Strategic Financial Management of Capital Projects: A Web-Based Approach

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Abstract

The University of Virginia has developed a web-based planning and management tool to help the institution guide financial decisions concerning its ambitious capital project program. This system has database and spreadsheet elements, coupled with a robust series of reports, that succinctly inform users about the status and funding plans of projects (individually and collectively), aggregate cash flow needs, and the potential effects on future financial health arising from new construction. Equally important, this system helps the administration shape the timing, size, and type of debt issuance in order to minimize financing costs. The University currently enjoys the highest possible bond ratings from agencies Standard & Poors, Moody's, and Fitch. With this system the institution can continue to evaluate and determine the optimal deployment of financial resources in order to achieve the University's long-term goals.

Introduction of the Organization

Thomas Jefferson founded the University of Virginia near his home in Charlottesville, the culmination of his lifelong dream to "create the bulwark of the human mind in this hemisphere". Chartered by the General Assembly of Virginia in 1819, the University opened for instruction in 1825. Throughout its history, the University has drawn strength from the heritage of Mr. Jefferson. His belief in the "illimitable freedom of the human mind" continues to shape the values of students and faculty. Audacious at its inception, the University's goals today are no less ambitious: to represent the American ideal for higher education and to achieve excellence in all of its endeavors. It pursues these goals by concentrating on four key areas: academic rigor, student self-governance, honor, and public service. Moreover, the University intends to remain a national model of excellence for undergraduate learning and professional education within a modern research university.

As a public entity, the University still embraces Mr. Jefferson's belief that an enlightened populace, sustained by the ablest students and scholars drawn from both the Commonwealth of Virginia and around the world, is the surest way to secure the nation's liberty. By providing abundant opportunities for self-discovery and self-determination, it offers a student experience without parallel in higher education. Its tradition of student self-governance, marked most prominently by the student-run Honor System, strives to imbue its graduates with a devotion to ethical conduct that remains with them for the rest of their lives.

Statement of the Problem

Historically the University has pursued a modest capital program funded in a conservative fashion, namely limiting the amount of debt relative to resources and by utilizing fairly conventional borrowing terms. In prior periods the University also benefited from a certain level of taxpayer support for many of its construction projects. Coupled with a host of other favorable financial factors, the result has been a very healthy balance sheet. The rating agencies Standard & Poors, Moody's and Fitch recognized this by rating the University worthy of receiving their highest designations for credit safety, "Aaa" and "AAA", respectively.

However, conditions have changed. First, the University has witnessed a veritable explosion of capital activity: over the past few years construction expenses have averaged approximately $150 million per year. At the same time, state support for colleges and universities across the Commonwealth has declined precipitously. For example, in the current fiscal year state general funds will account for only about 8% of the operating funds, an amount less than the University will receive from gifts and income from endowments. And while voters in the Commonwealth did approve a very generous bond referendum in November 2003, the story of taxpayer support for capital projects is very similar. These trends will not abate any time soon, and over the next six to ten years the institution already has preliminary plans for some $1 billion in new construction, renovation, acquisition, and other like projects – a figure that does not include those projects already in progress.

Against this backdrop lay the obvious need to effectively coordinate and direct the capital project process so that the institution attained its goals without sacrificing financial performance. Prior to implementing the new web-based system, capital financial planning was more accurately characterized as "ad hoc" and decentralized rather than strategic. While this did not necessarily cause any significant difficulties, as the bond ratings attest, the concern was very real that the University could not continue to make optimal financial decisions in the future, given the accelerated pace, without the benefit of new aids and planning tools.

Design

This web-based capital project management tool addresses the administration's concerns and information needs by serving as the primary source of financial data for various "customers" involved in the planning process. Working in tandem with separate systems maintained by Facilities Management, the Budget Office, the Comptroller's Office, and the Office of the Architect, this tool greatly enhances the ability to fully integrate financial planning into the capital project process. With the help of an outside consulting firm, the development team identified the following key objectives: 1) build upon existing best practices at the University; 2) provide comprehensive project tracking; 3) anticipate and manage cash flow needs; 4) instill forward-looking debt management; 5) offer evaluations of financial impact, debt capacity, and credit impact on a "real time" basis; and 6) provide suitable information for senior administration to establish institutional debt and capital management policies.

