

U. S. Department of Veterans Affairs Capital Investment Methodology Process

Summary of Problem:

The following is a case study of the re-engineering effort at the U.S. Department of Veterans Affairs. It highlights VA's innovations to improve their annual prioritization of projects competing in diverse categories for capital investment decisions and linking all decisions to strategic goals.

Background

Typical of most large administrations in the Federal Government, Veterans Affairs is a stove-piped organization with a variety of officers competing for scarce resources on a yearly basis. The competing executives include members of the Veterans Health Administration (VHA) and Veterans Benefits Administration (VBA), National Cemetery Administration (NCA) and Staff Offices.

Before VA instituted a new capital investment process, the method by which VA developed and submitted priorities in their budget requests was largely manual, subjective, and lacked the rigors of a structured approach. Strategic objectives were considered, but no explicit link was established between strategic priorities and funding requests. The manual process was time consuming, disjointed and confusing resulting in a priority list that lacked an audit trail describing how projects were ranked. In addition, these projects were considered within the framework of the individual stovepiped organization and had nominal consideration of crosscutting value-added projects.

Furthermore, legislation such as GPRA (Government Performance Results Act, 1993), FASA, OMB Capital Planning Guide and the Clinger-Cohen Act were putting pressure on agencies such as the VA to improve the audit ability of program and project evaluation.

VA responded to the legislative mandates by integrating all major capital investment decisions above a certain threshold, and using decision support software to develop a structured capital investment prioritization process.

Following is a summary of the hurdles that that VA overcame by using a technology assisted approach to develop priorities for capital investment projects.

Summary of Solution:

Executives in the Office of Budget at the U.S Department of Veterans affairs set out to meet several legislative mandates to improve their decision making process for capital investment.

GPRA set out the general guidelines requiring agencies to develop strategic plans, evaluate programs based on internal and external goals, and set measurable milestones for performance improvement as key components of every budget submission. Clinger-Cohen was more specific legislation focusing on performance measurement and effective selection and control of information technology investments. FASA and the OMB Capital Planning Guide provide specific guidelines as a framework for capital planning decision-making.

VA responded to the legislative mandates by going to the literature to identify methodologies designed to formalize the evaluation and prioritization of projects. Jim Sullivan and Orest John Wasyluk in the Office of Budget at the VA identified the Analytic Hierarchy Process (AHP) decision method as the most effective approach to prioritize diverse objectives and projects.

Wasyluk researched the name of AHP's creator, Dr. Thomas Saaty, and found that he is an owner of a software company called Expert Choice. Expert Choice sells a fully group enabled software version of the AHP, Team Expert Choice, equipped with keypads for multiple voters.

The AHP is a decision making process which is based on the concept of developing a hierarchy of organizational objectives with the most important objectives at the top of the model and multiple layers of sub-objectives in the middle and lower levels of the model. The AHP uses a mathematical algorithm to weight organizational goals by eliciting priorities from decision makers who pairwise compare objectives within each level of the model for their relative importance. The hierarchy of weighted goals is then used to determine the value of each type of project.

Projects are rated against the strategic goals, both quantitative and qualitative, where they add value and the ratings are multiplied by the weighted goals and summed to develop a 'project priority'. The process is very powerful not only for ranking projects or investments, but for determining the relative value of investments against the goals and risk factors of the organization.

The VA had never before attempted to get consensus across administrations on priorities of competing investment goals. Because of the ingrained culture, conflicting requirements, and territorial objectives of decision-makers, they primarily focused on their individual stovepipe rather than the greater missions of the Department. The first task was to complete a 'Best Practices' survey of the public and private sectors and as a result of the survey VA adopted 20 of 28 recommendations. The next task was to build on small successes to provide a catalyst for change and further explore opportunities for integration, growth, and excellence. This approach was advanced by re-focusing back to the mission, and approaching each decision as part of a One VA blueprint, linking investments to strategic goals. The VA Capital Investment Board was established to represent each of the key business functions. Executives representing the various stakeholder groups within VA were gathered into a meeting room where each decision-

maker was given a wireless keypad. The keypad is used much like a TV remote control to score the decision criteria.

Using these keypad decision-makers used Expert Choice software to go through a set of pairwise comparisons where they were asked to compare goals to one another for their relative importance to the VA. For example, decision-makers were asked to compare Return on Investments (ROI) to Improving Customer Service to determine which was more important in contributing to the success of the organization. Then they were asked to rate Improving Customer Service to Risk and subsequently compare Risk to ROI. Voters could disagree, meaning that they could say whichever objective of each pair was more important to them and how much more important it was than the other goal. This pair-wise comparison tracks the logic of each decision maker and identifies when there is logical inconsistency in the evaluation.

