Higher Education’s Top 10 Strategic Technologies for 2015

EXECUTIVE SUMMARY

Special excerpt edition. Full report available to ECAR subscribers.
This introduction and overview is excerpted from the EDUCAUSE Center for Analysis and Research report *Higher Education's Top 10 Strategic Technologies for 2015*. The top 10 strategic technologies in higher education complement the popular EDUCAUSE top 10 IT issues. Together, the two resources can provide more complete and nuanced guidance on institutional IT priorities. A third, new ECAR report summarizes the influence on institutional IT strategy of trends such as shared services, IT complexity, and agile approaches to change.


2 The ECAR reports *Higher Education's Top 10 Strategic Technologies for 2015* and *Trend Watch 2015* are available exclusively to ECAR subscribers at the Strategic Technologies Research Hub.

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Targeted specifically to IT professionals and higher education leaders, the EDUCAUSE Center for Analysis and Research (ECAR) is the only subscriber-driven research organization dedicated to understanding IT’s role in colleges and universities. ECAR research and analytical reports are designed to help campus leaders predict, plan for, and act on IT trends in higher education. Learn more at [www.educause.edu/ecar](http://www.educause.edu/ecar).

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Introduction and Overview

The introduction and retooling of technologies is a major focus of higher education IT organizations and budgets. Institutions are introducing new technologies to leverage trends in analytics, mobile, social, and cloud; to respond to risks; and to up their games in teaching and learning, student success, and research. Very few institutions are resourced to move as comprehensively and quickly as might be desired. This report provides a snapshot of the new technological investments colleges and universities are actually planning and implementing in 2015, as well as technologies they are tracking or simply not addressing for the time being.

This report is focused on strategic technologies. We define a technology as “strategic” based on the time, active attention, and priority devoted to it at a given time. IT leaders and professionals are particularly interested in whether and when to invest in these still-maturing technologies. Of the 107 technologies covered in this report, only 4 are currently in place in more than 30% of institutions, and among the top 10 strategic technologies, only one-third to one-half of institutions intend to plan or implement any of those technologies in 2015. However, each technology in the top 10 is at least being tracked by three-quarters of institutions.

This report does not aim to justify the importance of or examine these technologies. A number of excellent existing resources already do that. The value of the EDUCAUSE list is that it is based on data about members’ actual plans and thus sheds light not on what people are talking about but on what institutions are doing.
Key Findings

• The year 2015 is all about mobile. Seven of the 2015 top 10 strategic technologies are directly or indirectly (e.g., unified communications and collaboration) related to mobile computing.

• Analytics technologies still appear in the top 10 but not as prominently as in 2014. This year, only two of the top 10 are in the area of analytics, whereas in 2014 there were four.

• Three technologies that were among the 2014 top 10 dropped off the 2015 list: Course-level learning analytics dropped to 15, and degree-advising learning analytics virtual desktops or virtual PC applications dropped into a tie at 11. This is not because fewer institutions are implementing, planning, or tracking these technologies in 2015. Rather, it reflects even greater attention being paid to other technologies, particularly the three that supplanted them: incorporation of mobile devices in teaching and learning, mobile data protection, and mobile apps for teaching and learning. Attention is not shifting; it is expanding.

• We predict that adoption of five of the top 10 technologies—BI/reporting dashboards, mobile app development, mobile apps for enterprise applications, enterprise identity and access management solutions, and 802.11ac wireless networking standard—will progress to Mainstream (deployed in 61–80% of institutions) by the end of this decade. The five other technologies in the top 10 will achieve Growing adoption (deployed in 41–60% of institutions): administrative/business performance analytics, incorporation of mobile devices in teaching and learning, mobile apps for teaching and learning, mobile data protection, and unified communications and collaboration.

• Grouping the 107 technologies into 15 technology domains, the 4 domains whose adoption we predict will make the most progress this decade are mobile, user support, enterprise IT, and, within doctoral universities, research and scholarship. Adoption of two additional domains may accelerate particularly rapidly toward the end of the decade: cloud sourcing and GRC.

• Further out, institutions are devoting the most attention to tracking these technologies: adaptive learning, mobile data protection, e-textbooks, course-level learning analytics, and uses of the Internet of Things.
The Top 10 Strategic Technologies for 2015

*Numbers in parentheses are the 2014 ranks.*

1. BI/reporting dashboards (1)
2. Mobile app development (HTML5, responsive design, hybrid, etc.) (3)
3. Mobile apps for enterprise applications (2)
4. Administrative/business performance analytics (6)
5. 802.11ac wireless networking standard (8)
6. Enterprise identity and access management solutions (4)
7. Incorporation of mobile devices in teaching and learning\(^1\)
8. Mobile data protection (11)
9. Unified communications and collaboration (7)
10. Mobile apps for teaching and learning\(^2\)

\(^1\) This technology appeared as *Online courses on mobile devices* and was 15th on the list.

