Managing the business of higher education

Analytics for better results

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Abstract

Analytics can help higher education institutions better understand all aspects of the business of education, from academics to finance to operations. Real-time access to a cross-campus foundation of accurate and detailed data supports effective decisions about student achievement and lifecycle, course planning, operations, purchasing, budgeting, forecasting and more.

Overview

A complex world demands skilled and knowledgeable citizens. The availability of high quality post secondary education is therefore a critical factor in spurring a vibrant economy. But institutions of higher learning currently face both increasing costs and shrinking funding, threatening their very viability.

While it is clear that universities and colleges must ensure solid funding, attract high quality staff and students, enhance course offerings and improve student achievement, the majority have little insight into how. Structural silos, paper reporting, manual financial processes: all waste precious resources and block access to the real-time information that can provide deeper insight into current and future performance.

Many universities and colleges are starting to demand better information on which to base decisions. In realms such as banking and insurance, fact-based decisions have been the norm for decades, but education has been slower on the uptake.

Performance analytics software and processes can help institutions gain new insight into:

- individual student performance across courses and disciplines.
- student and staff recruitment.
- the most effective fundraising and donor cultivation programs.
- the exact costs of curriculum.
- budget against actuals.

With better education linked to economic growth, smarter systems need to be part of a long-term institutional strategy. By setting and following an information agenda, institutions can begin transforming their operational data into new intelligence and placing it in the hands of decision-makers across the organization. Better decisions can mean leaner performance, healthy funding and a more successful student base.

Business problem

Accessing the data needed for these decisions has traditionally been a challenge for a number of reasons. Transaction-based ERP systems often lack both data manipulation techniques and real reporting capabilities. Staff often resorts to re-keying the data from these systems, or from hardcopy financial reports, into spreadsheet "shadow systems."

Besides involving cumbersome, time-consuming, manual processes, shadow systems do not allow analysis by different dimensions or drilling down into details, and do not automatically reflect system changes in real time.

To discourage shadow systems, alternatives must be easy to use and provide compelling data consistency and latency. When staff can compare data from multiple years, summarize expenses by cost centers, or see budget-to-actual numbers any day of the month, the superior insight will win them over.

A culture of analysis

Analytics and performance management software and processes bring cross-faculty information together into a single consistent foundation and equip staff with business intelligence and planning capabilities to answer the critical questions.

But performance management runs beyond the systems. It is about growing a culture of analysis around the tools, the reports, the budgets, the processes, the insight. Such a culture encourages staff to think critically about its operations and processes, its incentive structure, responsibility and accountability, and the many other factors that contribute to better performance: academic, financial and operational.

Business drivers

In a climate of reduced funding, increasing costs and more intense competition internationally, universities and colleges need to find insight to support educational improvements, leaner operations and more agile budgeting. Performance and predictive analytics can produce new intelligence in all of these realms.

Creating a better, more cost-effective curriculum

Course and curriculum planning can be an unwieldy process. Attempting to track trends in course enrolment and analyze relationships between curriculum and revenue using only stacks of paper representing thousands of class sections per semester is ambitious to say the least.

Using data from operational systems, analytics solutions bring all of this information together and provide access to a cross-campus view of accurate, real-time information. Campus leaders benefit from insight into:

- the classroom factors that lead to improved performance.
- course revenue performance comparisons.
- enrolment trends year over year.
- semester credit hour trends by faculty, by instructor, by course.
- faculty workload and performance information.
- cross-college or departmental comparisons.

An educational organization's ability to answer critical questions about curriculum goes a long way toward improving academic offerings, enhancing student achievement and maximizing revenue.

Improving student achievement

Although education costs have risen steadily over the last decades, we have seen no echo in student ability. Improving student achievement is goal one of many institutions. Better student performance sets graduates on the right track, improves institutional employee satisfaction and attracts high quality students and faculty.

But it is often difficult to know what needs to change. What efforts and spending are actually affecting achievement? What is the relationship between instructors and results? Having to manually pull information from the finance system and compare it with data from the student system using spreadsheets does not provide sophisticated views into educational performance, nor does it allow scenario planning around educational expenses. Most institutions are simply struggling to meet the minimum government assessment reporting requirements.

Institutions looking to find reasons behind student success and failure would benefit from an information strategy that brings cross-campus data together into a consistent foundation and allows trend analysis across multiple dimensions. Being able to compare and analyze information across faculties and departments helps clarify the complex set of factors that contribute to a single improvement, or the single factor that results in multiple improvements.

