

**Financial Modeling:
Support for Strategic Decisions**

A financial model sounds more complicated than it is. As a simplified representation of the critical factors in a projected course of action, it can help an organization to explore, predict and control the financial repercussions of its decisions. It can be created with a pencil and a scrap of paper, or with spreadsheet software that takes into account complex interrelationships between expense and revenue lines. A financial model can offer not only comparison of key figures, but simple graphs for visual comparison. This more accessible view of the consequences of different options can bring all staff and trustees into the deliberation, not just those who are comfortable with tables of figures.

Assumptions and variables change as a program or project unfolds. A model can provide a way to monitor the program or project over time, and to make informed decisions as critical milestones are reached. For example, projected surges in health insurance or other benefit costs, or potential changes in funding streams, make advance planning to find options for sustainability very important. Change orders in a construction project and seemingly innocent decisions made along the way in a new program can often leave an organization in an unintended and untenable position. Unforeseen eventualities can and will happen, but their consequences can be modeled before decisions are made.

Some choices faced by nonprofit boards involve complex financial factors that make thorough examination and evaluation seem daunting. In discussions of adding, expanding, shrinking or dropping programs, adjusting fees, setting salaries and benefits, establishing endowment policies, or any other operating or capital budget issue, the full implications and interrelationships can be hard to envision and the possible scenarios too numerous to evaluate. These questions can be all the more difficult for trustees and staff who aren't especially comfortable with financial issues or complex tables of numbers.

Financial modeling, a strategic and decision-support tool, can address these issues in a way that helps everyone to visualize and discuss issues. It can offer critical information about the long-term operating

consequences of current decisions, and about the composite impact of alternative groupings of decisions.

Typical questions for financial modeling include:

- What are the likely net impacts of various combinations of program and service expansion—or contraction?
- What would the consequences be of different increases in salaries and benefits, combined with other costs and fees that are rising at different rates?
- How can a facility project be budgeted—including fundraising and associated cash flow, hard and soft costs, borrowing, inflation, contingencies, and maintenance endowment?
- How can an assessment of the ongoing effects of a new facility on the operating budget be combined with project costs to provide a comprehensive model for analysis?

Financial modeling can offer scenarios to help answer questions such as these, and make financial decisions more manageable, thoughtful, strategic and effective.

Simple Modeling

The simplest model is a single spreadsheet tracking relevant budget lines. By creating a series of spreadsheets showing different scenarios, an organization can see the effects of changes in assumptions.

The *Simple Model* on page 3 illustrates this with an example of the capital budget and fundraising issues involved in evaluating a facility project. For an all-inclusive assessment, a parallel model could be created for the operating budget issues (staff, program and facility costs and savings; changes in revenues).

Variables for a facility project might include:

- Amounts and timing of fundraising revenues
- Changes in operating expenses or revenue
- Project options, costs & timing
- Value of investments, returns and payout
- Amount, term, & interest rate of various forms of debt

Tracking and comparing the cumulative net impact using different figures for the variables will allow an organization to judge the overall financial implications, and thus the feasibility, of a set of decisions.

Complex Modeling

While a static spreadsheet comparison can be very useful, a dynamic model that responds in real time to changes in assumptions will allow staff and the board to explore options and consequences within the flow of discussion. This can turn meetings that would otherwise be lengthy, inconclusive and frustrating into crisp, focused negotiations of strategy and tactics.

When there are only a few variables, this kind of model is as easy to construct in spreadsheet software as a simple, static model. A more elaborate model will support consideration of a more complex set of interrelated issues (see the *Dynamic Model* on page 4), and therefore a more complete picture.

Increasing the number of students in a school, for example, will require various kinds of faculty and staff at certain thresholds, along with facilities and financial aid. New facilities typically involve added staff, equipment, utility costs, perhaps borrowing, and they may offer a variety of revenue streams, each with its own set of costs.

Every change to an assumption or variable will have consequences not only throughout the project, but also throughout the organization's overall financial picture. Any and all line items can be incorporated into a financial model, along with fundraising projections, endowment earnings and payout, assumptions about inflation, borrowing costs, timelines, and options for including or excluding various possible new projects and programs, fully loaded with their individual effects on expense and revenue lines.

Using spreadsheet software to create a robust dynamic model, trustees and senior administrators can visualize the nature and extent of risks—and avoid costly, or even fatal, mistakes—by ensuring that all significant secondary effects are included in calculations. They can rest assured that they have examined the full impact of a new initiative and its potential effect on the ability of the organization to sustain existing programs.

