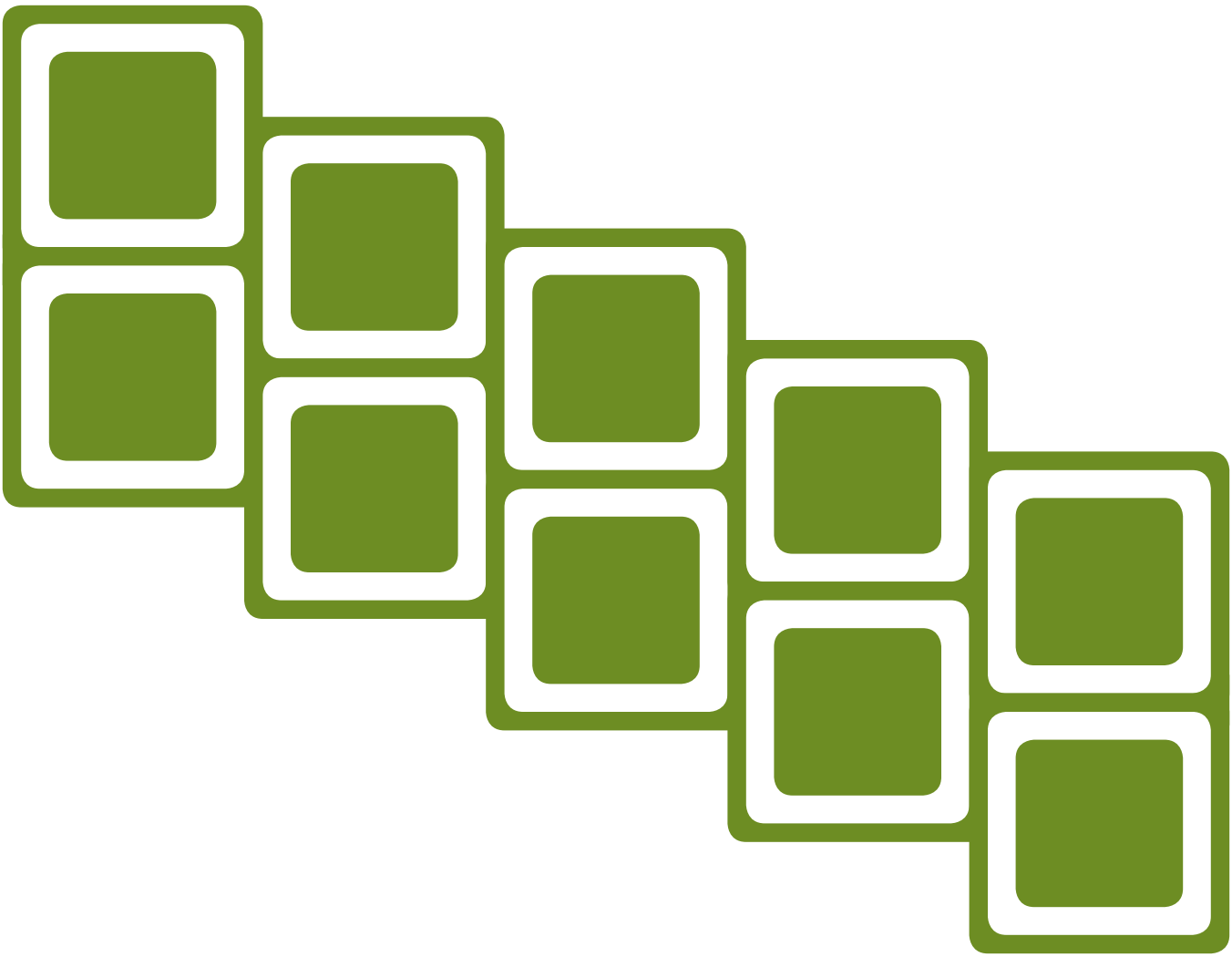
Summer Academe, Volume 7, 2013

Conference Papers



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Summer Profitability Challenge: A Compelling Case for Business Intelligence

