adequate documentation, model risk assessment and management will be ineffective." Supervisory Guidance on Model Risk Management, SR 11-7