See further discussion of simple and dynamic models on the following two pages.

More resources

- CI 1: *Why Plan?* (<http://bit.ly/SyPci01>)
- CI 2: *The Secret Life of Surveys* (<http://bit.ly/SyPci02>)
- CI 3: *Untangling the Web* (<http://bit.ly/SyPci03>)
- CI 4: *On Boards* (<http://bit.ly/SyPci04>)
- CI 5: *The Structure of Planning* (<http://bit.ly/SyPci05>)
- CI 7: *On a Mission* (<http://bit.ly/SyPci07>)
- CI 8: *The Measure of Success* (<http://bit.ly/SyPci08>)
- CI 9: *Brand Identity for Nonprofits?* (<http://bit.ly/SyPci09>)
- CI 10: *Mind Your RFPs & Qs* (<http://bit.ly/SyPci10>)
- CI 11: *Integrated Planning* (<http://bit.ly/SyPci11>)
- CI 12: *Business Planning* (<http://bit.ly/SyPci12>)

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1:00 Eastern / 10:00 Pacific and

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A Simple Model

A scenario for timing and amounts of capital campaign revenues and expenditures can be explored and adjusted to support decisions. Any adjustment in assumptions, timing or actual results can be plugged in to see the effect on cash flow, borrowing, risk and end results. The relationships among a pivotal set of expense and revenue lines can be used to identify critical points for authorizing continued work.

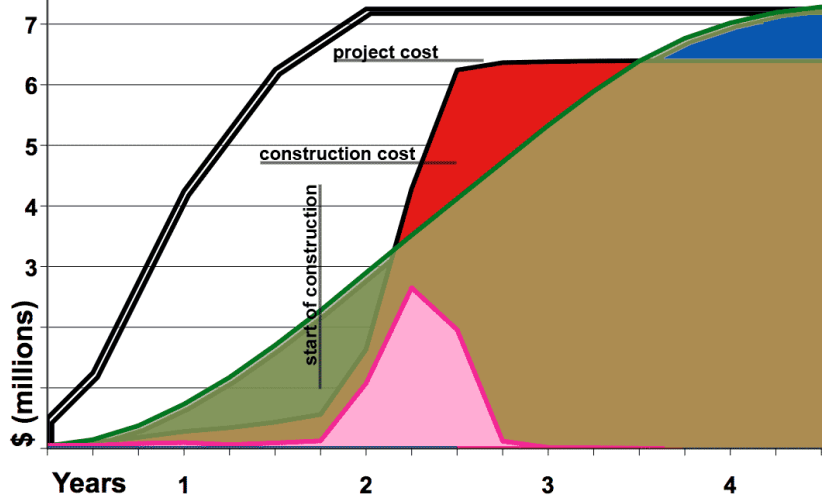
	Year 1				Year 2				Year 3		
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3
Fundraising pledges	\$ 500,000	\$ 750,000	\$ 1,500,000	\$ 1,500,000	\$ 1,000,000	\$ 1,000,000	\$ 500,000	\$ 500,000	\$ 250,000		
Cumulative pledges	\$ 500,000	\$ 1,250,000	\$ 2,750,000	\$ 4,250,000	\$ 5,250,000	\$ 6,250,000	\$ 6,750,000	\$ 7,250,000	\$ 4,500,000	\$ 4,500,000	\$ 4,500,000
Fundraising cash flow	\$ 41,667	\$ 104,167	\$ 229,167	\$ 354,167	\$ 437,500	\$ 520,833	\$ 562,500	\$ 604,167	\$ 375,000	\$ 375,000	\$ 375,000
Other income	\$	\$ (83)	\$ 458	\$ 1,934	\$ 4,520	\$ 8,315	\$ 12,696	\$ 17,188	\$ (3,389)	\$	\$
Cumulative income	\$ 41,667	\$ 145,750	\$ 375,374	\$ 731,475	\$ 1,173,494	\$ 1,702,643	\$ 2,277,839	\$ 2,899,194	\$ 1,667,070	\$ 2,042,070	\$
Reserve or borrowing	\$ (8,333)	\$ 45,750	\$ 193,374	\$ 451,975	\$ 831,494	\$ 1,269,643	\$ 1,718,839	\$ 1,264,861	\$ (2,617,596)	\$ (4,219,106)	\$ (
Planning/ design costs	\$ 25,000	\$ 25,000	\$ 57,000	\$ 47,500	\$ 47,500	\$ 76,000	\$ 76,000	\$ 25,333	\$ 25,333	\$ 25,333	\$
Construction								\$ 950,000	\$ 2,375,000	\$ 1,425,000	\$
Other costs	\$ 25,000	\$ 25,000	\$ 25,000	\$ 50,000	\$ 15,000	\$ 15,000	\$ 50,000	\$ 100,000	\$ 250,000	\$ 500,000	\$
Quarterly costs	\$ 50,000	\$ 50,000	\$ 82,000	\$ 97,500	\$ 62,500	\$ 91,000	\$ 126,000	\$ 1,075,333	\$ 2,650,333	\$ 1,976,509	\$
Cumulative costs	\$ 50,000	\$ 100,000	\$ 182,000	\$ 279,500	\$ 342,000	\$ 433,000	\$ 559,000	\$ 1,634,333	\$ 4,284,667	\$ 6,261,176	\$
Maintenance endowment											

