

BEST PRACTICES IN COMMUNITY COLLEGE BUDGETING

PREPARE & DEVELOP INPUTS TO THE BUDGET PROCESS

1B – Examine Internal and External Forces that Impact the Budget

SUMMARY

Key Points:

- By conducting an environmental analysis, a college can identify goals to pursue by evaluating where performance improvement and adaptation to changing conditions may be necessary.
- This best practice recommends that when conducting a financial analysis, a college should review its current revenue and expenditure structure and long-term financial position. The analysis of current revenue and expenses includes identifying basic composition of revenues, cost per credit hour across disciplines, operating and maintenance cost of capital assets, secondary indicators of financial health (e.g., types of students served), and historical changes in its revenue base. When forecasting its revenue and expenditures, a college should first consult existing master plans and account for uncertainty. When performing the forecast, a college should use a quantitative model and document any assumptions made. A college should regularly check the forecasted figures against actual results and adjust the forecast method as needed.
- When reviewing student performance, a college should use cross-sectional analysis and longitudinal studies. Cross-sectional analysis examines data at a point in time, while longitudinal analysis examines student outcomes over time and is particularly useful for finding where students encounter difficulties and/or dropout.
- A college should review its internal capability with respect to key factors that support student achievement. This best practice recommends the analysis address issues related to human resource capacity, student needs and integrated support for student services, and acceleration of remedial students.
- The environmental analysis should also review external forces that have an important influence on a college's budget, such as labor market demand, stakeholder perception, and state and federal legislation.

Related Award Program Criteria:

- Criterion 1.B.1: Cost Structure Analysis. The Applicant submits an analysis of its cost structure as Supplementary Materials. In the Award Application, the Applicant explains why it chose the particular analytical techniques it has employed and what insights it gained.
- Criterion 1.B.2: Long-Range Financial Forecast (Mandatory). Long-range revenue and expenditure forecasts in the Budget Document along with discussion of implications for organizational performance.
- Criterion 1.B.3: Long-Range Enrollment Forecast. Long-range enrollment forecast in the Budget Document along with discussion of implications for organizational performance.
- Criterion 1.B.4: Student Performance Data Analysis Overview. The Applicant uses a well-rounded set of data that includes assessments data (summative and shorter-cycle), and other forms of data to monitor performance against standards and changes in performance over multiple years. The Applicant can explain their approach to using data in the Application.
- Criterion 1.B.5: Student Performance Data Analysis Example. In the Supplementary Materials, the Applicant can provide a sample presentation of measures that exemplifies its approach to using data.
- Criterion 1.B.6: Environmental Assessment. The document that describes the environmental assessment is submitted as Supplementary Material.

INTRODUCTION

The budget and planning process must be informed by an analysis of forces and factors, internal and external to the community college organization that has implications for the college's current and future performance. An analysis of the college's environment makes at least two critical contributions to the budgeting and planning process. First, with respect to goal-setting, the environmental analysis suggests where it may be necessary to improve performance and adapt to changing conditions. This information can be used to set goals. Second, the environmental analysis supports root cause analysis of challenges to reaching goals. Colleges should perform a root cause analysis of the challenges to reaching its goals to learn the underlying cause of the challenge and to develop the most effective solutions. An environmental analysis can help the college identify root causes. Both of these two uses of the environmental analysis eventually allow the college to quantify the impact of internal and external forces in the form of budgetary allocations.

This Best Practice describes the recommended elements of a thorough analysis of the environment, including:

- I. **Financial analysis.** This includes analyzing the college's cost and revenue structure as well as making long-term forecasts.
- II. **Student performance.** Understanding current levels of student performance is a critical prerequisite to setting performance goals.
- III. **Internal capabilities.** An environmental analysis should examine the college's internal capability with respect to key factors that support student achievement.
- IV. **External influences.** A college must also be aware of forces emanating from outside its organization.

I. FINANCIAL ANALYSIS

A financial analysis provides insight into the current and prospective future financial position of the college. This best practice identifies two essential components of a financial analysis: analysis of current revenue and expenditure structure and long-term forecasts.

