

An Implementation Strategy for Project Risk Management

The California Department of Transportation (Caltrans) conducted a Value Analysis (VA) study of the proposed Hopland Bypass Project from April-July 2003. In addition to the normal VA study, the VA team also assessed the project risk (schedule, cost, and scope) of each of the alternatives as part of a pilot program to integrate Risk Management into the VA process.¹

Due to time and budget constraints the only two process that were employed in conjunction with the VA study were Risk Identification and Qualitative Risk Analysis. Fifteen alternatives were analyzed. As a result of the risk assessment the team identified over fifty potential risk events associated with the Hopland project. On a severity scale of “Low”, “Medium,” or “High,” the majority of the risk was scored in the “High Risk” category.

What is Value Analysis?

Lawrence D. Miles started the value analysis methodology in the late 1940’s while working in the purchasing department at General Electric. Faced with a lack of strategic materials, the company asked Miles to identify new materials to reduce costs. He, then, gradually put into place a rigorous work plan that yielded reductions of 40 %.

Value analysis is a systematic and creative method to improve competitiveness. It is aimed at satisfying user needs by means of a specific procedure for invention (or modification), which is functional (the purpose of the activity), economic (what it costs) and multidisciplinary (how one does it).

In other words, value analysis identifies (or re-examines) the activities necessary for a process to develop a product or service, and finds the most economic way to accomplish it. This method permits the effective identification of that part of process cost which does not contribute to ensure process quality.

The improvement of a process must never put into jeopardy the quality of a product, especially in terms of the safety and reliability of a product. Value analysis can make an existing process profitable or optimize the effectiveness and the profitability of a process at the time of its design.

Value Analysis is based on the fundamental principle that the customer is always looking for the best product at the least cost. Value is the connection between customer satisfaction and price. Value, then, is an essential parameter for improving a process by reducing costs while always maintaining or increasing client satisfaction.

¹ Final Report: Hopland Bypass Value Management Project Risk Management Study, Hulett & Associates, LC, August 28, 2003.

This method analyses a process not as a collection of people or actions, which contribute to product realization, but as a collection of functions, which need to be satisfied, by a process with the goal of responding to the needs of the customer.²

Value Analysis in Caltrans

The Value Analysis Program was established in 1969. Highway projects were generally not studied until the middle 1980's; previously the program was generally limited to product studies. In fiscal year 1993 the value analysis program's guidelines were prepared and were officially adopted in fiscal year 1995.

Caltrans does three types of VA studies:

- Highway construction projects. Highway VA studies are broken down into two categories:
 1. NHS studies which the NHS Act of 1995 mandates.
 2. District-Identified studies, which are voluntarily identified by the Districts.
- Product studies. The VA process can be used to improve the quality of highway products. Typically, engineering products are items and systems as described in Caltrans' standard plans and specifications. Value Analysis can help identify products that need to be updated due to changing technology, outdated application, or any other changes that affect our standard engineering products.
- Process studies. The VA process can be used to improve the quality of Caltrans' processes, such as policy and procedures and business practices.³

Study Recommendations

The team members believe the Hopland Bypass pilot study was an overall success. All of the Hopland Bypass alternatives show high external, political, and programmatic risk. However, these areas also offer significant opportunity for increasing the potential for project success if they are proactively managed. Partnering with the numerous local and regional interest groups may unite support behind the project.

- Once Caltrans has reduced the number of Hopland bypass alternatives, Caltrans should repeat a Qualitative risk assessment.
 1. Ensure the Risk assessment team has risk assessment training prior to the assessment and is provided sufficient time and manpower to accomplish the task.
 2. Develop a prioritized risk list.

² <http://www.scav-csva.org/v1/html/en/CSVA.htm>

³ <http://www.dot.ca.gov/hq/oppd/value/info.htm>

- The Project Management Team should develop a Risk Management Plan and initiate a risk Response Plan using either the data within the report or an updated Qualitative risk assessment as point of departure. During the risk Response Planning look for opportunities to reduce major risk areas and opportunities that offer the potential for increasing the probability of project success.
- Incorporate selected Risk Management techniques into the VA process. Update and expand the Caltrans Project Risk Management and VA Handbooks based upon lessons learned during the Hopland VA study. The effort should include the following:
 1. Evaluate the responses from the Hopland Pilot Risk Assessment lessons learned survey.
 2. Re-evaluate the Impact Criteria shown in table 3 of the Final Report, particularly as related to Schedule impact.
 3. Develop an integrated flow of the Risk Management and Value Analysis processes and optimize the flow. Identify the Risk Management steps that should occur prior to initiation of the VA study and those that should occur during the study.
 4. Identify the software tools available to facilitate Risk Assessment.