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Abstract

To strategically assess the profitability of its summer session, Miami University began an initiative known as the Summer Profitability Challenge project, focused on managing summer enrollment while measuring and containing costs. The project team included representation from across university divisions. The challenge was to bring together pieces of technologically disconnected data and report them as usable and actionable information to support administrative decisions that would increase profitability. As the project progressed, the value and substance of the powerful business intelligence methodologies allowed the team to cross seemingly insurmountable barriers. The initial challenge—detailed and innovative reporting for effective decision making in a real-time environment—was met. Further, the team debriefing following Phase I of the project revealed the value of the collaborative effort as well as best practices in alliances across university divisional divides. In this article, members of the team share this business intelligence case study, an application to a summer session revenue-sharing and profitability model with data and reporting, and the best practices and outcomes revealed by the project.

Summer sessions are now, more often than not, academically and fiscally integral to the life of the university and its students. Incorporated into the unique culture of each university, academic offerings in summer extend the student learning experience through innovative opportunities that add value to the degree program and allow students to strategically manage their academic careers, even as the flexible offerings generate essential supplementary revenue for the institution.

The Miami University summer session has operated under various formal and informal administrative structures, including centralization in the continuing education unit until the early 2000s. At the time of this project, it was decentralized, with responsibilities spread throughout the academic affairs and business affairs divisions. Along with these transformations in structure, Miami, like many universities with summer session operations, has experimented with various financial models and academic calendars intended to increase enrollment and revenue and to serve student needs.

In fall 2008, the provost and the vice president of finance and business affairs asked selected university staff to develop reporting to accompany a recently designed and approved entrepreneurial financial model for summer session, dubbed the Summer Profitability Challenge. It was to strategically and quickly increase profitability of the university summer session by increasing revenue and decreasing expenses, while meeting students' academic needs and faculty's expectations. To confront the challenge, administrators in decision-making roles needed data in a context relevant to the parameters of the summer session financial model: course revenue and expense.

A group of administrators met in early October 2008 to begin the reporting project under a mandate to have the information in place for summer 2009 for main campus courses (excluding continuing education workshop courses); this target required divisional deans to have access to the information by mid-April 2009 for timely decision making about summer session. The initial team included the associate vice president for finance and business affairs, the bursar, the controller, and the director of continuing education.

The small group quickly mapped out the parameters of the financial model and necessary reporting elements, including the required data, but encountered a barrier in the implementation of reporting because of the critical need to first connect and merge student, course, and financial records and data for effective contextual reporting from separate and distinct registration, bursar, payroll, and business modules in the SunGard Banner Enterprise Resource Planning System. A member of the small group consulted with the university's Information Technology (IT) Services, and the project team immediately expanded to include the senior director and the assistant director of IT Enterprise Services, who offered business intelligence solutions. The addition to the group of these personnel, with their expertise, proved to be the catalyst for innovation and progress.

Business Intelligence

Business intelligence, or BI, is a broad term referring to a wide range of activities used to evaluate and analyze an institution's distinct raw data, allowing data to be turned into information. Combinations of applications are used for gathering, analyzing, accessing, and storing data used

to support and improve the institution's decision-making processes. The focus of BI is to provide accurate, consistent, and timely information directly to decision makers. The information provided must be easily accessible and actionable, and must provide new insights. BI is a commitment to a long-range program, not a short-term project.

At Miami, the BI team is administratively housed in the IT Services division, within Enterprise Services, and led by the assistant director of the Business Intelligence Center. The initiative is a team effort to develop and support the use of data warehouses, analysis tools, and information products that assist university staff in making critical data-driven decisions. The goal of the initiative is to ensure that faculty and staff have secure, effective access to the information and data needed to fulfill their responsibilities. The strategic resources provided through the initiative are intended to serve as a foundation of the university's success in fulfilling its mission, vision, and goals.

The solution created collaboratively for the Summer Profitability Challenge utilized Banner data from the student, payroll, accounting, and bursar modules. These data are loaded into Oracle-based star schemas and then into data cubes for access. The cubes are accessed through Microsoft Excel for a limited number of users. The stars and cubes are part of the university's data warehouse implementation.

