Enterprise IT Perspectives on the 2018 Top 10 IT Issues

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Each year, members of the EDUCAUSE Enterprise IT Program Advisory Committee comment on the Top 10 IT Issues. This year, five committee members considered the challenges and opportunities presented by four data-related issues and the increasingly important role that data plays in higher education.

Issue #2: Student Success
Managing the system implementations and integrations that support multiple student success initiatives

What are the biggest challenges for managing this issue?

Weil: We have a number of major initiatives that are part of our concerted effort around student success. The biggest challenge is ensuring that we look at these efforts from an enterprise perspective, instead of as a series of point solutions. Individual solutions can be quick wins (since they can often be implemented faster), but without a plan for how they will fit together, we don't get the full value from them. We must architect these implementations and our infrastructure to allow for the flow of data between initiatives in a way that permits us to have a full view of a student's activities and interactions with the institution. Investing the time to think through and develop an underlying enterprise architecture and associated tools is a key part of that work.

Rathje: The most important challenge is alignment of institutionally defined success with system configuration and data flow. Bringing the right team together to define strategies and goals and to measure outcomes is also critical. Finally, continual improvement and system refinement for student success initiatives post-implementation can't be overlooked.

What are the biggest opportunities for this issue in the future?

Barden: Technologies are emerging that can enable a deeper student-advising role, moving away from “checking the box” of degree requirements to more
engaged relationships that are correlated with student persistence and progression. Making good use of these technology advances necessitates thinking less about tools and more about our institutional goals.

**Weil:** Given the many initiatives in this area, we have the opportunity to create a rich new set of information that we can use to improve student success and a student’s engagement with us. There are already some institutions that are doing this very well, and they are seeing big gains in retention, graduation rates, and more personalized experiences for their students. In addition, if we make the right investments in our IT infrastructure and architecture—implementing tools and services such as integration platform as a service, a scalable enterprise data warehouse, and effective data governance—we establish an IT environment that is extensible and that more easily allows us to integrate and support new services down the road.

**Rathje:** With the future potential of billions of devices connected through the Internet of Things, significantly large (and currently unexplored) data correlations will present new opportunities for measuring student success. Data scientists will be in high demand, and those who can make well-advised decisions from their findings will help organizations not only survive but thrive.

**Issue #4: Data-enabled Institutional Culture**

*Using BI and analytics to inform the broad conversation and answer big questions*

**What are the biggest challenges for managing this issue?**

**Rathje:** The biggest challenges are developing the right data models, cleansing the data, harmonizing data between systems, and making tools available and easy to use. This takes strategic thought with unity of purpose, cooperation among key organizational units, orchestration between departmental systems, clear ownership regarding systems of record, and people who can aptly interpret results from the business intelligence and analytic tools.

**Weil:** The most challenging piece of this isn’t the IT part—it’s the need to change the culture of the institution. Changing an institution’s culture requires leadership from across the institution and at all levels—from the president or chancellor on down. It requires rethinking roles on campus and viewing data as an institutional asset. Some institutions are creating the position of Chief Data Officer. Others, such as Ithaca College, have created a Chief Analytics Officer to expand our understanding of the student experience, student learning outcomes, and student success and to lead efforts to develop data standards and work with a wide range of constituents to apply predictive analysis to inform our decision-making.

**What are the biggest opportunities for this issue in the future?**

**Barden:** Breakthroughs in reporting and analytics are increasingly coming from interdisciplinary intersections. Most institutions have moved beyond basic questions that demand domain-specific data and are instead trying to answer questions that look across data families. These intersections often hold the key to answering more complex questions or the potential to predict how actions are likely to impact outcomes. This effort increases the demand for data governance to resolve data quality and data relationships in cross-disciplinary structures that challenge traditional organizational structures and domain-specific solutions.

