Top Technology Trends Impacting Higher Education in 2021

Glenda Morgan, Jan-Martin Lowendahl, Terri-Lynn Thayer, Robert Yanckello, Tony Sheehan

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Gartner identifies the top technology trends shaping the higher education industry in 2021, highlighting the impact on IT organizations. Higher education CIOs should weigh our recommendations in light of these trends as they shape their IT strategy and priorities.

Overview

Opportunities

- **Student Experience:** Understanding and implementing virtual experiences and cross-life-cycle CRM will be critical components to institutions addressing and improving the student experience, which will be a key differentiator within higher education.

- **Sustainability:** Implementing innovations such as low-code applications and responding proactively to cyberthreats will be critical for higher education institutions to continue to exist and thrive.

- **Scaling the Change:** Virtual experiences, cloud now and chatbots are technology trends that many higher education institutions are scaling and continuing to develop based on their use during the COVID-19 crisis.

- **New Normal:** Technology trends such as the COVID-19 campus, remote proctoring and faculty information systems are increasingly going to be the norm for institutions and they will need to adapt accordingly.

Recommendations

Higher education CIOs driving digital transformation and innovation must:

- Balance maintaining key systems, while enabling emerging and innovative technologies, by pursuing a bimodal approach and creating a special unit that can explore innovation. However, beware of endless pilots. Develop a process and timeline for evaluating each technology and making a decision.

- Create a balanced technology project portfolio by mixing technologies that gradually enable new enterprise business capabilities with those that optimize existing processes.

What You Need to Know

This research focuses on the technology trends shaping higher education globally. A partner piece, Top Business Trends Impacting Higher Education in 2021, focuses on business trends. Education leaders are always looking at how technology can optimize and modernize. Now, they are examining how technology can enhance competitive advantage, support emerging business models and advance the main missions of education, research and outreach. The education ecosystem is increasingly competitive. For institutions to thrive in this environment, they must become more innovative while improving their stakeholders' experience. It is often technology that will facilitate that innovation.

Trends, such as the move to the cloud, will have a broad impact on higher education. Other trends, such as faculty information systems, may be more circumscribed in their reach. Many of the trends in the 2021 list are new, representing a break from 2020 (see Top 10 Strategic Technologies Impacting Higher Education in 2020). This is hardly surprising given the tumultuous events of 2020 and the challenges and change to which they gave rise.

These technology trends along with the business trends in a separate document can be grouped into four categories (see Figure 1):

1. **Student Experience:** This refers to the total interaction between students and their educational institutions, from interest and recruitment through graduation and engagement as alumni. Understanding and responding to a need to improve the student experience will be a key differentiator within higher education.

2. **Sustainability:** This refers to the challenges to higher education institutions' ability to sustain themselves financially, survive and thrive. Understanding and changing in response to these challenges will be a large and key focus for many higher education institutions.

3. **Scaling the Change:** A majority of higher education institutions globally had to implement changes in response to the pandemic in 2020 and its subsequent second-order effects. Many institutions are seeking to extend and scale these changes going forward, even as the pandemic promises to wind down.

4. **New Normal:** Some changes that were made in 2020 are not necessarily being embraced by institutions but are nonetheless a part of reality, something that will be a necessary condition for higher education into the future. These trends are part of a different but new normal.

The categories enable you to separate signals from noise and see the deeper trajectory of technology innovation. They will help you identify the technologies which you can build upon and those which may

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become part of the required infrastructure in this new world. The categories will help you recognize core and common elements and help you as the CIO to better plan and react.

