SACUBO 2019 BEST PRACTICE ENTRY

Using data analytics to find ways to refocus the Budget

Sandra Hudgens, CPA
Director Accounting Services
Oklahoma State University Institute of Technology

Michelle Canan
Director Institutional Research
Oklahoma State University Institute of Technology

Abstract

***The Challenge**:*

Oklahoma State University Institute of Technology has been and is continuing to face many challenges (especially financial) that demand adaptations and solutions. Appropriations from the state have been reduced for a number of years. The number of college age students in the state has been shrinking resulting in increased competition among higher education institutions. The salaries and benefits required to keep a well-educated faculty have been increasing. At the same time, academic units need to be able to meet the needs of their students while limiting sacrifices in the form of budget reductions. Resources need to be reallocated to maximize return while at the same time minimizing harm to the academic units in the reallocation process.

The Solution:

A national accounting and auditing firm presented a new tool that calculates contribution margin, the actual net revenue generated from a class by comparing the revenue generated from each student in the class with the cost of the class. Business officers often try to compare the cost of an academic endeavor with the value it adds to the world. This is a daunting task with infinite variables. The contribution margin analysis (CMA) tool that was presented reduced the variables to a manageable level while relying on factual information generated from our financial and student system.

The tool came along just as we were trying to find an objective way to evaluate performance of academic programs so the academic team could decide how to reallocate resources. We contracted with the company to provide the contribution margin of each class and it helped us see what the costs are for classes, programs and instructors and to compare that with the revenue generated by the same metrics.

I. Introduction of the Organization

Oklahoma State University Institute of Technology – Okmulgee, is located in Okmulgee, Oklahoma. The university was formed in 1946 at the site of a former military installation as a place to provide veterans a skill set that would allow them to be productive members of the community. OSUIT's degree programs are consistent with emerging market trends and prepare students to fill a continued demand for highly qualified industry professionals.

Located in America's heartland, OSUIT partners with global corporations to develop academic coursework and practical training environments using industry-caliber equipment to create a seamless classroom to career transition.

II. Statement of the Problem

The university receives funding from the state of Oklahoma through appropriations from the Oklahoma State Regents for Higher Education. Those appropriations have decreased thirty-two percent from four years ago, putting our state funding levels at about what they were in 1995. For the first time since our creation, student tuition and fees will be more than state appropriations for fiscal year ending June 30, 2019. Fortunately, the university reserves were used to absorb the reduction in state funds in the short term but a long term solution was needed to reduce spending in a way that did not damage our mission.

The academic units are called upon to teach students in classrooms and maintain the academic rigor to maintain accreditation. They also must supervise interns at the sites of industry

partners, and allow students to actually perform tasks on industry standard equipment in a safe and educational environment. These various tasks are difficult to evaluate and could be subject to interpretation as to what tasks are most important and which ones are the most cost effective. The standard academic guidance of teaching lecture type classes of one hundred students will not work for our requirement of instilling hands on training with specialized equipment specific to an academic program.

Budgets of academic units are usually created based on what was allocated last year. It is difficult to find a way to reduce that budget without causing disruption to the academic product or to what courses students may need to complete their education. Without a tool to relate actual costs to revenue, there is mainly subjective and antidotal evidence of how much resources each academic unit needs.

III. Design

The firm had created the tool which had initially been used by some private institutions of higher education. Their research showed that these types of institutions needed to contribute seventy percent of their costs for the institution to be successful. This became an important detail since public universities do receive state funding. It also became an important benchmark because even if public universities could not contribute seventy percent to their costs, they could be expected to contribute some towards their costs. It also demonstrated that costs and corresponding revenue could be tracked and reported to the stakeholders of the university.

We contracted with the firm to provide the contribution margin of each class. The firm provided a list of data files that would be needed. The data could be in excel files which are familiar to employees of the firm and employees involved at the university. Faculty compensation and benefits were put in a file with term, academic unit and year. Student billing files were built to contain student name and ID, charges and discounts or waivers and term. Student enrollment data was pulled into a file. The file included student name, term, and course section. The course section data was gathered into a file. Finally, course rosters were built including course ID, section, instructor and term. A few additional files contained information about academic unit deans, direct support staff and direct expenditures.

The firm took those files and found the links that would connect them. For example, the student ID and term in the enrollment file, billing file and course roster file, was the common element that generated the revenue per student per class. The revenue for each student took into consideration the tuition and fees charged to the student less any discounts (institutional aid). The course section data was connected to the faculty payroll information by employee ID, academic unit and term.

The state appropriations amount was not included in the data supplied to the firm. This kept the calculations and estimates to a manageable level and also only used data that directly related to courses.

IV. Implementation

The firm scheduled a conference call after providing access to the data on a secure web site. They demonstrated the capabilities of the tool. The reports could be viewed and or printed as a

whole, by academic unit, by academic year, by instructor, or by course section. The intent to engage in this study had been shared across campus, so the fact that there was a study was not a surprise to the campus community. Reports were shared with the academic leadership right before a break so the results could be reviewed and assimilated before being presented to the campus as a whole.

After the analysis was completed, the results were immediately presented to each dean. Each dean was then tasked to develop an action plan to increase their contribution margin to at least break even if any of their programs had a negative contribution margin. As part of the action plan, each dean created short term action items and long term action items.

The short term action items created an immediate impact on the financial condition of the University. In the first year, the University saw an increase in contribution margin from -15.6% to a positive 4.8%. The University also saw an increase from a negative $1,868,000 contribution margin to a positive $590,000!

V. Benefits

The contribution margin analysis allows deans to help instructors to be more effective and successful. It enables deans to compare programs with the exact same number of credit hour requirements, to see why one program is successful financially and one is not. It allows the University to see the value of all courses, sections, instructors, programs, and schools. It also allows the University to set proper academic service fees for each program. OSUIT is looking for continued financial and operational improvements because of this tool.

IV. Retrospect

The data was pulled from two different ERP systems due to a conversion during the time period of the study. This caused some data to not be consistent which required it to be reviewed to ensure the data was comparable. The cleaner and more consistent your data is, the better the results will be.

Contracting with an independent external firm added value to the results. The objectivity of the firm ensured that all parties on campus feel like the results are valid and based solely on facts. If the university employees charged with gathering the data had also been the ones to analyze the data and prepare the results, they would not have been as objective as the firm. This helps the campus accept the results as a true measure of their activity. When questions arise about how a number is calculated, the data can be pulled from the reports. For example, a course without a cost was found to have been taught by an instructor in another academic unit.

The campus was eager to see the results of the fourth year of the study to see how the improvements they had implemented changed the CMA.