At the time of the project, Miami University did not own a BI tool suite of programs, so the team developed the data needed for this challenge with the tools on hand. The decision to use the tools already on campus significantly lowered the cost of the project and allowed the BI team to start developing a solution very quickly.

Once the IT and BI expertise was brought in, the Summer Profitability Challenge reporting project developed to serve several critical purposes, in addition to the original charge to develop detailed reporting in a timely manner for critical decision making about summer session. One such purpose was to educate staff about BI; another was to measure revenue and contain expense in a period of economic deterioration. The specific challenge identified was a need to forecast the profitability of summer term courses, with the aim of improving the projected financial position. For the summer session to be considered cost-effective, under the Miami University financial model, the course portfolio had to be collectively profitable and reported on in a timely and accessible method, at the course level, by department and division. The combined enrollment, revenue, and expense details had to be efficiently reported to deans, directors, and other administrators, and had to allow for effective operational decision making within the parameters of the summer financial model.

The financial model required data from disparate modules: revenue from the bursar systems, salaries from the payroll systems, course details from the registrar systems, and expenses from the accounting systems. The data aggregated in Banner are not unitized, and the initial challenge became breaking the data into a usable form. After considerable discussion, the usable form was determined to be by credit hour at the student level, and this credit-hour distribution was accomplished with an allocation algorithm. In Phase I of the reporting project, each course had a designated account where data were collected (registration as well as finance). One example is tuition, which comprises an instructional fee and other fees calculated at a per-credit rate; it was applied to each course by the number of credit hours for each student registered. Similarly, the

fee waivers are calculated at the per-credit-hour rate and were applied to all courses by credit hour for each student registered. On the expense side, salary and benefits are charged by payroll to the designated account, as are any other course expenses. The result was that all revenue, waivers, and expenses were compiled under a course-designated account.

The team successfully accomplished the original goal: reporting. By late April 2009, statements were being generated and distributed daily to the divisional deans and other administrators that detailed—by course, and rolling up to department, division, and university—all revenue, waivers and institutional aid, and expenses, plus cumulative information at all levels. Data previously disconnected in Banner were joined through BI methodologies and packaged into usable information. Calculations introduced in the reporting revealed the up-to-date surplus/deficit detail. The statements allowed for go/no-go decisions based on timely financial and registration information.

Outcomes

At the end of the first summer, the project team discussed the outcomes. The team agreed that the fundamental project goals were met: among them, successful delivery of reports allowing administrators to forecast summer term profitability. The deliverables—reports detailed by course, department, and division, and in aggregate—were updated and distributed daily beginning May 1 and throughout the summer, in PDFs. The reports allowed administrators to make data-driven decisions, in real time, then see within hours the impact of those decisions on enrollment, revenue, and expense. Administrators gained not only information in context but also an ability to strategically manage their summer course portfolios in a way that maximized revenue and deliberately controlled expense levels, while examining the distribution of resources. The aggregated information, effectively delivered and strategically monitored, advantaged academic administrators' tactical decisions. According to collected data, the enhanced reporting and access to real-time information in context resulted in the reduction in summer session expenses of 7.35%, or approximately $400,000. Business intelligence and analytics opened the way for end users to go beyond the boundaries of the core data, through integration of the data with relevant context. Through the reporting generated using BI methodologies, administrators gained an ability to monitor trends, detect significant activity, and illuminate issues.

An additional benefit of the process and of the reported details was an increased understanding of summer session and student needs from many perspectives. The team members noted a broader-based ability to understand the profitability of a university summer session and an appreciation for the components underlying the basic model. Drilling down into the data allowed for an increased awareness of fee waivers and institutional aid and their impact on university budgets and the summer session. In addition, through the project team experience, members found they had a better understanding of the responsibilities and business practices in each of the units represented on the team and in the academic departments and divisions. This enhanced understanding allowed for input into efficiently revising and updating practices and processes throughout the university to improve alignment across departments and offices.