Figure 1. Top Higher Education Technology and Business Trends for 2021

Top Higher Education Technology and Business Trends for 2021

👥 Student Experience	🎯 Sustainability	🧭 Scaling the Change	⚛ New Normal
• Alternative Credentials	• Enigmas of Enrollment	• Changing Role of CIO	• Online Productification
• Corporate Collaboration	• Tuition Tensions	• Online Everywhere	• COVID-19 Campus
• Esports	• International Students	• Cloud Now	• Hybrid Everything
• Virtual Experiences	• Low-Code Applications	• Chatbots	• Remote Proctoring
• Cross-Life-Cycle CRM	• Cyberthreats	• Hybrid Classrooms	• Faculty Info. Systems

Source: Gartner
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Trend Profiles:

Student Experience	Sustainability	Scaling the Change	New Normal
Virtual Experiences	Cyberthreats	Cloud Now	COVID-19 Campus
Cross-Life-Cycle CRM	Low-Code Applications	Chatbots	Faculty Information Systems
		Hybrid Classrooms	Remote Proctoring

Student Experience
Virtual Experiences

Analysis by Tony Sheehan

Description:

Virtual experiences reflect the need to create digital student recruitment, teaching, graduation and advancement without requiring a presence on campus. Virtual interactions replaced on-campus activities in response to COVID-19 but must now be optimized and operationalized.

Why Trending:

- Institutions have historically leveraged the physical campus to drive enrollment, student experience and advancement activities.

- Travel restrictions and campus closures during the pandemic have encouraged virtual variants of these experiences, with:

  - Online graduations involving celebrities, virtual worlds and telepresence robots. [1]

  - Campus tours offering potential students 360-degree imagery, interactive navigation and embedded faculty videos via mobile, desktop or virtual reality (VR). [2]

  - Live virtual student recruitment, career fairs and advancement events. [3]

  - Chatbots and nudge tech support from enrollment to admissions, career support and financial aid.

  - Mobile apps, engagement and websites to support student networking. [4]

- 72% of students expressed concerns about being unable to visit campuses in 2020. [5] Virtual events were, however, valued by 84% of attendees. [6]

- Global travel is unlikely to return to prepandemic levels in 2021 with student and faculty movement constrained by barriers to entry due to inconsistent vaccination access and adoption.

Implications:

Virtual experiences must transition from short-term disjointed experiments into longer-term strategy. Student and employee experiences must align to support:

- Prospects seeking reassurance that high-quality experiences and career prospects are available (to mitigate risks of deferrals, noncompletions and selection of alternative pathways to employment).

- Students registering or midway through on-campus programs that have transitioned to online. They now need support, networking and "nudging" to ensure continuity.

- Potential donors reviewing value beyond distinctive physical spaces and considering support to learning innovation, personalization of student experience and well-being. [7]

Virtual experiences must blend high-quality content with supportive communities for networking and appropriate automated or live support to answer key questions. Multiple components must combine core

platforms (e.g., websites, learning management systems, social media tools, discussion threads), live events (e.g., marketing webinars, alumni reunions) and emerging technologies (e.g., artificial intelligence [AI], chatbots, 360-degree imagery and VR experiments).

Designing and sensibly reusing content between these activities can reduce waste. The management of virtual experiences therefore demands coordination and potentially centralized accountability to build an institutionwide perspective to maximize consistency and minimize costs.

Actions:

- Evolve current virtual experiences by analyzing levels of stakeholder engagement, impact on stakeholder needs and value toward institutional objectives.

- Limit the cost of virtual experience development by creating central coordination of experiences and developing virtual assets along with any physical event to support demands for online content. Enhance static content by mobilizing students and alumni within online communities for authentic institutional support and networking.

Further Reading:

Top Strategic Technology Trends for 2021: Total Experience

Cross-Life-Cycle CRM

Analysis by Terri-Lynn Thayer

Description:

Cross-life-cycle CRM, a CRM deployment, creates an enterprisewide, 360-degree view of a constituent, most often a student, across the major life cycle phases. They begin with precollege and move through prospect, applicant, enrolled, graduate and alumni statuses. This is in contrast to a departmental CRM implementation that is focused on a single functional and siloed set of business processes.

Why Trending:

- Enrollment and retention challenges, along with the increased importance of continuous lifelong learning, drive institutions to seek comprehensive constituent records and optimize consistent omnichannel communications.

