From identifying at-risk students and encouraging faculty technology adoption, to building a better understanding of target markets for enrollment and more, institutions require more accurate, consistent, and usable data.

According to a study conducted by EDUCAUSE and the Association of Institutional Research (AIR), more than 80% of IT and IR leadership consider analytics a priority for higher education’s continued success.1

Analytics and data warehouse solutions can empower organizations to collect and act on institutional data at a greater scale and with higher precision than the rudimentary reporting tools available through campus SIS, ERP, and LMS systems. In

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order to do so, however, institutions must first understand the steps to make sure their investment in analytics is effective and successful.

In this paper, we have drawn on the experience of a wide range of institutions as well as insight from industry experts and leadership to assemble four key steps that will help justify the cost of an analytics strategy in higher education.

1. Identify the Problem(s) to Solve

The institutions that are most successful with analytics and data warehousing adopt their solution with specific goals in mind, and start by clearly identifying the problems they hope to solve.

The key findings in “Analytics in Higher Education: Benefits, Barriers, Progress, and Recommendations” emphasized the importance of understanding the institutional need for analytics up-front, before diving headlong into implementation. Further, the successful organizations surveyed in the research tended to follow a consistent process:

- Target an institutional problem.
- Determine how data can be applied to address that problem.
- Resolve the issue piece by piece.

Schools that seek to utilize analytics without going through the first two steps of this process often find that they have acquired a tool in search of a problem, or that they do not know how to apply the data they’ve collected. It is crucial for institutions to formulate initial questions and use-cases, so that they may determine how best to support their goals. “If an organization has a vision of analytics early on in the project and can build a sense as to what they want to accomplish before starting to implement, then that is time well spent.”

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In “Building Organization Capacity for Analytics,” authors Donald M. Norris and Linda L. Baer explore where analytics can provide the greatest opportunity, as well as the accelerators that can “create a sense of urgency” around their adoption. They find that certain strategic analytics initiatives – particularly those that involve accessing data across the student lifecycle – offer institutional leadership the greatest value. These opportunities (Figure A) are a good starting point to consider for any analytics initiative.

Figure A

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Research aside, institutional challenges are always unique, and there are several approaches an institution may take to identify the best problem or problems to solve first with analytics. The
issues could be questions of particular urgency within an organization, or challenges where a school or a department needs more data to solve a problem effectively. Central Piedmont Community College (CPCC), for example, first used Blackboard Analytics to help improve services for new students. Their focused efforts acted as a catalyst for analytics adoption across the institution.

David Kim, Chief Information Officer at CPCC, describes the school’s process. “Our campus had many needs that Blackboard Analytics was intended to solve,” he says. “We needed to prioritize these needs as well as find an initial use that would provide a positive proof point for the solution. The student intake committee became that proof point. This committee was formed to rapidly improve our service to new students entering into the college. We were focusing on the areas of admissions, enrollment, and financial aid. All of these departments had to review all processes for barriers of entry. We used Blackboard Analytics to help them assess their departments for areas of strengths and weaknesses.”

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2. Determine Whether to Build or Buy

According to data from EDUCAUSE, the purchase and implementation of analytics, particularly data warehouse and business intelligence dashboards, are anticipated to grow substantially (Figure B) over the coming years.

For the many institutions that will determine whether an investment is needed, another question quickly emerges: whether to build or buy their solution.

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There are several different approaches an organization might take, but they typically center around three options:

1. **Build an analytics solution entirely through internal resources.** This means hiring relevant talent such as database architects and developers or pulling existing resources off of other projects.

2. **Hire a consultant to build a custom solution.** For many schools, this may facilitate a custom solution at less cost than hiring new resources to build a tool on their own, but future maintenance can prove expensive.
3. **Buy a solution.** This approach is often most cost-effective, and encompasses a range of products, from the generic to those highly specialized for higher ed.

According to “BI Reporting, Data Warehouse Systems, and Beyond”, robust analytic environments should also integrate seamlessly with business intelligence (BI) tools “in a way that produces meaningful and actionable analyses” that go beyond static reporting. As such, institutions should consider the depth of integration their chosen solution provides with available BI systems and partners. Some vendors even provide pre-built dashboards and reports within their solution built specifically for higher ed.

Ultimately, an institution’s goal should be to acquire a tool that fits their unique business process – not one that they must change their process to use. Thus, an analytics platform should be tailored closely to the school’s unique student and institutional profile.

Additional factors used to determine the right approach for a given school include:

**Budget:** What kind of budgeting commitment is a school willing to make? Acquiring funding for products and services is often easier than acquiring funding for new positions.

