Project 'Prioritization' - Superseded By 'Optimization', But Not A Panacea For All Asset Management Ailments

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Introduction

A significant body of opinion flowed over the pages of industry trade journals during 2004 on the subject of improving Capex and Opex investment decision making for utilities. Everyone recognizes the continuing need for utilities to hold the line on spending amid conflicting pressures to improve reliability. There has been no shortage on self-proclaimed sages on the topic. However, until now, UMS Group, the market leader in this area with over twenty implementation sites, had yet to weigh in. The focus of most articles written to date has been on how to better *prioritize* spend decisions (i.e., if you have one extra incremental dollar to spend where should the priority lie?). And much of the debate has centered on the relative merits of translating all decision factors into financial terms. The discussion has not explored the limitations of this approach, nor the need to integrate asset investment strategy decisions with corporate planning and budgeting, nor the lost opportunity to use this process to drive consistency and strategic alignment across the organization. Tools and processes to integrate the information, evaluation criteria and decision making processes of Operations with the world of finance, as well as to drive all decisions based on corporate priorities have now emerged and superseded this debate.

This article addresses the *Optimization* of all spending through

- Alignment of Corporate criteria for investment decisions,
- Seamless integration of investment decision processes with Asset Management and Finance,
- Clear line-of-sight linkage between strategic goals of the corporation and the priorities of and solutions proposed by management at all levels in the Operating groups.

It also highlights other traps for the unwary.

Let's begin with some basic definitions. Prioritization involves a ranking of investment decisions from most important to least important, a list based on perhaps highest financial to lowest financial return, or some other measurable or subjective criteria. Optimization, however, takes a holistic view of all investments in a portfolio and enables the determination of a list of investments that fit a given set of constraints (budget, performance targets, etc.) and produces the highest cumulative weighted benefit across all nominated strategic objectives and sub-criteria of the business. Put another way, investment optimization focuses on selecting the optimum bundle of investments that maximize the strategic value, with an acceptable risk exposure, and for minimum cost. The contribution of individual investments is measured within the bundle. What portfolio optimization avoids therefore is the spending of 100% of a budget for the sake of spending, rather than to meet strategic objectives at a minimum cost. While prioritization, in some cases, can approximate an optimal answer, an optimized result will always represent the most valuable portfolio of investments to meet the stated strategic objectives.

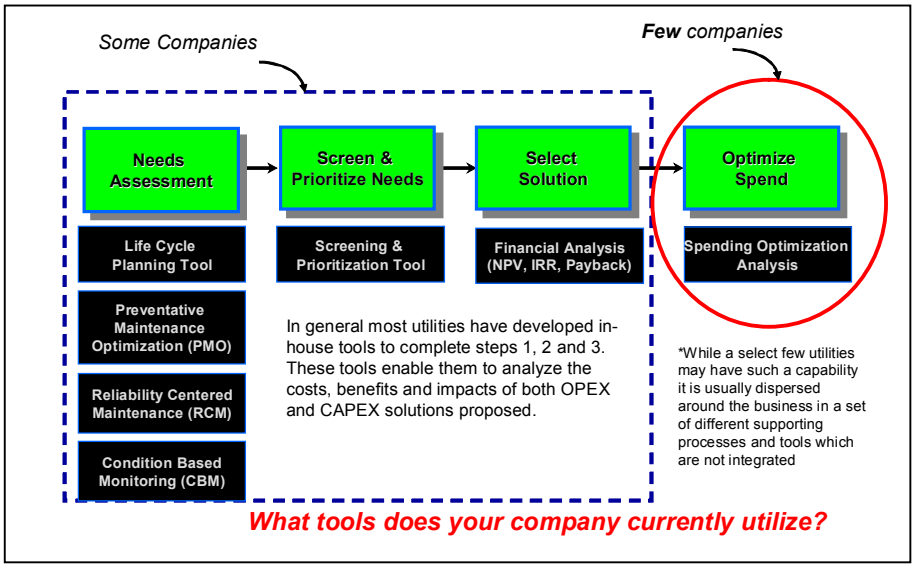
Effective Asset Management Tools And Processes Are A Prerequisite To Optimization

Irrespective of the tools or process used to make final spend decisions, these decisions are only as good as the underlying information and asset management capability of the organization. This implies the organization has addressed issues such as it's:

- Ability to construct business cases
- Process to view alternative solutions such as low or high cost options
- Methodologies to provide measurement of investment consequences such as impact on reliability or customer satisfaction
- Ability to determine the need for the proposed project outcomes.