- Higher education lags behind many other industries in deploying CRM technologies to manage customer life cycle relationships.

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- While most existing higher education CRM deployments have been driven by the functional needs of individual departments (e.g, admissions) with a focus on operational efficiency, they do not create a single view of the student.

- These first-generation CRM deployments typically include only students; but today there is a growing interest in other important constituents including faculty, staff, parents, corporations and donors. This is driving a desire to have an enterprisewide deployment.

Implications:

- There is mounting interest in enterprise-class CRM platforms as the foundation for establishing a student cross-life-cycle CRM. However, a single platform does not itself ensure a single view of the student.

- The scope of cross-life-cycle CRM projects can rival ERP implementations in terms of complexity and cost.

- The vendor opportunity is so significant that it is drawing many vendors into the space, making for a complex and highly fragmented market.

- The blossoming interest has yielded a large and diverse set of campus stakeholders that can make CRM governance challenging.

Actions:

- Establish strong governance from the outset with broad stakeholder membership by tasking them with defining the enterprise CRM vision and strategy.

- Limit the number of different technologies by designing an architecture that anticipates a heterogenous CRM technology environment. The design will require a data model standard and strong integration capabilities.

- Develop a center-of-excellence approach to ease campus adoption by ensuring consistent data standards and integration and promote best practices with the chosen toolsets.

Further Reading:

How to Overcome Three Higher Education CRM
Myths

Sustainability

Cyberthreats — Security and Risk Management

Analysis by Bart Willemsen and Bob Yanckello

Description:

Cyberthreat is any circumstance or event that can adversely impact organizational operations (including mission, functions, image or reputation), organizational assets or individuals through an information system via unauthorized access, destruction, disclosure, modification of information and/or denial of service. [8] Cyberthreats also have the potential for a threat source to successfully exploit a particular information system vulnerability.

Why Trending:

Security and risk management continues to be a high priority for many industries, including higher education. Increases in virtual delivery and remote work due to the pandemic have highlighted the vigilance required to maintain safe and reliable environments. 2020 incidents, such as the Blackbaud data breach and SolarWinds attack, are reminders of the unknown vulnerabilities and widespread security threats institutions face on a daily basis. Environments with an average or below average security posture (which includes many higher education institutions) are increasingly the target of malicious attackers.

The Joint Cybersecurity Advisory, developed by the Cybersecurity and Infrastructure Security Agency and the FBI among others, described the increase in attacks on both K-12 and higher education. A 2020 Microsoft digital defense report claims that cyberattacks are becoming more frequent and sophisticated. [9] The report describes how:

- In 2019, Microsoft blocked over 13 billion malicious and suspicious mails, of which more than 1 billion were URLs set up for the explicit purpose of launching a phishing credential attack.

- Ransomware was the most common reason behind their incident response engagements from October 2019 through July 2020.

- Internet of Things (IoT) threats are constantly expanding and evolving. In the first half of 2020, there was an approximate 35% increase in total attack volume compared with the second half 2019. [10]

Implications:

Understanding the security threat landscape can raise concerns, but the threats are varied and an adequate response is required where the institution faces most risk. This could be data breaches, ransomware, or fraud and sabotage attacks, as exemplified by various incidents. Although targeted attacks are common, many organizations still fall victim to opportunistic attacks. Organizations must contend with multiple primary security challenges including:

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- Shortage of technical security staff

- Rapid migration to cloud computing

- Regulatory compliance requirements

- Unrelenting evolution of threats

Higher education CIOs must work closely with security leaders to confront the threat landscape on a risk-based approach:

- Continually evaluate how existing defenses adapt to microtrends.

- Engage stakeholders regularly to understand new business and technology practices across the organization.

- Develop organizational resiliency with strong backup and incident response plans to prepare against attacks that can't be prevented or detected.

Actions:

- Craft a comprehensive cybersecurity strategy focused on supporting business outcomes by establishing a broad-based planning and governance group composed of stakeholders from across the institution.