Shown above is the first half of the five year spreadsheet used to generate the Scenario 1 graph. In Scenario 1 cumulative pledges exceed project cost before construction begins. The total campaign eventually provides a maintenance endowment of 20% of construction cost.

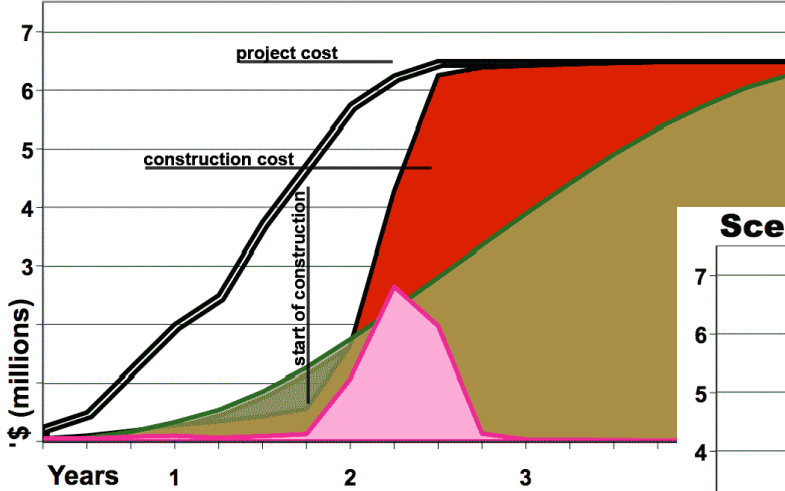
In Scenario 2 pledges match only total construction cost when construction begins; while the project cost is raised eventually, the amount and period of borrowing (red area) are increased.

- Cumulative Pledges
- Cumulative Income
- Cumulative Costs
- Quarterly Costs
- Maintenance Endowment

Scenario 1

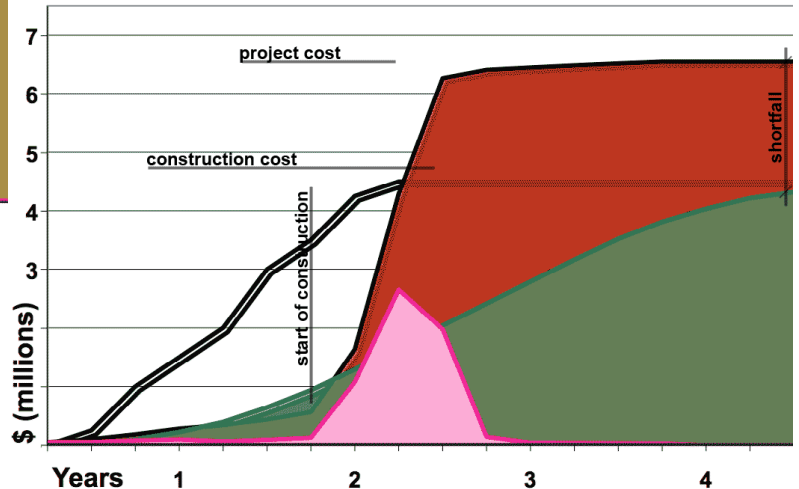


Scenario 2



In Scenario 3, construction is authorized when only half of the needed pledges have been made; fundraising falls short and substantial debt remains once the campaign and project are complete.

Scenario 3



The graphs help to make the relationships among costs and revenues more vivid. Perhaps the greatest value of modeling is to define the critical relationships that should drive decisions.

**A Dynamic Model:
Real-Time Financial Strategy**

A dynamic, real-time financial model offers more than identification of thresholds and milestones. It can become a critical tool for strategic discussions.