These types of issues are a function of asset management capability, tools and information systems. For example, without the proper outage management systems and processes, an asset management organization will be blind to the specific reliability investments needed to drive improvement and or sustain performance.

This is not a matter of chance. The following diagram highlights the critical elements that spend optimization relies on for results.



In situations where some gaps exists in asset management capability, as is invariably the case at many organizations, we have found it most helpful to study *Data Confidence*, as some understanding of the level of confidence in the underlying investment information (high, moderate, low, etc) can greatly assist viewing alternative investment scenarios. I.e., an alternative that is perceived to add greater value to the organization but with less confidence in its foundational information might be better replaced by a project that adds less value but with greater confidence in outcome. Simple financial benefits comparison cannot pick this up. Data confidence reporting also drives the organization to work on improving underlying asset management information and capability.

The Role Of The Balanced Scorecard In Optimization

For many years, corporations have acknowledged that performance measures should drive corporate strategy throughout the organization so that all people understand what the strategy is and how their work and their performance is linked to producing those desired outcomes. A balanced set of measures (a scorecard) ensures balanced management focus - on customer satisfaction, on operational excellence, on employee welfare, and on financial success for the enterprise. Monitoring progress of strategy implementation in each of these domains, allows gap identification and plan development, driving change down into the organization.

Too often however, utility investment strategy - the most significant component of corporate strategy - when measured based on short and long term financial consequences, suffers breakdowns from lack of alignment between corporate objectives and the discrete goals of the Distribution, Transmission, Generation and Corporate Business Units. In many cases, each business unit is left to create their own prioritization system for investments, perhaps being translated into a corporate view through some general guidelines. This leaves open to interpretation how important customer, regulatory, financial, safety, reliability considerations are to each business unit. Further, even the financial basis, such as which costs are included or excluded in evaluations, often varies, due to lack of a common financial model and uniform scoring system.

It is our contention that investment decisions need to be made on a corporate wide basis with a strong linkage to the focus of corporate strategy. Consequently, we recommend a spend optimization process that focuses on clearly defining corporate strategic objectives and measuring impacts on them on a uniform basis across the organization. Any investment decision making process without this link simply cannot measure (objectively or otherwise) the total value various investment alternatives may create for the organization.

The Value Of Line-of-Sight Alignment Between Strategy and Investment Decisions

The notion that we can simply optimize a set of solutions to provide the optimal investment strategy answer aligned to strategic objectives and at the lowest cost is also flawed. Assuming underlying asset management processes are in place and systems provide robust data on reliability, maintenance, failure rates, equipment condition, etc., then we are still left with the issue of how to align the optimal set of solutions to the various discrete or dependent issues. For example, is the most appropriate solution the low cost, moderate cost or high cost to a problem and what mix of solutions provides optimal impact on strategic objective. The UMS process allows the use of optimization to evaluate solution alternatives, providing true line-of-sight between strategy and investment. In other words, mere prioritization of a list of selected solutions could be a long way from maximizing strategic value from investment decisions.

Companies who have installed such solutions are also discovering added advantages from upgrading their processes and capabilities in this area. The greater clarity around project evaluation criteria and enhanced ability to trace strategic objectives to the actual projects that are designed to support their achievement produces significant accountability benefits as well. Project design staff quickly realize that to get their projects approved they must reassess all options from a ‘optimized value’ perspective and as a result, the quality and value of proposed projects climbs. And at the same time, the direct linkage of project

deliverables and impacts to business unit goal achievement allows project managers to be held accountable for their role in the timing and accomplishment of larger goals.

Financial Equivalency Simply Does Not Work

The notion that all value produced by any capital project can be reduced to a single financial impact on the corporation is as specious an idea as has ever been offered to this industry.

