The Growing Importance of Data

By Betsy Tippens Reinitz, with Josie DeBaere, Jay Eckles, Peggy Kay, Sean Moriarty, and John Rathje

Each year, members of the EDUCAUSE Enterprise IT Advisory Committee comment on the EDUCAUSE Top 10 IT Issues list. This year, committee members consider the challenges and opportunities presented by the continuing prominence of the role that data plays, as well as the implications for enterprise IT in the digital transformation that is arising from these issues. The following committee members shared their thoughts:

Rathje:
Data is increasingly the currency of higher education as we are challenged to identify student success factors, organizational optimizations, fiscal efficiency and effectiveness, advancement opportunities, and a host of other relevant measures that all contribute to the success of the institution and its mission. The biggest challenges are around:
1. Institutional thinking, to recognize the scope and value of data beyond a single department or division;
2. Data governance, to protect, manage, and clearly describe data throughout the institution for consistency and durability in use and meaning;
3. Data quality, to ensure that the data in question is accurate and remains free from contamination; and
4. Analytics staffing, to ensure that we hire not only individuals who can build the appropriate models but also those individuals who can properly interpret data for the good of a business context.

Eckles:
There’s a significant tension when it comes to data: on the one hand, the value of data increases as it is shared. This is true both within research where increased citation counts are associated with sharing datasets and within institutional management where more eyes mean more integrations leading to more insights. On the other hand, the risk of unwanted disclosure of data also increases as data is shared. The problem, then, is finding the balance between the benefit to the institution of broadly sharing data to improve institutional management and research outcomes and the cost to the institution of potentially causing data security breaches. Campus leaders need to grapple with their appetite for risk, looking for a spot somewhere between conservatively maximizing survival of the institution and aggressively risking failure for the possibility of huge leaps forward in human knowledge and service.

DeBaere:
The increased availability of data gives us opportunities to expand the application of predictive analytics. Planning how many sections of courses to offer in a particular semester can be based on registration numbers from recent semesters. Assisting a student in the selection of a major can include a comparison of that student’s performance in first-year classes with records of upper-level students in those majors. And finding opportunities for cost savings through bulk buying can be identified by cross-checking procurement information from multiple departments.
Securing this data is the most fundamental challenge—one made more difficult in higher education, which values openness and resists restrictions. But there are also other challenging questions in predictive analytics. What type of data is appropriate to collect? For example, is tracking students’ travels around campus acceptable? In addition, we must watch for potential weaknesses or biases that might be built into the analytic models we have set up. Do we have enough data for a valid sample? Does the method of data collection skew the sample?

Moriarty:
I think the biggest challenge is for institutional leaders to learn how to use information effectively for decision-making. As we mature in data usage, tremendous opportunities will be available to improve the student experience and student success. To take advantage of those opportunities, we will need to design systems that are agile and adaptable to meet the increasing appetite for data to inform decision-making. Ensuring that we can bring the relevant data into our systems in a timely manner will be key.

Kay:
One of our biggest challenges in higher education is to change our point of view on data. We need to place data in the driver seat of our work and planning. We are great proponents for the use of lifecycles as a way to manage our work. We should manage our data in the same way, from collection through disposal. We should understand and document what, why, and how we collect data, who can use it, where it needs to reside, how it is secured, how it can be transformed, and finally how it is disposed. Increased enforcement of regulations for data require us to make this lifecycle view central to our mission.

What advice would you give to other IT leaders as they consider the importance of data?

DeBaere:
Start by laying the foundational pieces needed to support expected innovations in the use of data. Adopt an enterprise architecture approach to streamline data flow among IT domains, just as an urban-planning approach streamlines traffic flow within a city. Through this enterprise-wide IT approach, we can promote interoperability among disparate systems and enable continuing flexibility to employ multiple IT vendors. Next, assess and continually improve information security practices and data governance policies to ensure the integrity, confidentiality, and acceptable use of the data. Finally, work to break down data silos inside the organization: encourage the viewpoint that data is an institutional resource to be shared, rather than an exclusive resource reserved for particular divisions.