Voters were then asked to discuss their positions to inform others of what they knew, what they didn't know, and what their stakeholder priorities were. After discussions, voters were permitted to change their votes if they chose to do so. The *geometric average* of the votes was calculated for each comparison then the averages were used to compute the priorities for each level of goals in the model. The AHP algorithm places the ratios of the relative importance of each pair of factors into a matrix. This matrix is then multiplied by itself and the eigenvector is computed, which is the priorities of the goals at a given level of the hierarchy.

Wasyluk was very impressed by what the software could accomplish computationally as well as its positive impact on the group dynamics. "For the first time, senior executives left a planning meeting in consensus about what was important to the organization. These were crucial steps that we had to take in order to move forward with the automation of our capital investment process," said Wasyluk. He went on to say "With Expert Choice there are no trump cards. Everyone knows what is being graded and graded against, so it creates a level playing field, and that's what people like because it's best for the agency and best for the veterans."

The weighted goals were then used as a basis to rate investment options for their contribution to achieving strategic goals, improving performance objectives in the VA as well as supporting their budget request.

Expert Choice also enables decision-makers to use both quantitative and qualitative information to rate competing investments. For intangible objectives like Improving Customer Service, Expert Choice provides the capability to build adjectival scales such as Outstanding, Very Good, Good, etc. The ratings are weighted using pairwise comparisons so that Outstanding may be a 1.0 and Very Good a .7 depending on the value that the decision-makers perceive for each rating. If numerical performance data is available, then Expert Choice converts the raw data to a utility score between 0 and 1 where 1 is the highest possible data point, giving that project the highest value, and 0 meaning no strategic value. The evaluators can then build a utility curve to determine the value of any data point in the range.

Evaluators entered ratings using the keypads then were given the opportunity to discuss their scores. Ground rules were set that ratings had to be sufficiently close in order to move to the next judgment. Once the ratings had been applied to the projects, Expert Choice produced a final priority list justifying the incremental strategic benefits of each project.

Sullivan and Wasyluk found that they could reduce the time for project evaluation to a couple of days versus what used to be an endless process of submission and review. They also found that when ill-defined projects were run through the Expert Choice software, they tended to receive lower scores. As a result, staff members who proposed new projects put more effort into developing the project descriptions and providing primary source documentation to support the risk analyses, options development, financial analyses and strategic evaluation of projects.

Expert Choice also enabled decision-makers to use a graphical sensitivity feature to dynamically change the weights of performance goals and see how it affects the portfolio of project priorities. The sensitivity analysis was extremely useful for simulation and scenario testing by enabling decision-makers to see how changing weights of performance goals would impact project priorities. An additional feature favored by the Deputy Secretary was the capability of the software to track the score of each evaluator and determine if there was consistency or favoritism in the evaluation of project applications.

Summary of Benefits to Agency:

The VA's success in re-engineering their capital investment process lead them to be recognized by the Office of Management and Budget as a leader in capital investment decision making in the federal government. "VA is the first civilian agency to develop an agency-wide capital planning process that allows for trade-offs among categories of assets, such as medical and non-medical equipment, infrastructure and information technology".¹ By adding structure to their capital investment process they were able to go from conflict based decision-making to consensus driven evaluation of projects against strategic priorities.

Sullivan recently told Federal Computer Week that "the VA had initially tried to create an AHP-type methodology on its own but it just didn't work. Expert Choice came in and customized the decision –support software program to our needs. It prioritizes and is used by managers on the policy level to agree on goals and weights. It's a cross-fertilization of the disparate points of the bureaucracy the first time out of the box, and it saves millions of dollars."²

¹ Federal Times, "Acquisition Reforms Show Steady Progress," January 10, 2000, McElveen, R., p. 3

² Federal Computer Week, "A Problem-Solving Machine," September 4, 2000, Caterinicchia, D., pp. 48-49

The benefits of using Expert Choice to structure project priorities include a dramatic reduction in the time to make decisions, better proposals, and an overall better selection and control of projects to be funded based on their contribution to strategic objectives.

Other benefits include:

- Improved compliance with legislative mandates
- Establishing a clear performance base line for future planning efforts
- Communicating strategic goals and objectives across the organization
- Linking capital investments to strategic goals
- Providing primary source documentation in support of budget requests

Because the VA now has the ability to more effectively allocate resources to those projects with the highest strategic value, they are able to deliver better services oriented towards improving the quality of life and satisfaction of veterans in the system.

It is also worth noting that the General Service Administration recognized the success the VA had using Expert Choice and identified them as a “Best Practice” in the PolicySite Newsletter. If imitation is the best compliment, General Service Administration duplicated the success of the VA for their own capital investment process and implemented Expert Choice to allocate over \$1 Billion of their budget as well.