Transforming Higher Education with AI and Analytics

Data Strategies to Increase Student Success,
Boost Revenue, and Contain Costs in the New Normal

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"We want to capitalize on opportunities — to uncover insights and turn them into actionable intelligence for enhancing value to students, faculty, and the community."

— Jelena Roljevic, Assistant Vice President of Business Intelligence Services, Division of Information Technology, George Washington University

Adjusting to the New Normal

In the aftermath of a global pandemic, an economic recession, and a transformational shift to online operations, higher education institutions are working hard to adjust to the "new normal."

Organizations face intense global competition for high-quality student candidates from around the world. The growing availability of online and non-traditional learning alternatives, such as micro-credentials, continues to test universities' ability to modernize their offerings and how they are delivered. These digital student experiences dramatically increase the volume and variety of data that schools create, store, and need to analyze. And in the race to meet rising student expectations, institutions at all levels are facing increasing cost-containment, revenue, and profitability pressures.

Advanced data management, artificial intelligence (AI), and analytics technologies can help higher education institutions conquer these business and data-related challenges. The capacity to tap into these capabilities can help institutions adjust to the new normal by bringing applications and their data together into a unified source, personalizing student recruitment and admissions, and using analytics to improve the student, faculty, and administration experience.

Before we explore these technologies, let's delve a little deeper into the challenges confronting higher education institutions.

Maximizing Opportunities Throughout the Student Lifecycle

To survive current conditions and thrive in the future, institutions need to transform themselves.

At every stage of the traditional student lifecycle, higher education organizations must deliver exceptional, engaging experiences and services. During recruitment and admission, organizations must accurately target prospective students and communicate using their preferred channels to help attract and retain quality applicants who are a good fit for the institution's programs. Once students are accepted, universities need to create personalized experiences that minimize the number of students who say they will attend but are no-shows. For those that do attend, organizations must make them feel understood and valued so they complete their degrees. After graduation, focused alumni outreach not only ensures continued engagement, but also supports philanthropic giving and ongoing recruiting efforts.

Universities also need to develop innovative continuing education strategies for mature students. As lifelong learning and workforce retraining are increasingly a necessity for employee development, institutions need to deliver student-centric professional graduate and executive education programs. To understand which topics and learning areas offer the greatest benefit to employers and their employees, institutions may want to partner with industry experts who can offer guidance on trends and required skillsets.

Recognizing the Consequences of Ineffective Data Management

Higher education organizations need a formal structure to support integrated analytics and data-informed decision making. By putting in place intelligent data governance that enables automation and scale, organizations can deliver governed, protected, and trusted data across the entire institution. Data governance is also a critical enabler of AI initiatives. Yet many universities struggle to adopt these capabilities.

Too often data is siloed, with little or no integration across schools and administrative departments, preventing teams from realizing new insights and valuable efficiencies. As a result, students and constituents have disjointed experiences, with a lack of synergy between departments, duplication of effort, and increased costs. Data silos also inhibit progress on interdisciplinary research that can generate valuable grants and prestige.

Schools and departments often rely on different data sources and formats. This lack of consistency can impede data sharing and make it difficult to integrate data sources to gain a 360-degree view of students and operations.

A lack of data governance and ineffective data management further complicate these problems. Poor and incomplete data makes it difficult or impossible to obtain a single source of truth for better decision making. When researchers feed low-quality data into AI models, or data that isn't complete, outcomes can be unreliable. What's more, ineffective data integration and data management prevents many organizations from adopting modern technologies such as AI and analytics.

In a recent survey of institutional leaders, IT professionals, and other staff, 72% of respondents said that ineffective data management and integration challenged their AI implementation.[1]

Addressing Business and Data Challenges with a New Generation of Technology

By deploying advanced data management, AI, and analytics technologies, higher education institutions can successfully overcome these hurdles. But, where to start?

In our experience, data literacy is the biggest challenge for most institutions because maturity levels are typically low. To move forward, you need a consistent understanding of data practices across the organization. Your organization also needs to share the same language about data across departments.

Individuals should be empowered via the data governance structures to interpret data, take action upon the insights they gain from the analyses, and understand how they will measure those actions for ongoing iteration and/or change and efficacy analysis.

Powerful data management capabilities help you locate, organize, and unify data so you know what you have and can make the most effective use of digital assets. Choose a data management solution that offers the basic building blocks of your strategy: data and application integration, data governance, and a data catalog (which enables you to scan and index metadata, discover and profile data, and provide detailed lineage across data sets).

"Securing funding is critical to sustaining our world-class research, and our solution helps give us the timely data we need to accelerate the grant application process and put the university in a better position to receive funding."

— Data Architect,
U.S. Flagship State University

Containing Costs and Speeding Processing

With the intense financial pressures facing most institutions, cost containment should be the next priority in your data management initiative. Modern solutions help you replace repetitive, error-prone human activity with automated tasks — freeing human workers to focus on higher-value activities.

For example, a top-tier U.S. state university uses its data management solution to identify grant funding opportunities faster than ever before. A new database process automatically transfers updated grant data into the school's data warehouse, reducing the transfer time by 75%. Because they no longer have to initiate or monitor the process, data architects freed up 300 hours per year to work on more strategic and valuable tasks.