- Seek security solutions with extended detection and response (XDR) tools and capabilities that improve detection accuracy and security operations efficiency, befitting your particular infrastructure and architecture.

Further Reading:

How to Respond to the 2020 Threat Landscape

Top Security and Risk Management Trends

Low-Code Application Platforms

Analysis by Bob Yanckello

Description:

Gartner defines low-code application platforms (LCAPs) (see Magic Quadrant for Enterprise Low-Code Application Platforms) by the use of model-driven or visual development paradigms supported by expression languages and possibly scripting to address use cases such as:

- Citizen development

- Business unit IT

- Enterprise business processes

- Composable applications

- SaaS applications

Developers leverage LCAPs for their increased application development productivity with reduced skill set requirements. LCAPs provide and support UIs, business processes and data services which are critical components of a modern education technology platform.

Why Trending:

Today, empowering employees with low-code development technology (i.e., citizen development) is part of the digital workplace expectation for supporting modernization of both customer facing and internal business process applications. [11] The days of IT delivering all applications for the enterprise are gone. The present and future depend on holistic and collaborative delivery of digital products/services by joint IT and business delivery teams, and on the elimination of separate enterprise IT and "shadow IT" operations. Low-code development is a pivotal enabler for collaboration across the institution. Low-code application platforms are attractive and growing in use because they help address the:

- Need for increased productivity and output of application modernization

- Widening gap between availability and demand for IT development skills

- Necessity for IT and the institution business offices to align closer and cooperate in quick, continuous and agile development practices

Implications:

While most institutions have been digitizing their business processes for many years, the COVID-19 pandemic forced millions of employees to work from home and exposed the many manual business processes that institutions relied upon to operate on a daily basis. [12] Although typical coding requires a rudimentary knowledge of a computing language, low-code tools and platforms simplify development with easy to use drag-and-drop structures that can easily enable non-IT staff or students to create digital processes and services. Additionally, these tools align well with other modernization efforts as they are primarily cloud-based, and enable less experienced users to easily deploy chatbots or other complex web applications quickly. [13] Leveraging low-code platforms can help users to:

- Scale automation and process improvements quickly and easily at an affordable price.

- Enable citizen developers while allowing IT departments to centrally coordinate and focus on other operational needs like systems administration, complex integrations or security.

- Reengineer and digitize processes quickly to automate student and faculty services.

Actions:

- Assess the institutions need to rapidly remodel processes by evaluating current state of development projects and the response time to deliver stakeholders a modernized digital process.

- Deploy low-code tools and platforms to decrease response time for improving critical processes and reshape the organization to create support for "citizen developers" by identifying the new skills and business practices required to support automated and optimized workflows.

Further Reading:

Solution Comparison for Low-Code Application Platforms

Critical Capabilities for Enterprise Low-Code Application Platforms

Scaling the Change

Cloud Now

Analysis by Bob Yanckello

Description: Cloud computing is a style of computing in which scalable and elastic IT-enabled capabilities are delivered as a service using internet technologies. "Cloud now" refers to the urgency CIOs now place on moving to the cloud.

Why Trending:

At the onset of the pandemic, universities and colleges were in crisis mode and needed an immediate and scalable response for delivering services via virtual and remote delivery. Although many organizations had or were planning a measured migration to cloud, cloud services and/or cloud applications, the pandemic accelerated the transformation.

Cloud offers institutions a range of options that enable work during the pandemic. Cloud also shifted the IT emphasis away from operational objectives, such as running data centers and managing infrastructure, toward helping the university deliver on the more strategic goals around teaching, learning and student engagement in the virtual world (see 2021 CIO Agenda: A Higher Education Perspective).

CIOs who adopt hybrid and multicloud strategies can accelerate change while reducing risk and choosing services that best meet their requirements. The migration to cloud is progressing because:

- CIOs find it difficult to quickly support modifications for on-premises legacy solutions and dynamically respond to the immediate need of 100% virtual and remote service.