Ensuring viability

While some institutions enjoy robust financial support, many others work hard just to stay in the black. With government revenue streams drying up, tuition and fee adjustment caps, and quotas on local students that reduce out-of-area revenues, institutions must gain a stronger understanding of their sources of revenue—including gifts, pledges, endowments and research grants.

- **Maximizing endowments:** Understanding the gifting habits of corporations, foundations and major donors can help universities and college see the relationships between donors and the research programs that interest them. Tracking trends emerging from capital campaigns helps advancement maximize effectiveness mid-flight and can shed light on future campaigns.
- **Growing research:** Institutions can look at data trends over multiple years to see which infrastructure investments would pay the highest dividends by enabling more research to happen. By making better business decisions, universities can dramatically grow their research presence.

Boosting financial performance

In the face of insecure funding and variable enrolment, institutes of higher education need fast, accurate answers to spending questions. Every day, faculty and administrative staff needs to make multiple decisions. How many teaching assistants are needed for a given course? With which vendor should we negotiate better volume-based prices on scientific equipment? Where can I find free balance across multiple investment accounts? How much are we spending on postage?

Unfortunately, the people making decisions about budgets, expenses and costs instead find different answers to the same question and spend time arguing about whose numbers are right instead of making a considered decision. Such a lack of basic trust in financial data can throw the validity of the entire administrative system into question.

When staff can all look at the same budget numbers and get a clear picture of financial status and forecasts by department, campus, across the institution, or against industry benchmarks, they can:

- spot potential shortcomings and deficits.
- develop budget vs. actual quarterly reports for boards.
- develop a cost report for the government.
- comply with requirements under Sarbanes-Oxley.
- track spending in particular categories.
- create core financial reports based on revenue/expense statements, balance sheets, journal entries, procurement costs and other financial processes.

Getting data gets into the hands of high-level decision-makers can help them quickly identify problem areas, drill through to find the real causes and take immediate, corrective actions before it is too late.

Managing the student lifecycle

Many universities are seeking better ways to manage student lifecycle data from enrolment to endowment. Very commonly, multiple faculties and departments hold different types of student information, including admissions, fee payments, registration, progress and exam results. There is often no way to pull up a simple student profile containing all of that information. Any kind of analysis is impossible.

Centralizing all student data into a single profile can not only benefit the student experience, it can help staff track and analyze trends as well as comply with any government reporting requirements calling for career-long education and qualifications records.

Analytics at the University of North Texas

A student-centered public research university of nearly 35,000 students, UNT is one of the largest universities in Texas. Encouraging a culture of learning based on diverse viewpoints, interdisciplinary endeavors and creativity, the university's goals were not well served by existing information systems, which kept staff in the dark on many subjects. The cumbersome reporting method delivered reports in a format that was near impossible to analyze.

UNT's mission was simple: to give employees an easy-to-use tool for quick access to the information they needed to do their jobs effectively. The university chose IBM Cognos software to seamlessly integrate student, financial accounting and HR data so that it can gain insight into a wide range of topics. Now it can create reports in minutes that used to take hundreds of hours.

"With IBM Cognos, we can drill down into student data, identify student preferences and develop programs that are attractive to current and future students," states Dr. Allen Clark, Institutional Research Director, UNT. "IBM Cognos is helping us provide a more positive experience and attract students who will thrive at UNT."

With information always at users' fingertips, the solution has replaced processes that were inefficient or non-existent. "This has thrilled our user community and we have heard nothing but strong, positive feedback."

The solution

Education can no longer rely on paper-based processes and siloed data in disparate systems. A broad view of information on students, instructors, curricula, operations and finance provides the new intelligence needed to make education truly effective.

IBM Cognos analytics

With IBM Cognos analytics and performance management software, educational institutions can begin transforming their data into insight. With trusted, accurate and timely information on critical factors such as student performance, attendance, instructor effectiveness, funding sources and spending, decision-makers can optimize organizational performance and ensure student success.

After integrating data from core financial, operational and academic systems into a real-time, easy-to-use, consistent foundation, Cognos analytics and performance management solutions offer enterprise planning, consolidation and business intelligence tools that help education organizations understand and manage performance. With core capabilities such as reporting, analytics, dashboards, planning, and scorecards, institutions can cut the effort involved in delivering intelligence to staff and help them make better decisions.