**Rathje:** Machine learning and artificial intelligence are opportunities for the future. Systems that learn about an organization and its data will help leaders refine their strategies. Organizations will be able to test possible solution paths before investing significant resources in one direction or another. Intelligent agents may recommend strategies that otherwise would have gone unrecognized.

**Issue #8 (tie): Data Management and Governance**

*Implementing effective institutional data governance practices*

**What are the biggest challenges for managing this issue?**

**DeBaere:** Because institutional data will not reside only in repositories and applications owned by the institution, there are more touchpoints that need to be controlled and audited as part of data governance.

**Weil:** The biggest challenge is getting the right people at the table to take this on. It is not glamorous work and at times can be contentious, but it is vital. As with other data-related issues, the IT organization is not necessarily the right leader for this effort. Depending on the institutional culture, the IT organization may take the role of a co-leader or a strong partner. It
is also important not to get discouraged by the magnitude of the effort. There are others who have been very successful in implementing effective data governance practices, and commercial tools and organizations can also help.

What are the biggest opportunities for this issue in the future?

Rathje: Trusted, dependable data that has the integrity to positively inform critical academic and business decisions.

Weil: Shared agreement across the organization on the meaning of various data elements. A single source of truth.

DeBaere: Strategies that allow an organization to centralize access to data. For example, the use of an integration platform with prepackaged data flows and built-in administration of data governance can provide wide access while controlling data governance risk.

Issue #8 (tie): Digital Integrations

Ensuring system interoperability, scalability, and extensibility, as well as data integrity, standards, and governance, across multiple applications and platforms

What are the biggest challenges for managing this issue?

DeBaere: A big challenge in data integration is solution sprawl. Because our next generation IT environments will involve an increasing number of components from an increasing variety of vendors and other sources, there is risk of creating dozens of integration services, each of which is customized for a different use case and cannot be repurposed. Each of those specialized integration services involves a cost to build and incurs a commitment to long-term support and maintenance.

Rathje: We are moving from monolithic solutions, where the data was well structured and the system performance well understood, to solutions that are decoupled and where management of the resources requires multiple SLAs, contracts, and additional administrative controls. Having standards that define an organization’s approach and instituting policy that governs that approach are keys to successful solutions.

What are the biggest opportunities for this issue in the future?

DeBaere: Organizations should review digital integration requests with an eye to maximizing reuse of solutions. Where reuse is not possible, the use of standards and guidelines for integrations can minimize the long-term technical debt.

Rathje: Working in collaboration with peers and finding organizations that can manage the new middleware paradigm are opportunities for the future. Through participation in discussions with these groups, organizations will gain insights about best practices.

What are your thoughts about the connection and synergy between all four of these issues?

DeBaere: To address the challenges in data integrations and data governance, organizations can adopt a disciplined approach to planning the entire IT landscape. This disciplined approach, which can include the definition of standards, guidelines, and common services for IT services, is very much like urban planning. In both cases, ecosystem efficiency and usability are factored into choices so that decisions are not solely based on the narrower interests of individual projects.

Rathje: These issues are symbiotic and work with each other to help organizations leverage data to improve student outcomes. Effective governance can help manage the organization’s data interests regardless of where the data lives or who manages the solution.

Weil: As we think about the next generation of enterprise IT, these four issues are all influencing factors and help set the stage for where we need to head. The next generation will require us to adopt a way of thinking that focuses on furthering integrations and on leveraging data to provide a mission-driven/client-centric approach to our work at an institutional level. The fact that these four data-related issues made the EDUCAUSE Top 10 IT Issues list shows that people are thinking about the important role that data will play as we contemplate and develop our future services, systems, and capabilities.

Notes

1. The EDUCAUSE Enterprise IT Program (http://www.educause.edu/enterprise-it-program) helps to make campus enterprise IT more informed, efficient, and strategic.


3. For example, see the model presented by Arizona State University.


5. For more details, see “Dr. Yuko Mulugetta named Chief Analytics Officer,” Ithaca College press release, September 29, 2016.

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