



Bridging Transformation Enterprise - Wide

A portfolio approach to evaluating information technology capital projects

Capital projects are crucial to organization growth as they are investments for the future. Critical questions arise when investments are to be made - how much should be invested and in which projects? In most organizations, it is difficult to know if these decisions are being answered correctly. Capital project funding among business units tends to be tied to traditions or revenue generation, instead of organization needs, leading to local optimization of investments, and perhaps leaving the organization unprepared for the future.

The importance of a holistic view of capital investment increases as companies engage in diverse areas of businesses, or must make explicit decisions between current and future growth. Obtaining this holistic view is not simple -- developing the means to evaluate the organization-wide portfolio of capital projects requires political, organizational, and technology changes in order to be able to provide answers to these critical questions.

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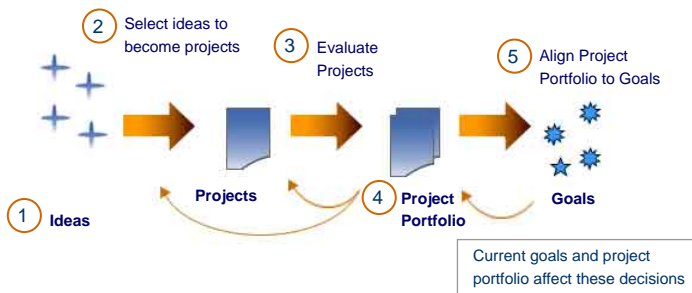
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Questions in the Capital Project Decision Process

There are several questions to be answered in the capital project decision making process for an organization:

- ➔ How to ensure that the right types of ideas are generated?
- ➔ How to select projects to be funded?
- ➔ How to evaluate projects?
- ➔ How to evaluate the organization's portfolio of projects?
- ➔ How to align the project portfolio with organizational goals?

Questions in the Capital Project Decision Making Process



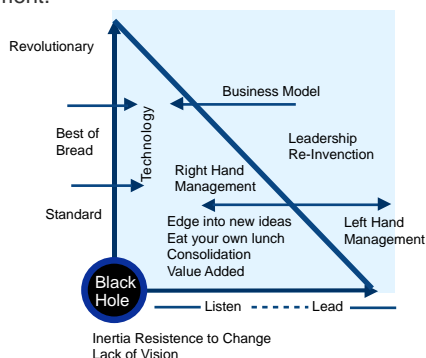
These questions are not independent as decisions made at various stages return as parameters to other decisions. For example, decisions on the composition of the current portfolio of projects will impact how to weight the selection of the types of new ideas to turn into projects. These questions are grouped into two categories:

- 1) those related to the evaluation of individual projects, and
- 2) those related to the evaluation of a portfolio of projects.

Evaluation of Individual Projects

How to ensure that the right types of ideas are generated?

The generation of ideas needs to be balanced between current operations and future growth (e.g. upstream and downstream investments). It is necessary to understand the types of ideas that are being generated in relation to the organization and its environment. The Right Hand - Left Hand model provides a framework for evaluating innovation in those contexts. Ideas for projects can be charted according to their relationship to both technology and to the customers of the organization. This space is then divided into two halves, the right-hand side and the left-hand side. Projects on the right hand are focused on incremental improvements to existing operations, and require riskaverse management.



Left-handed ideas are ideas for the future, innovations that will be the products and services of tomorrow, and require leadership and risk taking to succeed. Organizations need to be cognizant of the types of ideas they are generating -- the axes are not stationary; technology and customer requirements are constantly changing, and organizations that fail to balance in idea generation will find themselves unable to manage environmental change in their industry.

How to select projects to be funded?

Selection of projects will depend on the goals and project portfolio. Lone experimental projects in important growth areas may have different hurdle rates than projects offering incremental improvements to current operations. Left-hand ideas must also be considered in light of a viable business model to integrate innovations with existing operations and provide a suitable return. Evaluation of individual projects should not occur in a vacuum, for example infrastructure projects may affect the costs and benefits of other on-going projects, or projects currently under evaluation. Valuation of infrastructure projects as stand-alone projects can skew the perceived value to the organization, and results in sub-optimal decisions.