An important outcome of the first phase of the project was the revelation of the power and potential of business intelligence. The broad representation on the project team allowed academic and financial support units and staff to become familiar with the concepts, structure, and maneuverability of BI, as well as the advantages and benefits of the applications for critical decision making. As a result of exposure to the fundamentals of BI in this first scaled project, project team members gained an amplified understanding of university functions and business processes, fiscal and academic, and a deeper appreciation of the components of revenue and expense, at the course, departmental, and divisional levels, as well as in the aggregate at the university level. The most compelling result of the project is the university's ability to manipulate data to apply in decisions made at each level in the hierarchy, using a common and consistent base for critical judgments.

Lessons Learned and Best Practices

The lessons learned from the Summer Profitability Challenge are many, but most importantly, in hindsight, the team recognized that IT Services staff should have been brought to the table earlier in the process. The BI and IT team members bring exceptional information and data management abilities, but they also bring project management expertise and systems perspectives. The team found that introducing not only IT Services, finance, and academic affairs staff but then general accounting, bursar, registrar, payroll, and human resources staff to the project, and phasing in campus consultants as needed, served to break down the traditional silos found in the university systems. The Summer Profitability Challenge project became an exercise in genuine collaboration across university divisions and diffused responsibilities.

Practices that proved to facilitate success included documentation, continuing robust commitment to the project, and breaking out questions for expert attention. In debriefing after the first year of the project, the team agreed that documentation is vital in moving forward a project of this scope. Team members rotated (alphabetically by name) the task of taking minutes, recorded decisions as they were made, and used wiki technology to organize and log details and create an ongoing reference. The value of documentation in project management cannot be overstated.

Stalwart commitment to the project, from the top down, was critical. The project enjoyed encouragement from two vice presidents. The team agreed that regular attendance at the weekly meetings definitively moved the project forward, and the project sponsor set the tone by attending every meeting and fully participating. Furthermore, essential subgroups were formed to focus expertise on specific issues and details; they met outside the regular weekly meeting, reporting back to the project team. The work of these subgroups allowed the project to move forward; issues and unanswered questions did not become barriers.

Institutions that consider adding BI methodologies and structure in their systems should carefully consider the long-range framework and ensure commitment to the requirements from top-level administrators. As proven in Miami University's initial project, commitment comes in the form of human and technological resources. Understanding the concepts and methodologies through a pilot project using the software and resources on hand allows staff to consider options and needs before committing to a suite of dedicated tools.

Conclusion

None of the members of the small group meeting in the fall of 2008 could have predicted the ultimate scope of the Summer Profitability Challenge project. Phase II of the project increased its complexity with the addition of 250 flexibly offered credit workshops, operating through continuing education, and approximately 550 courses with about 9,500 students. The new offerings led to both substantial revenue and expense.

The project team has added members and others dropped off, but the project continued for another year to successfully reach goals and meet every challenge put forward in a collaborative and strategic manner based on BI methodology. In the spring of 2012, the Business Intelligence Center implemented Oracle Business Intelligence Enterprise Edition, which was selected as the university's BI tool suite. The methodologies, systems, and tools developed through the Summer Profitability Project were utilized in subsequent financial aid and human resources projects and are now being employed on a broader scale as Miami University moves into a responsibility-centered management budget model.

Miami University has a rich history as one of the oldest and most distinguished public universities. We proudly maintain our sense of tradition through energy stimulated by discovery and imagination. The Summer Profitability Challenge business intelligence solutions carried on the tradition of innovation at Miami, allowing administrators and staff to progressively understand, analyze, and improve the university's financial position and cost-effectively fulfill the academic needs of the summer student.

Biographies

Lindsay Carpenter is the academic affairs manager of Budget and Operations at Miami University. She administers office operations, manages budgets controlled by the Office of the Provost, represents academic affairs on space allocation, classroom enhancement, and building renovation committees, and serves as the primary academic affairs team member on business intelligence projects.

Phyllis Wykoff has 18 years' experience in application development in higher education. Presently, Wykoff is the director of the Business Intelligence Center at Miami University and is focused on building and deploying strategic business intelligence across the university.

Cheryl D. Young is assistant provost for Global Education at Miami University, and has over 25 years of experience in continuing, online, and international education. She has administrative responsibility for international student and scholar services, education abroad, continuing and online education, the Center for American and World Cultures, and the Confucius Institute.