

Why Higher Education Institutions Need Smarter Cloud Technologies

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The Missing Higher Education Marketplace

The economy today produces voluminous digital information and this information fuels market behavior. Prior to the Internet, market information had to be gleaned from filings and other static sources. Today, real-time data is gathered every second from all sorts of transactions and communications between consumers, producers, reporters and investors. There are data points everywhere, all the time, many of them openly available.

Public higher education institutions, by contrast, compete with each other and with private, for-profit, and nonprofit institutions, in a limited market where there is scant information for students to use to make market-wise investments in their education. The job market outcomes (outputs) from most two and four-year public institution degrees are difficult to determine because education and labor data are not tracked or linked.

Higher education simply cannot provide the kind of input-output information that would power market choices. Instead, imperfect rankings, marketing materials, and word of mouth prevail.

If a truly efficient market for higher education did exist, where near perfect information was available to students about true costs and eventual employment outcomes, it is likely that a number of today's students would not attempt two or four-year college degrees while others would be able to make more informed decisions about their choices. As a result, fewer students would drop out with large debt burdens and no idea how to apply what they learned.

Instead, while more young people attend college than ever before, they drop out at higher rates. Average dropout rates at two-year and four-year public higher education institutions of about 50% indicate that the prevailing methods of achieving educational credentials are not working for the majority of those in this population. It also means that the credentials are not valued enough externally to incentivize completion. Many forward-thinking employers no longer require degrees as a prerequisite for entry-level roles.

Though many learners are opting out or dropping out of higher education, it does not mean that they are not interested in learning, having credentials or the knowledge that formal education provides. Rather, it likely means that there is not enough reliable information about the value of higher education to justify the full-degree education investment, which for most students requires costly long-term loans.

Debt burdens, lack of direct relevance to the job markets, and a sense of social isolation are the primary reasons for higher education dropouts or non-completion. In response, institutions scramble to spend even more money on new retention and student success software, customer relations management (CRM) solutions, improving campus technical and social facilities, and maintaining costly personnel to track student performance data. However, these campus investments may be further complicating the situation by driving up costs that are passed on to students.

For higher education institutions to produce the type of information to enable better decision-making for students and institutions alike, a new technology and data strategy is required that more closely resembles what exists other industries such as financial services or healthcare.

A Smarter Cloud for Higher Education?

Since the economy today runs on digital information and this information fuels market behavior, makes recommendations for consumers, and provides suppliers with current demand data, why can't some of this technology and on-the-fly data management enter the higher education space and provide "technology consistency" between learning and working?

The modern capabilities of the Internet include artificial intelligence, machine learning, natural language processing, smart apps, end-user profiles and use-data. Could there be a way to harness these for a truly competitive education market that would benefit the learner, help more institutions better focus their programs and remove much institutional inefficiency?

This type of technology – *data and vertical integration of suppliers and consumers* – has been called an *exostructure*. This means that the cross-function data processing is integrated in the Cloud, not in individual software solutions that must be separately integrated. It is the power behind multiple purchases on Amazon, management of your mortgage, investments and checking account on Chase, or the coordination of planes, rooms and car rentals for travel on Expedia.

While campuses are using Cloud services to remotely host their singular technology and data solutions, this only changes the server locations and requires third party software to extract data from each separate solution. This does not open up details and data about higher education options to consumers aggregated and analyzed in real-time.

In the US and Canada there are about 5,000 higher education institutions. Each buys expensive niche higher education software and data solutions to help operate their institution and to manage students, faculty and resources. This provisioning is part of each institution's *infrastructure*, singular to each campus.

Institutional sub-organizations in higher education are organized under the institution's presidential leadership and the provost's academic leadership. This means that each unit – *student acquisition, enrollment, academic advising, teaching and learning, career counseling and alumni management* – is organized vertically. As a result, they do not easily share information horizontally with the other units or with students.

Further, students are required to log into multiple sites and visit multiple physical offices with no uniform student-driven access to their education experience. Likewise, there are no applications or solutions for students to manage all of their learning, training or experiences across multiple institutions, training providers and work experiences. This means institutions have little knowledge about the totality of their students' activities.

When employers, government agencies and think tanks complain about spiraling higher education costs, escalating dropout rates, and lack of alignment with employers, much of this can be attributed to the inefficiencies of technology infrastructure silos on campus and the lack of coherent strategies for directly, and completely, interacting with students informed by deeper information and data about their futures.

Infrastructure Needs to Morph

To make an efficient market in higher education emerge, the technology base at the heart of higher education must transform itself through smarter cloud operations or "exostructures" that operate like the other sectors in the economy.

Institutions are not likely to move to exostructures soon, but external services could provide exostructures in ways that will provide better data to students about the outcomes of education choices in the labor markets and have students and alumni provide, in turn, better data back to the institutions about what pays off and what does not over time.

Below are descriptions provided by two very respected consultancies on the cost factors, inefficiencies and confusion of non-integrated campus "infrastructure" versus the benefits of an "exostructure strategy" for higher education.

Infrastructure: *"It's estimated that colleges and universities will spend between \$20B and \$25B this year on technology and services, enabling institutions to support faculty, and administration, as well as effectively market, recruit, enroll, instruct, engage, and prepare students and alums. The solutions span many categories, including enrollment management specialists, adaptive learning platforms, retention solutions, online program managers, social engagement networks, crowdsourcing applications, software-defined networks, big data platforms, and enterprise resource planning (ERP). The market is vast, confusing, and ill-defined. <http://www.eduventures.com/2014/09/higher-education-landscape>*

Exostructure: *"Exostructure strategy means acquiring the critical capability of interoperability as a deliberate strategy to integrate the increasing numbers of partnerships, tools and services in the education ecosystem. When done right, an exostructure approach enables institutions to leverage services from the cloud, rather than having to bring them inside the campus walls. The future belongs to exostructure rather than to infrastructure." <http://www.gartner.com/newsroom/id/3225717>*

Conclusion

The costs of maintaining current-state infrastructure versus the opportunity posed by exostructure solutions is a conversation that has to be led by higher education leaders—*presidents and trustees*. And it is likely that a new, dedicated association or institute is needed to manage the delicate dance between creating modern customer-focused institutions using the modern Web and apps, while dealing with the difficult issues of personnel costs, dependence on subsidized student loans, and maintaining academic quality and academic governance. We are at a point where this problem deserves a new kind and level of attention from leaders inside and outside of higher education.

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