- The evolution of on-premises offerings is deteriorating as enterprise vendors limit their investment in on-premises solutions and invest in the development of new SaaS and cloud offerings.

- Cloud adoption for many higher education applications is growing rapidly as the value proposition of deploying innovative modular solutions is forcing a change in service delivery and application strategy.

Implications:

CIOs and senior executives who look to address shrinking budgets and growing needs spurred by the pandemic may find cloud an attractive approach to help manage both. Given its elastic nature, cloud can address the expansion and contraction of computing demands while eliminating over-provisioning for peak loads. The cloud also provides the capacity and reliability needed to support all virtual activities spurred by the pandemic. Cloud computing and services offer institutions:

- **Infinite computing** — Cloud presents the ability to scale service and pay-as-you-go or the end of finite computing that relies on sized machines in the data center.

- **Next generation technologies** — Cloud provides the foundation to build and deliver the next layer of technology that meets business needs including:

  - SaaS applications

  - AI

  - Business intelligence (BI)

  - CRM

  - IoT solutions

  - State-of-the-art security

- **Enterprise acceleration** — Technology and software are critical to enterprise/organizational success. The speed of the technology used dictates the pace at which change can be achieved. Thus, technology and architecture are critical to spawning successful transformation.

Actions:

- Assess your current cloud strategy and needs by developing a roadmap that compares future-state objectives to current-state realities and identifies gaps to be addressed to develop a secure, sustainable hybrid and multicloud approach.

- Position the IT organization to respond to institutional demands by developing a technology platform framework and leveraging advanced cloud applications and integration services.

Chatbots

Analysis by Jan-Martin Lowendahl and Magnus Revang

Description:

A chatbot is a domain-specific conversational interface that uses an app, messaging platform, social network or chat solution for its conversations. Chatbots range in sophistication from simple, decision-tree-based, to implementations built on feature-rich platforms. They are always narrow in scope. A chatbot can be text- or voice-based, or a combination of both.

Why Trending:

The main reason chatbots are trending is improvements in natural language understanding (NLU). NLU opens a whole new range of human tasks that can be automated, with chatbots being an early use case. While current implementations are largely unsophisticated, focusing on low-hanging fruit like FAQs — the ability to do sophisticated and complex dialogue is possible. However, the effort required increases exponentially as sophistication increases. You could argue that simple chatbots have already reached the Plateau of Productivity, but sophisticated chatbots or virtual assistants have not. The gap is what is creating hype, between the unsophisticated "glorified command lines" that are easily achievable and the public's expectation of human level conversation that chatbots most often do not deliver.

The education sector can get value from simple chatbots because institutions typically exchange 20% to 25% of their student population each year. These new students tend to ask the same questions as previous generations. This creates clear business cases for education:

- Hard savings through intelligent automation/augmentation by handling more questions with the same (or reduced) number of staff

- Soft benefits such as improved student experience by making support functions available 24/7

Several vendors are specializing in education, with offerings pretrained for the most common questions that students ask. This has led to an almost doubling of institutions investing in AI chatbots in a year, from 16% of Gartner CIO Survey data respondents reporting that they had invested in AI chatbots to 30% reporting the same in 2021.

Implications:

Chatbots are a forerunner of AI as a general-purpose technology (GPT) with many components that promise to increase productivity following the pattern of other GPTs, such as electricity. However, as with many GPTs, there is a productivity paradox that requires a series of investments in foundational capabilities and experimenting before achieving full value. Part of that process is to break down, analyze and adopt the technology for narrow use cases with direct value, rather than having a more diffuse "AI strategy." Chatbots have reached an adoption inflection point in higher education where it soon will be one of many expected "multiexperience" interaction channels for students, faculty and staff. Already, chatbots are becoming a "cost of entry" for baseline student experience.

Actions:

- Make certain you have the data for use with chatbots by ensuring that any contract your institution enters into with a service or product provider includes ownership and access to employee-, student- and faculty-generated data.