AI and automated analytics solutions also can help human workers quickly and accurately make sense of ever-increasing volumes of data. Automation accelerates processing speeds. By providing rapid, reliable results, the technology allows human workers to take decisive action in less time. It also helps avoid "analysis paralysis," which can hold people back when they feel that the data lack the quality needed to drive insights. Automation can help drive confidence and quality in data so decisions can be made even in the presence of incomplete or imperfect data.

[1] "EDUCAUSE Quick Poll Results: Artificial Intelligence Use in Higher Education," June 11, 2021

"Our solution helps us give students the real-time information and flexibility they need to take the right courses wherever and whenever they're offered within the UNC System, which may help them complete their requirements for graduation more quickly."

— Fran Dykstra, Associate Vice Chancellor for Enterprise Applications and Reporting, University of North Carolina at Chapel Hill

Developing a 360-Degree View of Students

Master data management solutions offer institutions a 360-degree view of an individual, which provides insight into the lifecycle of a student (from prospect to alumnus), enables personalized interactions, and allows both the institution and students to focus on student success outcomes. By collecting and storing high-quality student data, these solutions support personalized learning and flexible online options to traditional, nontraditional, and mature students.

You can use this insight to personalize recruitment communications and ensure your candidate pool is diverse and that students will be a good fit for the university and their programs of study. Given the growing need for upskilling and workforce retraining, happy graduates are also more likely to consider returning to their alma mater for other lifelong learning opportunities.

Data can help you provide academic advising and guide students in their course scheduling as well, which can help maximize the number of seats and sections available, minimize the overhiring of contingent faculty, and ensure course availability for students within their program sequence to improve time to program completion. At the University of North Carolina at Chapel Hill, for example, sophisticated data management solutions automate participation in the school's online courses and support data sharing between UNC institution systems.

Data-driven insights available from these solutions also can help determine which courses resonate most with employers. Or you can use K-12 longitudinal data with machine learning models to better understand patterns and trends in lifelong education.

> "We're setting up early warning alerts that notify us if a student has dropped below certain thresholds or might be in danger of leaving school, allowing advisors to reach out proactively to boost student performance and retention."
>
> — April Cook, Project Manager, Northern Arizona University

> "Data is the center of our universe. We can't effectively engage alumni or raise funds without good, solid, and robust information on our constituency."
>
> — Monique Dozier, Assistant Vice President of Advancement Information Systems and Donor Strategy, Michigan State University, Office of University Advancement

Improving Student Satisfaction and Retention

Enhancing retention is essential to help universities maximize class size, revenues, and profitability. High quality models can help eliminate biases against equity-deserving groups, illuminate challenges they may face, and drive key diversity outcomes for the institutions. AI and automated analytics solutions combined with modern data management technologies can also help you monitor student engagement metrics such as class attendance, cocurricular activities, and dining hall use.

To establish a deeper connection with its students, for example, Northern Arizona University deployed an education customer relationship management solution to create a single, unified view of interactions with students, prospective students, and alumni.

The university also used the solution to provide online access for additional needs, such as financial aid. Using a centralized source of student data and a variety of innovative online services, the school provides faster, more responsive service that is improving outcomes.

Building a Bridge to Alumni

One often overlooked aspect of the student lifecycle is the need to reinforce alumni ties to your institution.

By combining student data with current information on alumni attendance at extracurricular activities, fundraising contributions, and sales of sports tickets, for example, you can better identify opportunities for engagement with your school's alumni. Knowing when graduates last contributed to the university can help you avoid inundating them with donation or volunteerism requests.

Michigan State University (MSU) used its new data management, AI, and analytics systems to empower gift and engagement officers to be more strategic and effective. After integrating data from 47 source systems into a single version of the truth, the university has a consolidated, holistic view of alumni capacity to donate their time, talents, and financial assistance.

MSU reduced its consulting costs as well as the amount it spends acquiring information from outside sources. Now the institution is saving at least six figures a year thanks to its data management tools. Gift officers can segment the audience more precisely and be more strategic with school investments.

Laying a Foundation for the Future

As these examples show, a modernization strategy that includes advanced data management, AI, and analytics technologies equips higher education institutions to excel in today's environment and prepares them for a digital future. By adopting a data-first approach, higher education organizations can continue to engage students, driving learning and connection and expanding opportunities for generations to come.

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About Omnia AI

We believe AI has the power to improve organizations in transformative ways— and we'll work with you to support your AI journey from strategy to scalable implementation. At Omnia AI, we provide end-to-end solutions to complex challenges. We see new opportunities in emerging technologies that others don't. And because we're Deloitte, we're trusted advisors who work to understand your organization's objectives from all angles.

As AI is poised to rapidly change the world, we're here to:
• Show you AI's potential to tackle core organizational priorities—revenue, cost, risk, and experience— head on
• Demonstrate how AI can bring new value to your organization starting today, and set the foundation for growth tomorrow
• Bring the right people and advice to your challenges, along with the right technology to maximize the benefits

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