Cognos also offers a suite of Performance Blueprints—free quick-start models that speed software deployments and drive faster return on investment. For higher education these areas include enrolment and tuition planning, and salary planning and position control.

By uniting information and making it available across the institution, universities and colleges can:

- **Deliver real-time information:** Besides saving hundreds of person hours to manually compile reports, Cognos analytics ensures instant access to data through a simple mouse click. Departments can better gauge overall performance, conduct comparative analysis and perform ad-hoc queries. Analytics tools help overcome complexity and get information to decision-makers in a timely and robust fashion, improving accountability and strengthening financial performance.
- **Take the emotion out of decision-making:** When information is consistent, accurate, trusted and available to all, decisions can be based on facts rather than myths, assumptions, politics and persuasion. While instinct and

experience provide important input to decisions, there is no arguing with enrolment numbers, expense tallies, staffing trends and student marks.

- **Take the right action at the right time:** Schools can be large, decentralized, complex organizations—like a business with many small subsidiaries. A $2 billion institution might not notice right away if one department falls into a $300,000 deficit. But keeping abreast of financial performance in all areas is critical to success.
- **Ensure insight is pervasive:** Many institutions believe that the more faculty and administrative staff engaged in budgeting and monitoring performance metrics, the better. While more pervasive access to performance management systems can lead to tougher questions, this is how problems are resolved and performance improved.

Performance management best practices

Institutions that have implemented analytics solutions have discovered a number of factors that lead to success. They include:

- **Start small and grow:** Select a single, critical issue, such as budgeting, and focus on this project initially. Once up and running, expand to other areas, carrying the experience and knowledge earned with the first project.
- **Have a leader:** Executive sponsors and leaders from the president on down can help lead by example and ensure accountability. Once people understand the benefits of the technology, use will spread rapidly.
- **Promote information self-service:** Besides removing the reporting burden from IT, self-service puts strategic information in the hands of decision-makers at all levels. Self-reliance contributes to the culture of analysis that supports performance management. Users can answer 10 questions on their own, and then have enough detail to ask deeper, more serious questions among colleagues.
- **Set up a committee or competency center:** Having the technology is one thing; knowing what kinds of reports are needed, evaluating how the current ones can be improved, and how best to deliver them to various users is another thing altogether. A group of cross-disciplinary, cross-faculty staff focused on these questions is invaluable.

Analytics at the University of Wollongong

Ranked as Australia's top university for educational experience and graduate outcomes for the last five years, the University of Wollongong counts the pursuit of excellence among its goals.

Realizing that access to reports and analysis was far from excellent, the university set its focus on improving access to information. With over 21,000 students spread across six Australian and international locations, departmental and geographical silos had resulted in a disparate and inaccurate reporting experience. Available only through an intermediary, the reports failed to offer users timely access to management information in a consistent format.

The university now uses IBM Cognos business intelligence software to unite information across departments and locations and let users create detailed and high-level management reports, graphical digital dashboards, and KPI monitoring through scorecards. IBM Cognos planning software unites data from over 680 cost centers to provide high-level faculty and department budgets and forecasts. Together, they provide comprehensive information on progress against goals and the insight needed to improve university performance.

"The Cognos performance management solution has not only allowed our users to understand the many aspects and dimensions within the University of Wollongong, but also to find efficiencies and drive effectiveness in those same areas," says Nikita Atkins, Project Director of Performance Indicators at the University of Wollongong.

Conclusion

IBM Cognos software helps education organizations align data and ensure that accurate, timely information is available to all who need it. Many of the top educational institutions have already chosen Cognos to deliver optimal educational programs and improve student performance —including more than 1,000 institutions of higher education, over 530 primary and secondary school districts and boards, and more than 20,000 schools. Thirteen U.S. state departments of education and the U.S. Department of Education trust their performance to Cognos.

Better insight into all aspects of education—trends, anomalies, best practices—can help us make education smarter and ensure the most critical outcome: student success.

For more information on Cognos solutions for education please visit www.ibm.com/cognos/education.

About IBM Cognos BI and Performance Management:

IBM Cognos business intelligence (BI) and performance management solutions deliver world-leading enterprise planning, consolidation and BI software, support and services to help companies plan, understand and manage financial and operational performance. IBM Cognos solutions bring together technology, analytical applications, best practices, and a broad network of partners to give customers an open, adaptive and complete performance solution. Over 23,000 customers in more than 135 countries around the world choose IBM Cognos solutions.

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