**Time:** Custom development is generally a lengthy process with significant time for iteration and testing built in. For

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time-sensitive data questions, buying an analytics solution delivers a much swifter time-to-value.

**Specificity of need:** How closely does an institution need an analytics solution to map to its business processes? In answering this question, it is prudent to evaluate data processes and determine who will use the data within the organization, and how they will access that data.

It is important to note that the “buy” category contains a diversity of options, and institutions should carefully consider the capabilities of each solution. For most universities and colleges, tools designed specifically for higher education deliver a greater value – these solutions generally require less customization to align with existing institutional processes. Schools with highly specific needs may seek easily customizable and extensible platforms that can be easily tailored to specific processes and goals.

“Blackboard Analytics aligned our ERP data within the Blackboard Analytics Student Module within a very short period of time,” reports Celeste Schwartz, Vice President for Information Technology & College Services from Montgomery County Community College. “We made more progress working with the Blackboard Analytics solution in two days than nine months of previous work with a data warehousing consulting firm.”

### 3. Understand Return on Investment

Once a school has identified the problem(s) they wish to solve and an approach to the build/buy question, they are ready to consider what a return on investment (ROI) might look like.

A study by Nucleus Research concluded that for every dollar a firm spent on analytics, it got back $13.01—1.2 times more than they generated just three years ago.8

As schools seek to identify a starting point for understanding potential ROI, reviewing the opportunities represented in “Building Organization Capacity for Analytics” (Figure A) can be a good place to start. Lewis & Clark Community College, for example, used Blackboard Analytics to identify at-risk students by analyzing a multitude of student characteristics. Over just three semesters, with new data-informed retention programing in place, the college has saved over $700,000 in tuition revenue, and increased retention by 17 points.9

Considering problems like student retention through the lens of ROI can mean that even a modest improvement can lead to a substantial fiscal improvement for an institution. To highlight this further, a recent study by the Educational Policy Institute noted that the average yearly loss of revenue due to retention was nine million dollars at four-year private and public institutions.10

In higher education, the key to ROI also lies within opportunity cost. By identifying inefficiencies, improving processes and saving capital, institutions may reallocate funds to areas of need. As a reflection of this understood opportunity, the “2014 National Survey of Computing and Information Technology in US Higher Education” noted that 34.5% of institutions increased their budget for analytics solutions from 2013 to 2014.11

4. Identify Vendor Expertise and Approach
As institutions evaluate the ROI offered by a particular tool, they must also consider the specific expertise and approach of the vendor(s) they are evaluating.

Business Intelligence and other analytics tools designed for more general use-cases often require a high degree of customization or adaptation in order to meet higher education needs. When schools purchase a solution, they should seek a robust framework built for higher education – one that contains

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common logic tailored to the questions and challenges the institution faces. When evaluating analytic solutions, consider questions like:

- How will our institution use data?
- What institutional initiatives will benefit from increased access to data?
- Who are the stakeholders of the key initiatives on campus?
- How is the student and institutional data collected and where does it reside?
- In what format (examples: charts, dashboards, tables), should information be presented to help us achieve our institutional goals?
- How will each of the stakeholders access the data?
- What processes currently exist for the dissemination of data?
- How will we prioritize the needs of departments and other entities within our institution?

An effective analytics solution must have the ability to be tailored to an institution's specific processes and needs. Schools should not buy a solution based on a completely different set of practices and problems. Nor should they buy an analytics solution that carries no assumptions and requires heavy customization.

When adopting and implementing an analytics solution, it is crucial to partner with vendors that have experience in higher education – including experts who have an understanding of education’s unique challenges and needs. This is echoed within “Analytics in Higher Education: Benefits, Barriers, Progress, and Recommendations” by Jacqueline Bichsel, who categorizes expertise in analytics as an “underestimated need” in higher education. The findings in the report go on to suggest analytics is “more about the people than the data or the tools,” and encourages schools to explore and understand areas of needed expertise. “I've seen a lot of these initiatives die on the vine by
constructing from scratch,” reported Mark Tuck, CIO at Lewis & Clark Community College. “It was helpful to find a company like Blackboard that had a breadth of higher education experience already – both from a product and people perspective. With their help, we were able to make a number of quick adjustments to their data model, and then run with it.”

Conclusion
In order to effectively justify, adopt, and implement an analytics solution, schools must look both inward and outward, assessing their goals and priorities as well as the capabilities and specialization of technologies and people at their disposal. By answering these questions at the start of their initiatives, institutions may ensure more effective implementations that drive significant value, helping schools remain competitive and successful in the years ahead.

Learn more about Blackboard Analytics at Blackboard.com/Analytics
Sources:


