Accelerating IT Modernization in Higher Education

Enabling access across campus and beyond
Table of contents:

INTRODUCTION ............................................................. 3

CHAPTER 1: Higher Education IT infrastructure in 2020 ............. 4

CHAPTER 2: Objectives of IT modernization in higher education .......................................................... 7

CHAPTER 3: The higher education modernization journey ........ 10

CHAPTER 4: Challenges and barriers to modernization ............. 13

CHAPTER 5: Practical concerns in planning modernization ...... 16

CONCLUSION ................................................................ 18
INTRODUCTION

From upgrading computing power and storage to accelerating cloud and VPN adoption, modernization is a constant for IT teams at the college and university level. While higher education institutions strive to offer advanced networking and computing resources, sudden shifts in demand have increased pressure to implement changes more rapidly—and more securely—than ever. In particular, these shifts have extended the ability of colleges and universities to teach, communicate with and support users virtually anywhere.

For students, faculty and staff, the campus—or the virtual campus—is central to life, work and study. Improving the day-to-day technology experience should result in increased productivity for every member of the academic community.

Spiceworks Ziff Davis recently conducted a survey of decision-makers in education IT, from CTOs and CPOs to administrators, including 81 respondents in higher education. This eBook explores how IT decision-makers in educational organizations select, purchase, and manage IT. The survey also examined technology refresh cycles, including security considerations and productivity improvements.

IN THEIR OWN WORDS: WHAT EDUCATION IT DECISION MAKERS ARE STRIVING TO ACHIEVE

“Cost is the biggest factor so we are continuing to find ways to do more with less, while trying to plan for and budget for new technology as best we can.”

“We have invested in quality checks and inquired how our students feel about the technology that we offer to identify issues. We also have run tests with employees and students who use different operating systems to see how to integrate both.”

“One challenge is making sure all students and faculty are informed on how to navigate the technology.”
CHAPTER 1:

Higher education IT infrastructure in 2020
Education at every level continues to transform from an in-person experience based primarily in classrooms, lecture halls and laboratories to include the option of virtual learning experiences delivered using digital learning technology. With rich access to lab materials, media sources, and lectures, university students can be immersed in learning wherever they are. Higher education now demands solutions that enable learning and working from anywhere.

Colleges and universities have innovated with remote learning solutions for years, offering remote video recording, online course materials, and more. The shift from campus-only education to either an all-online or a hybrid approach has accelerated rapidly: By 2018, more than 35% of all higher-education students in the U.S. had taken at least one online course. In today’s environment, that number has skyrocketed, with academics and administrators also typically working remotely or in blended environments that mix on-campus with remote work.

For researchers carrying out advanced calculations or using large data sets, higher education institutions must provide advanced computing power and robust networking capabilities. These needs must be underpinned by an infrastructure that provides students and staff with the same access to the resources they would use on campus—even when working from home or at a remote research location.
Among the objectives IT managers hope to achieve by modernizing their IT infrastructure, enhanced cybersecurity was chosen by 51% of respondents. With rampant malware and intrusion attempts putting personal data, confidential research, and entire systems at risk, cybersecurity makes sense as a top priority. Respondents also prioritized enabling secure, anytime access across the institution’s users (46%), setting up online courses or learning environments (38%), enhancing data management, storage, analytics and protection (37%), and moving workloads to the cloud (37%).

IT managers face roadblocks to achieving these goals, however. Survey respondents across educational institutions named three top IT challenges, all which affect any organization’s IT department:

- Meeting end-user needs (42%)
- Dealing with limited IT staff and resources (40%)
- Operating with limited budgets despite high costs (35%).
CHAPTER 2:
Objectives of IT modernization in higher education
IT managers in higher education face a growing list of challenges, and cited three areas most in need of modernization in their own environments:

- Cloud solutions and services
- Security and data protection
- Storage and data management

**AREAS IN NEED OF MODERNIZATION**

- Cloud solutions and services: 44%
- Security and data protection: 40%
- Storage and data management: 31%

In an era of remote classes and diverse end points for which cloud software can act as a conduit, it was no surprise that 44% of respondents say cloud solutions and services require modernization. IT can define how schools operate, from recruitment to scheduling to online communications and cloud solutions offer an inherent advantage in times of crisis over software tied to a physical location. For IT managers, cloud offers other advantages, too. Management tools that span private and public clouds can reduce costs with a consistent experience, and the flexibility of cloud deployment means that capacity can be easily scaled with demand. And with tools such as VMware, applications can be run, managed, and secured across a common operating environment.
With widely distributed data backup and redundant hardware across data centers, cloud software can help overcome disruptions that affect a building or campus.