\(^2\) This technology was not in the 2014 survey.
Implications

Where Are We Heading and How Fast?

What do these data tell us about the kinds of progress higher education might make with the technologies measured in this study? We used institutions’ 2015 intentions for implementing and planning technologies to estimate deployment of these technologies by 2016–17 and also by 2018–20.

We changed our prediction methodology from last year to better reflect the imprecision inherent in these sorts of data. Progress estimates for the individual technologies and for 15 technology domains (some technologies were assigned to multiple domains) were calculated to estimate when each technology and category is expected to be:

• Experimental (deployed in 20% or less of institutions)
• Emergent (deployed in 21–40% of institutions)
• Growing (deployed in 41–60% of institutions)
• Mainstream (deployed in 61–80% of institutions)
• Universal (deployed in 81–100% of institutions)

We predict that the top 3 technologies—BI/reporting dashboards, mobile app development (HTML5, responsive design, hybrid, etc.), and mobile apps for enterprise applications—will progress from Experimental to Mainstream by the end of this decade. Two other technologies in the top 10, already Emergent, will also become Mainstream by the end of the decade: enterprise identity and access management solutions, and 802.11ac wireless networking standard. Unified communications and collaboration will move from Emergent to Growing.

The remaining four technologies will advance from Experimental to Growing:

• Administrative/business performance analytics
• Incorporation of mobile devices in teaching and learning
• Mobile apps for teaching and learning
• Mobile data protection
Up-and-Coming Technologies

Knowing which technologies institutions are most commonly tracking can provide a preview further into the future. We found a distinction between technology planning and implementation versus technology tracking. Only one of the technologies institutions are most commonly tracking (mobile data protection, 36% of institutions) made the overall top 10 list. At least 30% of institutions are tracking these 11 technologies in 2015:

1. Adaptive learning (37% tracking)
2. Mobile data protection (36%)
3. E-textbooks (35%)
4. Learning analytics: Course level (32%)
5. Uses of the Internet of Things (32%)
6. Open educational resources (32%)
7. Next-generation learning management systems that support new models of learning, such as computer-based learning (31%)
8. Private-cloud computing (externally hosted) (31%)
9. IT risk management automation to manage risk assessment, incident management, compliance mapping/reporting, etc. (31%)
10. Hybrid-cloud computing (30%)
11. Database audit and protection tools (30%)
Appendix: Methodology

The list of 107 technologies was derived from several authoritative sources that annually identify emerging and maturing technologies in higher education¹ and from the 2013 list that involved additional reviews by the ECAR Working Group Strategies Committee and other technical experts. Even so, the list could be improved. There are likely missing technologies, misplaced technologies (emergency/mass notification services and probably also document management solutions are too mature for this list). At the other end of the scale, most of the emergent technologies are still too nascent in higher education to warrant inclusion.

The survey was distributed to 10,004 EDUCAUSE members as part of the Top 10 IT Issues survey; 368 members responded and indicated, for each technology, the attention their institution was planning to devote to each technology in 2015. Respondents selected one of six response options: no meaningful investment, track (multiple person-days), plan (multiple person-weeks), implement (multiple person-months), in place, or unfamiliar with the technology.

Because the list was so long—and to minimize "unfamiliar" responses—respondents were given the option of identifying their IT domains and responding only to items within those domains. Further, if several members completed the survey from a single institution, only one rating was included (we used the CIO as the primary rater). As a result, the number of respondents rating individual technologies ranged from 139 to 275 respondents.

The final top 10 list of strategic technologies is a weighted average of institutions’ plans, with the heaviest weight (5) given to implementation, followed by planning (3), and then tracking (2). Other response options (no plans, in place, and unfamiliar with technology) were given a weight of zero in our scoring schema.

Note

1. Primary sources were The Horizon Report, Gartner’s Top 10 Strategic Technology Trends for 2014, and multiple 2014 Gartner Hype Cycles (education, big data, cloud computing, cloud security, enterprise architecture, enterprise information management, GRC, IAM, IT operations management, privacy, business intelligence and analytics, and emerging technologies). We augmented those with several additional technologies, most notably in analytics.