The resulting tool consists of two basic components: 1) a collection of individual business plans and project "draw schedules" in spreadsheet form; and 2) a database of basic project information as well as approvals received from the state and from the University's governing body, the Board of Visitors. The project spreadsheets provide the foundation of a modeling and reporting system that aggregates the individual project data into a series of reports and ratios. A user can obtain a list of all existing projects and their approval status, find out when projects plan to incur debt, produce an outline showing each project and all of its funding sources, get a summary of construction cash flows by month by source, or run a report on debt capacity and key financial ratios. A number of variables selected by the user further enhance the flexibility of the information provided. In the database portion, the user can also select an Executive Summary for any individual project to find out contact persons, project justification, project scope, approval information, a summary of actual and planned financial activity, and other basic information.

This first step in project development involved a series of meetings to determine customer and constituent needs. These sessions, led and moderated by the engaged consulting firm, elicited positive discussions among all parties; however, they also surfaced several issues that required further negotiations in order to achieve the project objectives. Chief among these were advocacy of changes to, and ownership of, the process, obtaining "buy in" from all parties, determining information flow between areas, and coordinating with existing systems. These issues helped shape final decisions

concerning the scope of the project, its intended functionality, and the general architecture of the system.

Before any programming or web development was commissioned, the University team next designed and tested a number of business plan and database mock-ups in Excel and Access. Several iterations of these tests examined necessary data elements to include, reporting needs and design, the degree of user-friendliness, and other key considerations. Once these preliminary efforts were concluded the team provided the results to the consulting firm who, in turn, made extensive modifications and improvements (but following the team's general model and incorporating the University's specific requests) based on similar projects they had performed at other schools. The consulting firm created the new tool in a web-based / HTML environment, thus enabling access to the information to designated users via a password-protected site.

It should be noted that despite all of the dedication on the front end to finalize the designs and functionality, additional changes and alterations have continued throughout the course of development.

Implementation

The next step in the process, implementation, in many ways was a continuation and extension of the design and development stage. More precisely, the entire process was a feedback loop consisting of determining needs, preliminary testing, design, post-

implementation testing, design changes, and finally confirming that needs were met. To the extent that needs were not met satisfactorily, the process would begin anew.

After the creation of the initial web site, the University team loaded all information related to current and future projects into the system. As a forward-looking management tool, projects already completed were excluded. This effort required approximately 1 FTE and two months of completion time to load the original 80-plus projects already in development or on the "drawing board". In fairness, only about 20 – 30 projects were considered "active", and of those fewer than 15 could be deemed worthy of close financial monitoring at any one time.

Over the next fifteen months the system went through extensive testing and modification as utilization increased. Familiarity with the system by a number of users indicated a host of necessary changes to improve the design and functionality. Moreover, internal organizational and administrative changes dictated further alterations to address circumstances unforeseen when the process began. The result is a stabilized, working model that meets the designated needs. Future modifications will focus on significantly enhancing the automation of data feeds from the University's accounting system and from other disparate management systems.

Benefits

With this system, the University now has an enhanced capability to quickly understand the overall capital project financial picture, and, more importantly, determine how future capital projects may affect the institution's financial health. Senior administrators can better manage financial issues to achieve strategic results and optimal returns. Staff members can help the senior administration anticipate, plan, and execute all aspects of debt issuances. Other staff members have the ability to identify potential difficulties and frame alternatives before problems become acute. In concert with a number of other important internal changes concerning debt management, notably the creation of a debt "pool", the University enjoys a much greater degree of autonomy and flexibility to chart its own financial course. The cost of capital has been minimized significantly, and the new web-based financial management tool helps ensure that this remains so.

Retrospect

If one were to cite areas for improvement regarding the development process these would include communication among the various units and the initial degree of integration between University management systems. It goes without saying that communication, specifically with respect to goals, expectations, and customer needs, is paramount to success. This fact was not lost on the development team, and exhaustive efforts were made to include all affected constituents throughout the process. Nonetheless, communication lapses still occurred, thus hampering design and implementation. To the extent that an institution can more clearly and precisely define the project, its intended

outcomes, and the attendant processes necessary to support the tool, the more likely success will be.

Furthermore, the University's development efforts did not place sufficient emphasis on the initial automation capabilities of the system. Given the level of complexity inherent in a major project such as this, the team thought the best way to proceed was to complete discreet phases before moving on with further refinements and improvements. This is still advisable; however, the initial system's capabilities were limited because data had to be entered manually. This required much more maintenance than originally envisioned and it slowed acceptance by all users. More attention should have been paid to automatically integrating data captured by other University systems into this system before its initial launch.