Eckles:
It is becoming more common to describe and understand data as an institutional asset, much like money. The key difference is that whereas a single dollar can be spent for only one purpose, a single byte can potentially be used for infinite purposes. The trick with data is that you can use it over and over, as often as you like, but only until you lose it. Once you allow a breach of privacy, secrecy, or integrity of data, its value plummets. What was once an asset becomes a liability.

Yet the parallel between data and money as assets suggests we might do well to adopt practices from the accounting and finance professions as we learn to manage this new asset. We should actively plan for the acquisition of data, the investment of data in various projects, the management of risk, and the transparency of reporting on our use of data.

Kay:
As institutional leaders, we have to make sure our teams have the knowledge, training, and understanding to support and protect institutional data within the systems in our care. Additionally, we need to be the leaders, advisors, and facilitators on how to manage and govern the data to create meaningful information and assist our institutional partners.

Rathje:
Bring people together in a common conversation to develop an organizational data mindset and identify (as a service provider) ways to become invisible in the process of delivering data and analytics. Create a self-service environment around a single data hub so that the workforce, dependent on role, can explore the data in meaningful ways to explain past performance, state current positions, and plan actions for the future.

The Enterprise IT Advisory Committee has discussed the role of enterprise IT in the digital transformation of higher education. The 2019 Top 10 IT Issues list includes quite a few concepts that have been part of those discussions. How do you see the issues on this list intersecting with the role of enterprise IT in digital transformation?

DeBaere:
Higher education institutions are facing major challenges resulting from demographic changes, reductions in public funding, and competition from nontraditional providers of education. Through digital transformation, institutions can evolve and can ensure their continued relevance and vitality. Enterprise IT contributes to this evolution by reimagining digital services so that they represent a quantum improvement in the value being delivered to our communities.

Several issues identified in the 2019 Top 10 IT Issues list are especially critical in the digital transformation of

“Start with a vision of the problems you are trying to solve.”
—Sean Moriarty

“It is difficult to disassociate digital transformation from any of the 2019 Top 10 IT Issues.”
—John Rathje
enterprise IT. Digital Integrations (#5) relates to both the opportunities and the challenges of combining data from multiple sources; this rich data can be accessed to provide a high level of personalization in new digital service offerings, and it can be used in predictive analytics. Second, campus leaders must address questions related to Data Management and Governance (#8); many of the answers will be based on the mission and values of the specific institution. Finally, Data-Enabled Institution (#6) is itself a core piece of a digital transformation strategy. By harnessing the power of data analytics, leaders can make better-informed decisions, gaining a clear competitive advantage.

**Eckles:**
My hope is that we begin to see information security breakthroughs that will enable us to more widely share data with those who can make productive use of it. I hope that novel or more efficient means of digital integrations will create connections that spark entirely new ideas about how to support the success of students. I hope that “data-enabling” an institution will allow us to try more of those new ideas by more quickly sifting the effective from the ineffective, transforming the rate at which we improve our support of students, faculty, and the public.

It’s true that much of what we do in information technology is aimed at running or growing our institutions. But those same enterprise IT initiatives could also enable a truly fundamental shift in the way an institution approaches its teaching, research, or service work. If we’re attuned to that possibility, then when we glimpse it, we can share the vision with our fellow leaders. That’s planting the seed, and if the conditions are right, a digital transformation will blossom. But trying to push new technology as a means, unto itself, of transforming the institution is too often going to be sowing seeds among the cold rocky desert.

**Moriarty:**
One issue that stands out for me is Integrative CIO (#9). The CIO should be the strategic partner who enables others on campus to utilize technology in a way that advances the campus mission. To make progress with digital transformation, CIOs will need to leverage partners throughout the institution.

© 2019 Betsy Tippens Reinitz, Josie DeBaere, Jay Eckles, Peggy Kay, Sean Moriarty, and John Rathje. The text of this article is licensed under the Creative Commons Attribution-NonCommercial-NoDerivatives 4.0 International License.