Evaluation of a Portfolio of Projects

The goal in evaluating a portfolio of capital projects is to provide the means to manage the capital investment of the organization by considering the relative performance of existing and planned capital projects as measured by their contribution toward the goals of the organization. This information allows decisions to be made regarding capital allocation amongst functional areas, as well as between current and future benefits, in order to maximize the benefit to the organization from their capital project investments.

How to evaluate projects?

Evaluation of projects is not independent, and involves feedback from the portfolio of existing projects, (i.e. the value of infrastructure projects depends on how they support other activities and overall progress toward organizational goals). This can only occur when there is some common way to share data amongst projects, not only performance metrics, but also other information, such as the systems touched and types of technologies involved. This way, common problems, infrastructure needs, resource needs, etc. can be addressed across multiple projects. With this aggregated view, informed capital allocation decisions can be made for the organization as a whole.

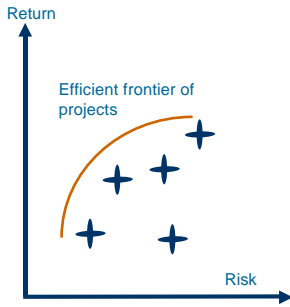
How to evaluate the organization's portfolio of projects?

Evaluation and management of a portfolio of projects involves substantial differences from the evaluation of individual projects, for instance, a common system must exist to aggregate project information across the organization. This involves standardization and integration not only of project data, but also systems integration. Standard measures must be developed, both of project performance, and contribution toward organizational goals, in order to provide a means to make proper decisions amongst a diverse set of capital projects. Such as common view also allows the management of the balance of the portfolio of projects (e.g. upstream vs. down-stream projects), and weights the selection of new ideas to be pursued and the criteria for project evaluation.

How to align the project portfolio with organizational goals?

A project portfolio view enables the alignment of projects with organization goals as well as a means to track progress, growth toward specific goals, and strategic allocation of funds. This kind of management enables an efficient frontier of projects to be maintained, a portfolio of capital projects maximizing the return in terms of financial performance, as well as progress toward strategic goals, while minimizing both the cost and risk to the organization.

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APPENDIX - Examples of Cambridge Technology Enterprises (CTE) Solutions to Capital Project Evaluation

CTE has used its model of evaluating capital projects in a number of successful engagements for both commercial and government clients. Three examples will be presented, representing a range of problem types associated with evaluating capital projects. The three cases examples are:

- ➔ USAF Electronic Systems Center (USAF ESC)
- ➔ Federal Aviation Administration (FAA)
- ➔ Jacksonville Electric Authority (JEA)

The US Air Force - USAF

How to ensure that the right types of ideas are generated?

The Electronic Systems Center is responsible for managing the development several multi-year advanced projects for the Air Force, including JSTARS, AWACS, and Global Hawk projects. They must deal with changing priorities over time, and must be able to assess the impact on their strategic goals of shifting capital allocations among these projects. A key requirement was the ability to leverage common assets and resources among programs, reducing duplication of efforts and speeding time to delivery.

CTE was involved in the development of tools for standardizing project data to enabling cross-program collaboration and integration in order to reduce costs

Problem of limited visibility into other programs

- ➔ No standard method for the reporting of project data
- ➔ Disparity among systems and infrastructures limited integration
- ➔ Stovepipe mentality among programs prevented collaboration



Example screen from the USAF ESC CEW

Solution created a standard interface for the Problem of limited visibility into other programs

- ➔ Program-independent applications were made openly available to program and project managers
- ➔ Program-independent data sources and resources were made available to program and project managers

Results increased productivity and cross-program collaboration

- ➔ Increased productivity of program man-hours and dollars through integrated systems
- ➔ Initiated a standards-based, open approach to USAF Systems development
- ➔ Fostered a collaborative operational environment, increasing cross-program planning and execution

Federal Aviation Administration - FAA

The FAA faced the problem of having a large portfolio of projects, but no easy way to link projects to their specific initiatives, mandates, and goals. As a result, the FAA was unsure of the value of individual projects to the organization. Additionally, the organization not able to the manage progress toward its goals based on the management and performance of the projects.

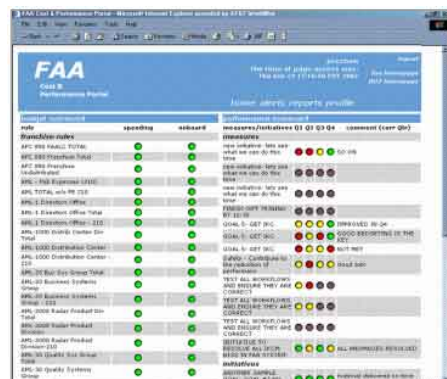
CTE developed an organization-wide dashboard with status of projects and organizational initiatives, enabling alignment of projects and strategic goals

Problem of managing a portfolio of projects to achieve strategic goals and initiatives

- ➔ No common view of project status and performance available
- ➔ No linkage between projects and organizational initiatives
- ➔ No way to measure progress toward initiatives, mandates, and goals

Solution provided common view of project progress and relationship to goals and initiatives

- ➔ View budget scorecards and status for projects in portfolio
- ➔ View a performance scorecard for organization-wide measures and initiatives
- ➔ Provide custom alerts & scorecards to monitor specific initiatives and goals
- ➔ View fiscal status reports for the organization's projects



Example screen from the FAA CEW

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Results enabled the project portfolio management

- ➔ Portfolio view of projects status and project performance
- ➔ Ability to link projects in portfolio with initiatives and goals
- ➔ Ability to manage overall progress toward organizational goals

Results improved project and cash management

- ➔ Significant reduction of working capital through increased visibility of cash needs
- ➔ Improved project performance through consolidated project information and increased visibility across functional areas into project status

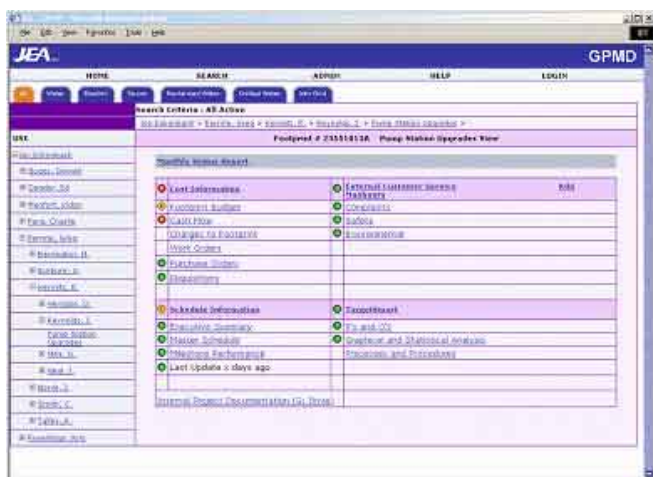
Jacksonville Electric Authority - JEA

JEA is an integrated supplier of Electricity, Gas, and Water services, and is the 4th largest municipal utility system in the United States. They manage a number of infrastructure projects, and spend over \$600 million annually on their portfolio of capital projects.

JEA needed a way to collect and consolidate information on their projects to improve the management of individual projects as well as manage financial performance and cash flow across the utility. Cambridge Technology Enterprises developed the Global Project Management Dashboard (GPMD) to provide a common view of project metrics across the organization, while simultaneously collecting and providing access to project information throughout the life of a project.

JEA need to improve the management of their portfolio of capital projects

- ➔ No easy way to access project information, both within and across individual projects
- ➔ No aggregated view of capital projects performance for management
- ➔ No aggregated view of financial performance and cash needs for projects



Example screen from the JEA GPMD CEW

Solution provided a Global Project Management Dashboard

- ➔ Common view of the status and metrics of capital projects
- ➔ Ability to set alerts based on project metrics
- ➔ Increased visibility into project performance
- ➔ Ability to aggregate and track all project cash flows