Selected by 40% of respondents, security and data protection hold a close second place in areas that need modernization. Universities are called on to hold tremendous volumes of information—and are prime targets for malware and electronic trespass. Students and employees nonetheless expect their data to be held reliably and securely. Deepening the need for greater security is that much of the data institutions inevitably collect is legally sensitive personally identifiable information. Data stores left poorly protected from intrusion can expose that personal information, as well as institutional data, from financial records to proprietary research.

Finally, reflecting that same expectation of safe, accessible data storage as well as long-term growth in data volumes, 31% of respondents said that their storage and data management infrastructure itself is in need of modernization.

**DESIRED OUTCOME**

<table>
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<tr>
<th>Outcome</th>
<th>Percentage</th>
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<tr>
<td>42% Increase student and staff satisfaction</td>
<td></td>
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<tr>
<td>40% Increase student and staff productivity</td>
<td></td>
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<tr>
<td>36% Increase data protection</td>
<td></td>
</tr>
<tr>
<td>35% Increase student and staff success</td>
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<tr>
<td>35% Realize plan for unexpected or temporary remote learning</td>
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For both students and staff, IT decision-makers named increasing satisfaction and increasing productivity for both students and staff as their top goals for modernization (42% and 40%, respectively). Nearly as important, for at least 35% of respondents, were greater data protection, and improved student and staff success. At the time this survey was taken, the need to deliver education on an anywhere, anytime basis was already apparent, and the need has only increased since then. With uncertainty surrounding the future of on-campus instruction, the ability to deploy and pivot between remote learning solutions is crucial. Fully 35% of respondents expressed the desire to develop a successful plan for unexpected or temporary remote learning.
CHAPTER 3:
The higher education modernization journey
IT modernization is an ongoing process, not a single achievable goal. For this reason, institutions are always at some point along a modernization journey. Across educational institutions, IT decision-makers named three key benefits they see in modernization:

- Improved performance and security
- Reduced costs
- Implementing and extending online/remote learning

Though upgrade cycles vary, the survey showed that institutions typically refresh their IT infrastructure every 1–4 years. Given the large scale and diverse stakeholders of many academic institutions’ IT infrastructures, as well as the collaboration that marks the culture of higher education, it’s not surprising that IT managers consult with others about their modernization efforts. Three quarters of IT managers in education seek out help from others, from talking to peers to seeking advice from industry experts and vendor websites.
But what sparks IT leaders to begin the process of modernization? The leading triggers for infrastructure modernization efforts cited by higher education decision-makers are budget availability (54% of respondents), the ongoing need to refresh technology (cited by 53%) and the need to account for growth or additional infrastructure (49%).

**IN THEIR OWN WORDS: WHAT MODERNIZATION MEANS TO IT DECISION MAKERS IN HIGHER EDUCATION**

“I want to implement another backup security system which can help me to face future problems.”

“We are going to do a deep dive into remote learning and building upon the tools we currently have and adapting them for the future.”

“It means upgrading equipment and software in ways that will help students participate more in class and other college activities.”
CHAPTER 4:
Challenges and barriers to modernization
Modernization, no matter how urgent, may be held back by emergency spending in other areas. IT decision-makers can only implement changes for which funding can be allocated, and they report that their top challenges when addressing modernization are budget limitations (49%) and limited staffing and resources (38%).

**Modernization Barriers**

- High costs and limited budgets: 49%
- Limited IT staff and resources: 38%
- Security and compliance concerns: 35%

Despite those fundamental financial barriers, universities cannot allow their infrastructure to stagnate. Every educational institution faces ongoing security threats, and must ensure compliance with regulations that mandate data retention and protection. 26% of respondents named security and compliance concerns as a top barrier to modernization.
Besides these fundamental challenges, IT management faces several additional hurdles, from vendor selection for particular projects to installing physical infrastructure.

REMOTE/ONLINE LEARNING CHALLENGES

- Internet access
- Lack of participation/collaboration
- Setting up technology efficiently
- Training staff/students on technology
- Security (data and cloud security)
- