



Leveraging data to future-proof higher education

Higher education institutions face unprecedented challenges. Undergraduate enrollments nationwide fell by more than one million students following the pandemic. Student expectations are changing. Lower birth rates in recent years will lead to a post-Gen Z “enrollment cliff” by the late 2020s.

Addressing each of these thorny issues requires the same thing: better information.

“Humans manage uncertainty by seeking information,” says Mark Hampton, executive education advisor for Amazon Web Services (AWS). “Higher education leaders are looking for data to respond to these challenges. These are extraordinarily uncertain times, and the best way to manage that is really good information.”

In particular, better data can help institutions address a key area of focus that has only grown more important as these challenges have mounted: the student experience, which touches on virtually everything colleges and universities do.

“Universities can be doing a better job of knowing what students need and providing it,” Hampton says. “It’s about marshaling the information we have to understand those student

needs, including information we may not be aware could be of use.”

The data dilemma

The irony is that higher education institutions are already awash with data. Many created extensive data warehouses in the late 1990s as part of the wave of system modernization that addressed anticipated problems with Y2K. That was a significant step forward. But higher education institutions must now update and transform the way they manage data and turn it into action, Hampton says.

“These legacy data architectures were intended to meet a different set of challenges,” he says. “They’re good for producing annual reports and responding to compliance reporting requirements, and if we’re clever, they can respond to trends over time. But that isn’t the world we work in today.”

That’s because longitudinal views are helpful in tracking long-term trends, but today’s rapidly changing environment is “a lot messier,” Hampton says. To understand and respond to student needs in time to be responsive, institutions need to focus less on the “official record” and more on what Hampton calls “microtransactions,” the small interactions that occur throughout a student’s day on campus.

For example, data from physical access systems can yield a wealth of information. Used during the pandemic to monitor space utilization and contact tracing, this information can help determine whether students are on campus and if they’re attending classes or using the library or another facility. Similarly, other touch points — including student devices connecting to campus Wi-Fi from different locations, logins to the learning management system (LMS), or online engagement with faculty or advisors — can yield insights into changing behaviors.

“For most people, that’s throwaway data,” Hampton says. “But it becomes incredibly useful for helping institutions understand and improve the student experience.”

Turning information into insight

Aggregating what was once considered throwaway data can yield insights about facility usage and student engagement — and help answer questions such as:

- Does a student perform better if they meet for class once a week or three times?
- Do students have the information they need to succeed?
- What causes some students to fall behind?

Understanding the answers to those questions can help institutions be more responsive to student needs. For example, the microtransactions that reflect what Hampton calls “the wealth of information we are generating just by moving through the world” can pinpoint students whose behavior — such as abrupt changes in class attendance — suggest they may need support to remain successful.

Some privacy advocates may raise concerns about gathering and using such granular data. But as Hampton points out, retail and entertainment companies already routinely collect and use this type of information and much more. “These are the kinds of data collected by for-profit companies to manage the customer experience,” Hampton says. “We need to start thinking about these kinds of information to address the gaps in the information reported in formal systems.

“Of course,” he adds, “every effort must be made to ensure student data is collected, stored, and analyzed in a secure manner.”

Data isn’t just key for improving the student experience. It’s also an invaluable component of tracking and improving indicators of organizational efficiency — for example, how long it takes to process an invoice or scholarship applications. As with student data, the goal is to identify sudden changes in business processes that may suggest larger problems or require adjustments in staffing or the process itself.

“The process we have is really what determines our outcomes, and we could do a much better job of paying

attention to that process,” Hampton says. “The nice thing is that those data exist. It’s just that they’re not going to fit in that traditional data warehouse that was probably designed 20 years ago.”

Getting started

Begin with data that’s readily available and identify gaps. For example, a common retention challenge is ensuring that first-year students register for their second semester on time. While most universities have ample information on students’ progress through admissions and registration for their first semester, fewer have a handle on each student’s subsequent progress and engagement as registration deadlines approach for the spring semester. This is a critical inflection point where real-time information about student behavior is invaluable. “They don’t have someone holding their hand anymore,” says Hampton. “If we wait until the deadline, we’ve already lost the student.”

Start small. Tackle one challenge at a time to build competencies and a business case for broader data modernization. “Leaders look for the grand solution,” Hampton says. “But if you can solve one problem and then scale to solve others, you’re on the path to building a data solution that will solve your institutional challenges.”

Don’t replace existing systems — supplement them. Data warehouses remain valuable assets, but institutions need new technologies and methodologies to accommodate new types of data. “Rather than think about scrapping all those kinds of

things, think about embracing them in a larger construct,” Hampton says. For example, creating a data lake allows institutions to take advantage of structured data from existing data stores as well as new kinds of information.

Understand that data isn’t valuable in and of itself. Institutions should invest in technology that allows them to collect, ingest, and analyze data. Analytics solutions can generate real-time insights and help project future trends, while data dashboards and visualizations can help leaders make better decisions.

Consider privacy issues and ensure security. Institutions need to follow existing laws and regulations, but they also must recognize that student expectations have changed. “Given their experiences interacting online, the student of today generally knows and expects that they’re being tracked,” Hampton says. “We have an obligation to use data in ways that help students. If we know someone is in trouble because they’re not coming to campus and we can intervene, we have more than justified that use of information.”

Making these changes also requires a shift in mindset. “It’s about using data more organically and less about archiving and analyzing data once a year,” Hampton says. “The thing is to get away from the sense of data as a formal construct and consider the kinds of information we have that can help students. That’s where the real upside potential is.”

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