ANALYSIS OF CURRENT REVENUE AND EXPENDITURE STRUCTURE

Background. Most fundamentally, a college must understand its basic revenue and expenditure structures. Analysis of revenues and expenditures can take on a number of different forms.

Recommendation. The GFOA recommends that colleges consider the following forms of revenue and expenditure analysis.

- **Basic composition.** For revenues, this includes identifying what portion of the budget is funded by state-shared revenues versus revenues that are generated locally, and how much of the budget is funded by grants and fees. For expenditures, a college needs to understand the cost and staffing for each of its subunits (e.g., campuses, departments, programs).
- **Cost per credit hour across disciplines.** Some classes cost more than others, which may have implications for the cost of expanding offerings or for how the tuition/fee structure is developed.
- **Full cost of capital assets.** Colleges need to be aware of not only the potential long-range capital costs for new assets required by their operations (e.g., adding faculty may require more offices), but also the cost to operate these assets over their lifecycle. For example, construction of a learning commons may entail material operating costs.
- **Secondary indicators of financial health.** Colleges should also examine data outside of revenue and expenditure figures that indicate its financial position. Foremost, students drive demand for services from a college, so a college should understand the types of students it serves. For instance, some types of students may cost more to support than others (e.g., remedial vs. non-remedial) or may have different revenue implications (e.g., degree vs. non-degree).
- **Revenue base.** The college may examine historical changes in tuition rates compared to inflation and to changes in the college's cost structure, for example. A college might also compare tuition with other educational alternatives available to students. Colleges with significant property tax

funding should examine historical changes in rates and actual taxpayer bills,¹ along with the tax burden posed by the college compared with the tax burden created by similar colleges.

LONG-TERM FORECASTS

Background. A college should develop long-term projections (i.e., about five years into the future) of revenue and expenditures, as well as enrollment. Long-term forecasts on revenues, expenditures, and enrollment help a college think more strategically about its budgeting and planning.

Recommendation. A number of specific techniques can be used to make long-term forecasts, but the GFOA recommends that colleges follow the guidelines below regardless of the forecasting technique used.

- **Use a quantitative model.** Quantitative models generally outperform expert judges when it comes to forecasting.² However, the quantitative model need not be complex to be useful – in fact, simpler models often perform just as well, if not better than complex ones,³ and are easier to maintain and to explain to an audience. The forecaster's judgment still plays an essential role in forecasting, but should be judiciously applied.
- **Document assumptions.** The assumptions behind the forecast should be documented. This makes the forecasting process more transparent. It also provides an opportunity for learning as the forecasters can check the accuracy of their assumptions and adjust their approach to compensate for errors.
- **Examine existing master plans.** The college may have adopted master plans covering facilities, information technology, human resources, and other areas. These plans may suggest the need for certain expenditures.
- **Account for uncertainty.** Forecasts are inherently uncertain and the degree of uncertainty typically increases the further the forecaster looks into the future. The degree of uncertainty can be reduced by using better forecasting techniques, but uncertainty can never be eliminated. Accordingly, forecasters must accept that uncertainty exists, assess the level of uncertainty in the forecast, and effectively communicate it to others.⁴
- **Check and adjust the forecast.** Forecasts should be regularly checked against actual results and the forecast method adjusted to learn from experience.⁵ GFOA's experience and research suggests that this is one of the most crucial yet seldom performed parts of the forecasting process.

II. STUDENT PERFORMANCE

Background. A college should collect data and use it to evaluate and manage the services it provides.⁶ Cross-sectional analysis and longitudinal studies are the two primary ways to analyze student performance. Cross-sectional analysis examines data at a point in time. Cross-sectional analysis has the advantage of being easy to conduct, while still yielding useful insights. For example, one community college learned that students were postponing required math courses until the end of their course of study, some of which had to be taken sequentially. This resulted in delays in graduation that could have been avoided had the classes been taken earlier.⁷ Longitudinal analysis examines student outcomes over time and is particularly useful for finding where students encounter difficulties and/or drop out.⁸ This is done by tracking entering students each year and their success in meeting key milestones on the way to a "terminal" accomplishment, such as completing a certificate or degree or transferring to a baccalaureate institution.⁹ Milestones are measurable educational achievements that include the conventional terminal accomplishments, but also intermediate outcomes, such as completing developmental education, passing college-level math and English, and persisting from term to term.

