

Using Scorecards to Prioritize Projects

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In California last month, 1,000 demonstrators gathered to protest school budget cuts. Responding to charges of misplaced priorities, a government official explained, “restoring the money [for schools] would have meant deep and dramatic reductions in health and human services programs.” Meanwhile, protestors chanted “children are more important than taxes.”



Clearly, government managers need to do a better job explaining difficult budget decisions. In my previous articles for the IG Newsletter, I argue that local governments should be using formal methods for valuing and prioritizing projects. Shrinking budgets coupled with increasing demands for government services make for tough choices—Should we cut programs or raise taxes? Which popular projects should be postponed, scaled back, or eliminated? Only through reference to the worth of services provided can government defend the spending choices that it makes.

Private industry uses sophisticated techniques to optimize capital expenditures, and the federal government has for many years selectively used similar techniques to analyze and defend extremely controversial decisions (such as where to locate a nuclear waste repository). Although few local governments are currently using the most sophisticated methods to prioritize projects, many have experience with balanced scorecards. As demonstrated in this article, the scorecard concept can be extended to produce a defensible and practical tool for prioritizing projects. The key is creating scorecards that provide the inputs to a valid model for computing project value.

The Balanced Scorecard

The balanced scorecard is a process developed in the early 1990's by Robert Kaplan and David Norton for creating a comprehensive system for measuring organizational performance. Balanced scorecards collect diverse information intended to “balance” the traditional, but narrow, financial view of organizational performance. According to the Balanced Scorecard Institute, when applied to government organizations, scorecard measures should be defined to view organizational performance from four perspectives: (1) financial, (2) customers and stakeholders, (3) employees and organizational capacity, and (4) internal business processes. Assessments against such measures are arrayed on pages or displays referred to as “scorecards.”

The balanced scorecard has proven to be very effective at helping managers to understand and improve how their organizations are performing. The process of creating and implementing a balanced scorecard aligns the organization around a common vision

and strategy. The scorecards themselves enable managers to see where they are doing well, and where there are real opportunities for improvement.

Extending the Balanced Scorecard

Given the success of scorecards, it is not surprisingly that attempts have been made to expand the concept to include a tool for evaluating and comparing options. Doing so requires addressing a limitation of the original approach; namely, the lack of a basis for trading off performance on different measures. Hence an additional tool (a tool with an additional capability) is needed to address the prioritization of projects. The two tools are complimentary and each can add value.

To illustrate the need for an additional capability, suppose a proposed change to the organization would improve performance on one measure without degrading performance on any other measure. In this special case, it is clear from the balanced scorecard that the proposed change would be a good thing. However, suppose (as is more typically the case) that making a change intended to boost performance in a given area (e.g., customer satisfaction) might degrade performance in some other area (e.g., financial performance). Since the traditional balanced scorecard does not mathematically aggregate the individual measures into a single, overall measure of organizational performance, it cannot indicate whether such a change should be made.

To address this limitation, some organizations weight and combine individual measures into a one overall metric. The weights are set to reflect judgments about the relative importance of the various measures. Can the resulting metric be used to compare and prioritize projects? Unfortunately, the answer, except in a very special case, is “no.”

To Prioritize It Is Necessary to Estimate Value

The goal in project prioritization is to select projects within the available budget that create the greatest possible value. The relevant mathematical theorem states that, if projects are ranked by the ratio of benefit (value added) to cost and selected from the top down, the chosen projects will create the greatest possible value for the least possible cost (assuming the projects are independent).

In the case of local governments, creating value means achieving the fundamental objectives of the community, for example, protecting public health and safety and educating children. All other things being equal, if one safety project would prevent more deaths and injuries than another, then doing that project would provide more safety value. Without a measure of value it is impossible to determine which projects collectively achieve the most value. It is also impossible to determine whether the value derived from a project justifies that project's costs.

Scorecards will be most useful for project prioritization if there is a way to logically combine scorecard measures into something that quantifies value. The usual approach fails because performance measures are not defined consistent with a defensible

algorithm for computing value. Unless you define performance measures based on the specific objectives you wish to achieve and properly structure those objectives, you won't be able to define a model for translating the measures into an indicator of value.

An Example

Bode Miller achieved fame this year as the first American skier to win the World Cup in over 20 years. Bode's skiing is unconventional. With only a little exaggeration one sportscaster stated, "In a race, Bode either wins or falls down." Let's see what happens when we evaluate Bode using a scorecard approach.

The performance measures used to assess skiing technique are well-established. The racer's shoulders should be parallel to the ground. Arms and poles should be in front. Weight should be forward, and the outside ski should be pressured. Look at Bode in the accompanying picture. Based on the standard skiing performance measures, Bode's scorecard would look pretty awful. However, based on his ability to achieve objectives (i.e., to win), his performance is excellent. As illustrated, the measures used to identify potential for improvement are not necessarily the measures for valuing performance.



Value Modeling

The key to effectively using scorecards for prioritization (whether we are prioritizing the projects of local government or potential members of the US Ski Team) is value modeling. As I've indicated in my previous articles, multi-attribute utility analysis (MUA) is a formal, step-by-step approach for creating a value model. The correct approach to using scorecards for project prioritization is to first build a value model and then to define the project scorecard to provide the inputs needed to drive the value model.

Building a value model is not as difficult as it may sound. Even a fairly sophisticated value model can be constructed in a few days using techniques based on MUA, influence diagramming, and causal modeling. The typical value model values projects in two stages. First, it estimates all of the ways that citizens and other stakeholders would be impacted by a proposed project. It then values those impacts, in other words, it applies assumptions about whether those impacts are desired or undesired and by how much. If stakeholders participate by assigning weights and other parameters that represent their preferences, the defensibility of results is significantly enhanced.

A Test for a Scorecard Model

Here's a test that may demonstrate that an aggregate measure provided by a scorecard model is not correctly measuring value. Look at the aggregate scores produced from two projects. Now, combine those projects into one larger project. If you score the combined project, do you get an aggregate score that equals the sum of the scores from the original projects?

If the answer is "no," then your model is not measuring value (an exception would be a very sophisticated value model that accounts for synergies or other interdependencies among projects). If the aggregate score for the combined project is less than the sum of the scores of the individual projects, the system will likely be biased against large (costly) projects. If the reverse is true, the system will likely be biased against small projects.

To Prioritize, Use Scorecards Based on Value Models

In summary, scorecards can be used to prioritize projects, but only if the scorecard measures are the inputs to a credible model for quantifying project value. Simply weighting and adding reasonable measures of performance does not provide a metric useful for decision making. Balanced scorecards and value modeling are complementary. Value modeling provides a way to extend scorecards and create an effective and defensible tool for prioritizing projects.

Email Dr. Merkhofer at lmerkhofer@prioritysystem.com. Visit www.prioritysystem.com for more information on value modeling, multi-attribute utility analysis, and project prioritization.