- Prepare to create new roles in the enterprise. Dialogue designer, AI trainer and conversational analyst are new roles that help the operationalization and maintenance of chatbots.

Further Reading:

A Framework for Applying AI in the Enterprise

Making Sense of the Chatbot and Conversational AI Platform Market

Hybrid Classrooms

Analysis by Tony Sheehan and Glenda Morgan

SPA:

By 2025, 25% of institutions will leverage hybrid classrooms to deliver all core teaching.

Description:

Hybrid classrooms allow faculty to teach students on-campus and online at the same time. Students and faculty are connected using technologies that allow all to be synchronously seen and heard. Active participation and collaboration can lead to rich student engagement.

Why Trending:

- Pandemic campus restrictions have generated strong interest in hybrid classroom design. These allow those that can, to return to a socially distanced class connected to a group of fully online participants.

- Visual and audio connectivity may be delivered by web conferencing platforms, workplace collaboration tools or specialist video and audio hybrid classroom solutions.

- Hybrid classrooms are new to many faculty and students. In 2019, only 38% of faculty had taught a hybrid or blended course that had elements of synchronous face-to-face and online teaching. [14] By August 2020, hybrid was the preferred approach to teaching by 87% of institutions. [15]

- The active engagement needed in the hybrid classroom requires more focus, energy and capacity for faculty than purely face-to-face interaction. [16] Technical and learner facilitation are often required.

- The quality of student experience has been variable. The high levels of concentration required for synchronous hybrid classrooms create an intense but frequently stressful environment. [17] The bandwidths required for high-quality synchronous delivery may also inhibit engagement for those with inferior devices or connectivity. [18]

Implications:

Multiple models of hybrid classroom design are emerging but there is no single best hybrid classroom technology. Hybrid classroom designs must align to faculty, student, course, financial and institutional needs. Their use must also be balanced with broader blended learning designs for those students who may be unwilling, unable or simply don't like connecting synchronously. Recording of sessions and complementary tools such as asynchronous chat will help to align learning design with preferred styles of engagement.

Online participants must feel as an active part of the same group as those on-campus, with peer and faculty support. High-quality video and audio connectivity, signal lag avoidance and direct eye contact have all been shown to build peer-to-peer collaboration and trust. Slight misalignment of these factors or excessive time spent in synchronous teaching risk undermining the quality of learning due to "Zoom fatigue." [19]

Institutions need to evolve toward their optimal hybrid class design. Additional research, production and technical support is likely to endure in the near term to support faculty and participants (in particular for breakout room activities) and to address technical difficulties. Some institutions have committed to a design thinking approach, creating interdisciplinary teams to evolve hybrid design in parallel to evaluation of student and faculty experience. [20]

Actions:

- Align hybrid classroom strategy to institutional strategy, capabilities and budgets. Empower an institutionwide team to research, review and refine hybrid classroom design, leveraging faculty and student feedback.

- Preserve faculty and student energy by balancing the use of hybrid classrooms with other live, asynchronous or content-based learning interventions.

Further Reading:

Magic Quadrant for Meeting Solutions

New Normal
COVID-19 Campus

Analysis by Tony Sheehan

Description:

The COVID-19 campus will emerge as the redesigned higher education campus environment through 2021. Institutional campuses were redesigned in 2020 for safety, continuity of education and to support new teaching models, but must now evolve into adaptable campus spaces for optimized research, teaching and learning.

Why Trending:

- COVID-19 has reshaped global campus design with new testing, tracing, building management and isolation practices to minimize COVID-19 outbreaks. [21]

- Some universities have adopted personalized apps to permit entry, track COVID-19 status and risk of exposure. [22]

- Personal data has enabled COVID-19 response and student support, but raises issues of data privacy, data ethics and security. A study of more than 16,000 students suggested only 22% understood how their data was being used. [23]

- Campus space has been reallocated to provide social distancing, hybrid classrooms and online content creation spaces for faculty. Many administrative staff have worked remotely and physical lab spaces have been virtualized.