Recommendation. The GFOA recommends that colleges use both cross-sectional and longitudinal analysis of student performance. The following additional considerations apply to analyzing student data.

- **Disaggregate.** For both cross-sectional and longitudinal analysis (but particularly longitudinal analysis), colleges should consider disaggregating data in order to learn more about the performance of different segments of the student population. Key dimensions to disaggregate include age, race, gender, and income.¹⁰ Other dimensions may also be informative, such as full versus part-time enrollment for students' first term.¹¹

- **Use existing practices as a starting point.** Colleges should consider using existing measurement requirements or practices as a starting point for student achievement analysis. These requirements can establish a foundation for what is to be assessed and how it is to be measured. It may also make it possible to compare student achievement in one college to similar schools elsewhere. Relative performance data help guide the process of establishing goals.
- **Capture information across the college experience.** The measurements that colleges track to analyze student performance should capture information across the range of the student body's college experience, accommodating students' different starting points and goals. Examples of such measures could include:
 - Developmental education progress (e.g., completion of college-level math or English/reading course; completion of developmental education).
 - Two-year metrics (e.g., retention; completion of target number of units).
 - Completion/transfer (e.g., percentage of students transferring to four-year institutions; percentage of students completing certificates; percentage of students completing associate degrees).
 - Six-year metrics (e.g., percentage of students who completed/transferred after six years; percentage who left with no award; percentage still enrolled).
- **Track other measures relevant to the college's particular circumstances.** Colleges may track other measures that are relevant to their responsibilities. For example, colleges that provide a large number of ESL classes may want to develop measures to assess the impact of that investment. (For example, how many students who enroll in ESL eventually take and complete the course that marks proficiency in English?) Colleges may also track student use of college resources, such as student withdrawals, course waiting lists, low enrollment classes, etc.

A Model Measurement System

The American Association of Community Colleges offers a framework of measures that were developed by and for community colleges specifically. Information on the Voluntary Framework of Accountability, including technical guidance, can be found at the association's [website](#).

III. INTERNAL CAPABILITIES

Background. The college's capabilities as an organization are one of the most important determinants of student success. Colleges should examine the facets of organizational capacity that have the biggest potential impact on student success and budget.

Recommendation. The GFOA recommends that a college analyze its internal capabilities to address the following issues:

- **Human resource capacity.** Staff members are a primary component of an effective community college. However, many, if not most, positions may be part-time or adjunct, resulting in distinctive human capital development challenges. Accordingly, colleges should analyze their human resource capacity so that they can direct investments in human capital wisely. For example, colleges should examine the level of support for professional development, particularly that which helps full-time and adjunct professors become better teachers for academically unprepared students and/or those from minority populations.¹² Colleges might also look at how teaching talent is aligned with student demand. For instance, how do course offerings and instructor skills match up with the courses students demand?
- **Student needs and integrated support for student services.** Community colleges are accessible institutions that must fit the needs and schedules of a wide variety of students. Consequently, challenges can arise when advising and supporting such a diverse audience. A community college should examine how it provides integrated support for students so that it can develop and fund new or different support services as need arises. This might include, for example, the program of study structure. Degree, certificate, and transfer preparation programs should outline courses that students are expected to take, including core elements, sequencing requirements, and where applicable, corresponding electives. Colleges should also analyze their non-academic support system, focusing on what students need to succeed and whether they are getting it. For example, students might require additional assistance with developing college success skills, clarifying personal goals, researching financial aid options, or obtaining social services.
- **Acceleration of remedial students.** Community colleges often must provide services to many students that need academic remediation. Consequently, remedial or developmental instruction is

a large component of college budgets. Community colleges should analyze how they serve remedial students and look for ways to improve the outcomes of developmental programs. This might include, for example, the structure of the remediation program and methods to accelerate students through remediation.