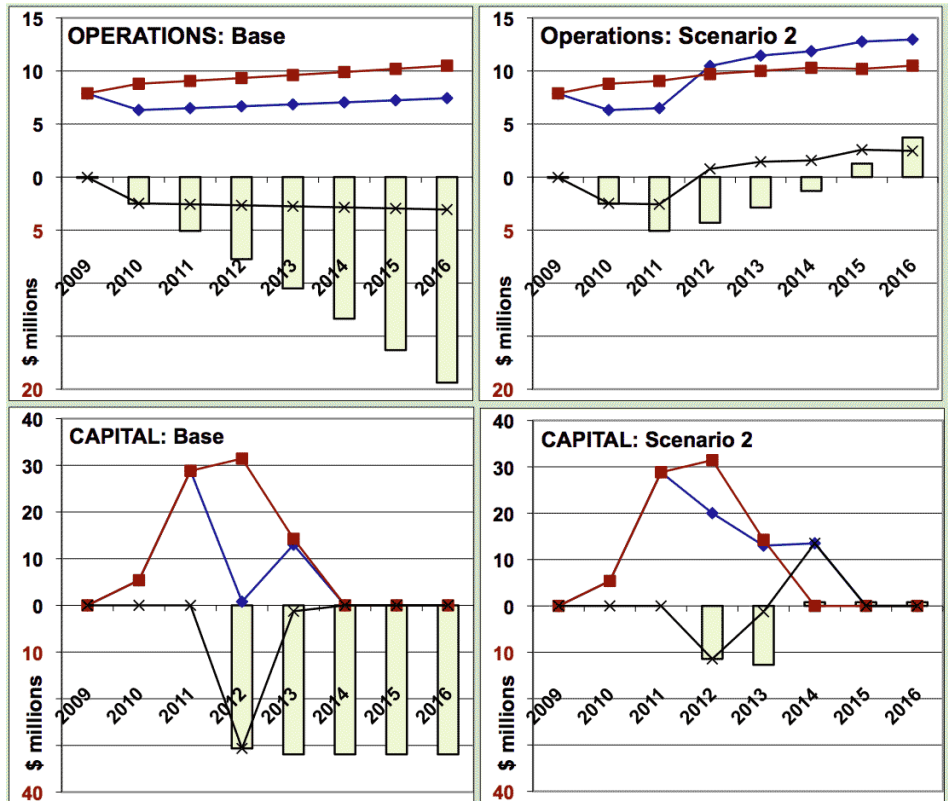
In the model illustrated here, as different assumptions are entered, the graphs representing overall budget performance respond in real time to these changes, and further speculations can be made on the basis of the consequences revealed. With this model, different promising scenarios can be saved for review later.

In this illustration, the model can explore combinations of options involving

- Revenue from memberships, ticket sales and fundraising
- Number of performances and tickets
- Staff and production costs
- Amounts borrowed and interest rates

The key variables for a school, for another example, would focus on enrollment, tuition, non-tuition revenue and financial aid, along with endowment earnings and payout, and salaries and benefits.

This model was built using only spreadsheet software and some simple programming tools. Simpler approaches, without some of the bells and whistles, can be constructed in any finance office.



Name and save this variation

Print this variation

Options

- Scenario 1
- Scenario 2
- Scenario 3
- Scenario 4

◆ Revenues

■ Expenses

× Net

█ Cumulative Net

	2012	2013	2014
	7,372	7,560	7,765
	105,400	134,840	135,316
	51.48	49.27	51.55
	240	246	246
	15,691	17,852	18,388
	1,135,715	1,169,786	1,204,880
	921,476	945,000	970,671
	80,628	83,047	85,539
	788,372	13,000,000	0
	4.50%	4.50%	4.50%
	5,370,000	0	0
	60	60	60

Key Variables:	2012	2013	2014
Memberships	9,572	9,760	9,965
Tickets sold	158,100	202,260	202,974
Ticket price	56.63	54.20	56.71
Shows	240	246	246
Production Cost/Show	11,768	13,389	13,791
Salary & Benefits	860,715	919,786	954,880
Annual Fund	1,421,476	1,445,000	1,470,671
Foundation Grants	233,047	235,539	238,000
Capital Campaign	20,000,000	13,000,000	13,500,000
Interest Rate	4.50%	4.50%	4.50%
Amount Financed			
Term			

A dynamic model allows financial and non-financial people to develop a common understanding of factors and consequences, and thereby conduct a meaningful discussion.

This capability can transform the nature of decision-making.