- More virtual delivery may impact staff and student mental health. One survey suggests over 40% of students are struggling with current absence of face-to-face engagement. [24]

- Student access to campus remains highly valued with a study of 5,000 international students suggesting 56% would be willing to switch destinations to receive face-to-face instruction. [25]

- Hybrid and online delivery has highlighted the risk of digital divides in the COVID-19 campus. Eighty-two percent of global learners suggest that transitioning to online learning has magnified inequalities

for those unable to afford technology or access appropriate learning spaces and connectivity. [26] Libraries, study spaces and shared devices remain key for reflection and productive learning. [27]

Implications: Students will seek out and value on-campus experiences but reopened campus spaces must balance safety, security, student support and privacy. Physical space will continue to be prioritized for high-value teaching. Content production and student study space (for equitable learning) will also be prioritized over administrative offices. Many staff will continue to primarily work from home.

Coordination of who, why, when and where staff need to attend campus will become a complex yet critical task. Uncertainties about availability, adoption, asymptomatic spreading and long-term effectiveness of COVID-19 vaccines against potential mutations will see personal testing, tracking and building access management continue on campus in the near term. Tensions between the need for personal tracking for public health and potential conflict with data privacy will, however, intensify and require continual evaluation and review.

Actions:

- Evolve COVID-19 campus design by aligning spaces to emerging institutional needs, health requirements, scenario planning and social norms. Survey faculty, staff and students regularly and preserve study spaces and device-borrowing schemes to support demand.

- Ensure proactive data transparency by communicating how personal data is being used for campus safety and learning support.

Further Reading:

Enabling Remote Access to PC Labs in Higher Education

Analysis by Terri-Lynn Thayer

Description: A faculty information system (FIS) tracks all aspects of faculty data enabling the institution to maintain a single source of truth about faculty members. FIS details their credentials, careers, teaching and research. FIS provides academic administration support for the unique aspects of faculty personnel administration. FIS products have functional capabilities that include:

- Faculty hiring

- Annual review/evaluation

- Promotion, tenure and sabbatical

- Committee-based activity workflow

- Profile and CV administration

- Scholarly publication tracking

- Faculty recognition, impact and activity reporting

- Accreditation reporting

Why Trending:

- Corporate human capital management (HCM) systems often do not support unique personnel administration requirements that pertain to faculty such as committee-intensive business processes for hiring, promotion and tenure.

- Institutional marketing and future research awards are dependent on the institution's ability to tell its story and showcase faculty.

- Today, many institutions use a collection of homegrown and siloed solutions to manage faculty personnel administration and support activities, including research administration and accreditation, both highly dependent on FIS data.

- Point solutions for individual FIS components, such as faculty hiring, have existed for some time. However, the concept of a comprehensive system, built from a set of integrated modules from a single vendor or partnered vendors, is gaining traction.

- FIS interest is highest in Australia and New Zealand, EMEA, and North American education markets, [28] particularly but not exclusively in institutions with significant research activity.

Implications:

- The FIS should be integrated with other institutional systems, such as HCM, research administration and student information system (SIS). It is imperative that institutions make deliberate and well-communicated decisions about which systems will be the source of truth (the system of record) for each data element. This includes determining what data will be primarily sourced in the FIS.

- Faculty should be onboarded and participate actively in both initial system implementation and ongoing work of keeping data current. Data loading and routine updating are product differentiators which should be carefully evaluated as they can be a source of data inaccuracies reducing faculty support for the initiative.

- Institutions that lack the ability to accurately and quickly leverage faculty information run the risk of falling behind competitors that can use this information to obtain greater research funding and heightened reputation, among other things.

- Institutions with robust FIS functionality will gain insights into optimizing this valuable resource in their business model. For example, these systems can be used to identify resource utilization constraints and cost optimization candidates.

Actions:

- Promote the value of a comprehensive enterprisewide view of faculty by broadening the conversation on campus.

- Even if you are only interested in one functional domain now, review other components for completeness of vision, as your requirements are likely to grow over time.