IV. EXTERNAL INFLUENCERS

Background. Colleges are subject to a variety of outside forces that can have an important influence on the budget.

Recommendation. The GFOA recommends that colleges consider at least the following three forces when assessing external influencers.

- **Labor market analysis.** Labor market analysis looks at potential employers' demand for the skills that the college teaches – or could be teaching – its students. Labor market data can be used to decide which programs to offer and how many graduates the college should try to produce, assess the college's success in helping students succeed in the labor market, help students make informed choices about which programs to enter based on the availability and compensation of employment, and advocate for the college by demonstrating positive employment outcomes for its graduates.¹³ More precise analysis can even identify the point at which students have taken a sufficient number of credits to make a material impact on their subsequent earnings in the labor force.¹⁴
- **Gathering stakeholder perceptions.** Colleges should also gather more qualitative information on stakeholder perceptions. For example, colleges should regularly conduct surveys and focus groups with students, faculty, and staff to identify strengths and weaknesses in programs and services, as well as opportunities for improvement.¹⁵ Discussions with employers can also be helpful for gaining a deeper understanding of how to match the college's services with the labor market.¹⁶
- **State and federal legislation.** Colleges are subject to state and federal legislation that impacts operations and as a precautionary measure, should take appropriate steps to become aware of new or changing legislation that could impact the budget.

Endnotes

¹ Simply looking at rates may provide a misleading view of the tax burden on the community if property values have been changing significantly.

² Forecasting science expert J. Scott Armstrong describes "strong empirical evidence" in favor of using quantitative over qualitative methods as a general principle of forecasting. See J. Scott Armstrong, ed., *Principles of Forecasting* (Boston: Kluwer Academic Publishers, 2001).

³ See Spyros Makridakis and Michele Hibon, "The M-3 Competition: Results, Conclusions, and Implications," *International Journal of Forecasting* 16 (2000) 451–476. The "M Competitions" were a series of three forecasting accuracy tests conducted over almost a 20-year period by Makridakis and various colleagues. The results have been widely studied, replicated, and cited.

⁴ Spyros Makridakis, Robin Hogarth, and Anil Gaba, *Dance with Chance: Making Luck Work for You* (Oxford, England: Oneworld Publications, 2009).

⁵ Armstrong, *Principles of Forecasting*.

⁶ Davis Jenkins, "Institutional Effectiveness and Student Success: A Study of High- and Low-Impact Community Colleges," *Community College Journal of Research and Practice*, 31:12 (2007).

⁷ Joanne Bashford and Doug Slater, "Assessing and Improving Student Outcomes: What We Are Learning at Miami Dade College," Report No. 2 in the Culture of Evidence Series (Community College Research Center/Achieving the Dream, January 2008).

⁸ "Field Guide for Improving Student Success," Achieving the Dream.

⁹ D. Timothy Leinbach and Davis Jenkins, "Using Longitudinal Data to Increase Community College Student Success: A Guide to Measuring Milestone and Momentum Point Attainment." *CCRC Research Tools, No 2* (New York: Community College Research Center, January 2008).

¹⁰ "Field Guide for Improving Student Success," Achieving the Dream.

¹¹ Leinbach and Jenkins, "Using Longitudinal Data to Increase Community College Student Success."

¹² Jenkins, "Institutional Effectiveness and Student Success," pp. 945-962.

¹³ "A Guide to Labor Market Data's Power to Improve Student Success," The Aspen Institute College Excellence Program.

¹⁴ Davis Jenkins, "A Short Guide to 'Tipping Point' Analyses of Community College Student Labor Market Outcomes," *CCRC Research Tools, No 3* (New York: Community College Research Center, April 2008).

¹⁵ "Field Guide for Improving Student Success," Achieving the Dream.

¹⁶ "A Guide to Labor Market Data's Power to Improve Student Success," The Aspen Institute College Excellence Program.