In the first place, even if it were possible to do, the act of combining all project impacts into one would deny the basic value proposition of the balanced scorecard – which management must attend to the needs of multiple stakeholders and deliver results simultaneously in several parallel domains. These domains involve real time tradeoffs and require solutions that balance effort and results across multiple sets of outcomes. Even where companies have implemented Industry Best Practices and driven their costs to minimum levels consistent with established targets for reliability and customer service, incremental movement in any one area can be demonstrated to come at the expense of sacrifice in another area. In fact, where management has erroneously adopted a sequential focus model for setting priorities (where they focus on cost control in one quarter, reliability improvement in the next, and then customer satisfaction in the following quarter, etc.) it quickly becomes apparent that this solution is unstable, with management essentially chasing its tail, with priorities in each quarter focused on putting out the fires created over the last quarter through neglect of the other quadrants in the "Balanced Scorecard".

In the second place, this is simply not possible to do. Who among us would be willing to attach a price to the CEO spending a year in jail? And, while insurance companies can and must attach a value to individual lives, utility managers dare not for the obvious litigation consequences. Can we put a relative value on safety, and at what cost (in union relations, employee goodwill, and regulatory / political support)? And, what value shall we attach to reliability – the lost revenue to the utility, the direct economic loss to businesses, the cost of inconvenience to thousands of customers with widely varying sensitivities to cost and convenience? Or, all three? Of course not, for we lack the data, the methodologies and the tools to make even the coarsest of estimates for any of these impacts. Any such estimate would have far more uncertainty in it than whatever subjectivity exists in the management judgment that defines relative priorities - in setting strategic objectives for the firm, and in establishing the balanced scorecard to integrate management efforts in driving the firm forward.

Therefore, where it is not possible or prudent to compare financial impact of a decision using only dollar impact, such as a safety investment or an investment targeted at improving corporate reputation, then these decisions must rely on an objective "Value" creation evaluation scale. The supporting scoring system should not only enable you to rank their value against the strategic objective in question but should also enable measurement of the relative importance of this objective to other corporate objectives, allowing true measurement of corporate value creation.

Need To Separately Evaluate Risk And Value

Investment decisions should be made based on expected value creation for the organization. In making the decision to invest, consideration is usually given to the risk, primarily technical risk that the investment will relieve.

However, what is usually missing from this perspective is an enterprise view of the risk left behind by decisions not to invest. Utilities often lack clear ability to see the risk profile of the portfolio of investments they *didn't* make, either in terms of the risks of not investing or the circumstances that could occasion a shift in the decision outcome. UMS has found that the ability to report on a risk profile greatly enhances ability to understand and manage portfolio risk and to see if the risk profile aligns with expectations (i.e., age of network, past investment decisions, current focus of the regulator's priorities, etc). It also allows alignment with corporate risk models, preventing conflicting or divergent model views and interpretation of risk.

Need for integration with financial and other systems

Budgeting is a complex process in utilities. It often involves many people, processes and systems, is time consuming and can take many months to complete, only to still be inaccurate when measured on criteria such as budget to actual performance. Further, the processes, language and tool set applied by finance people and asset management people are often different and misaligned.

We have found that adoption of a process allowing scenario analysis, consistent evaluation methods, a single repository for project information, integration with financial systems and web enablement potential for users that need it greatly simplifies this process. Many investment decisions do not have one year horizons and involve both O&M and Capital considerations. The solution must therefore allow optimization across multiple time periods and evaluation of both O&M and Capital.

A key component of the solution needs to be real time management reporting on key variables such as enterprise risk profile, level of achievement of strategic objectives, quality of data, spend profile, etc. to allow quick review and to facilitate plan, review, monitor, and adjustment to results as experience and conditions dictate. Finally, the solution should result in eliminating as much potential for people error as possible and drive consistency by automation of data entry and decision rules as practical. UMS has achieved this through inferential front end data tools.

Prediction 2005

The market conditions necessitating a focus on operational excellence will continue to drive utilities to find improved ways to maximize strategic value from investment decisions, while maintaining an acceptable enterprise risk level. Only solutions that integrate systems, support portfolio optimization and can articulate the enterprise risk profile will meet this test. 2005 will see some solutions of the past being left behind and many new and yet to be proven solutions emerging.