- Note how faculty will upload CV data, verify it and keep it current going forward, as this is often a major pain point and product differentiator.

- Launch a faculty-focused "what's in it for me?" marketing campaign to gain support.

Remote Proctoring

Analysis by Glenda Morgan

Description:

Remote proctoring, is used to verify the identity of fully online students before an assessment and ensure that they do not cheat. Online proctoring systems leverage a number of technology-, biometric- and video-based techniques.

Why Trending:

- Many institutions, especially those with mature online learning programs were using remote proctoring prior to COVID-19. As institutions moved online during the crisis, many more felt forced to implement remote proctoring to ensure the integrity of online exams. Funding shifted from models where students paid the cost of remote proctoring toward institutionally funded models.

- Lockdown browsers are the most common method of remote proctoring. Many institutions also use automated proctoring using AI scripts running against a video feed of the student writing the exam to identify suspicious behavior such as another person in the video or talking.

- Remote proctoring is often unpopular with students in part because they see it as an invasion of privacy and because of overzealous flagging of normal activities as suspicious.

- Some higher education institutions have implemented remote proctoring using standard web conferencing tools rather than specialized tools. Students log into the web conferencing software (such as Zoom or Webex) and take their exam while being observed by the instructor or staff member.

Implications:

- The adoption of remote proctoring tools at scale has been an additional financial and support burden for many IT departments. CIOs and IT staff also frequently find themselves caught between instructors who are anxious to use technological means to ensure the exam's integrity in an online environment with which they are unfamiliar and students who have valid concerns about the intrusive nature of these tools.

- Going forward the volume of remote proctoring is likely to fall as campuses return to in-person instruction and more conventional methods of assessment. However, in the longer term, instructors should develop more authentic assessment better suited to an environment of information abundance and not reliant on proctoring.

Actions:

- Implement remote proctoring and ensure its success by developing a strong communication plan as part of the rollout. This should include, for example, materials for instructors to include in syllabi alerting students to the fact that remote proctoring will occur and its requirements.

- Protect your users' data by paying close attention to the privacy and security components of your remote proctoring services contract. In particular, note what data is collected, where it is stored and for how long, who has access to the data and whether the data will be shared with third parties.

Further Reading:

Market Guide for Remote Proctoring Services for Higher Education

Changes Since Last Year

Many of the trends in this year's list are new, representing a break from last year. This is hardly surprising given the tumultuous events of 2020 and the challenges and rapid change to which they gave rise. In addition, the format of the list has changed, from strategic technologies (i.e., technologies which we thought CIOs should implement) to technology trends (i.e., those which we saw being implemented across the industry).

Six trends from 2020 are no longer on this list. Trends such as smart campus, nudge technology, career software, 5G, new display, visualization and collaboration technologies, and digital credentialing technologies, while still relevant and often even still emergent, are attracting less CIO attention than in prior years. Some of these will no doubt return as a focus in the future. Two trends — artificial intelligence strategy and next generation security and risk management — are not on this year's list but have been replaced by related, more focused trends in chatbots and cyberthreats. Only two trends, cross-life-cycle CRM and faculty information systems, remain from last year's list but both have some new wrinkles.

Evidence

[1] Robots Replace University Students in Zoom Graduation Ceremony, CNET.

[2] How to Tour Colleges During a Global Pandemic? Explore 10 Examples of Virtual Campus Tours, ThingLink.

[3] The Pandemic May Have Changed International Recruiting Forever, The Chronicle of Higher Education.

[4] How Two Small Colleges Actually Increased Freshmen Enrollments This Year, Forbes.

[5] Three Ways to Improve the 2020 College Application Process, National Research Center for College and University Admissions (NRCCUA).

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Document Revision History

Top 10 Strategic Technologies Impacting Higher Education in 2020 - 2 March 2020

Top 10 Business Trends Impacting Higher Education in 2019 - 20 February 2019

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Top 10 Business Trends Impacting Higher Education in 2017 - 28 December 2016

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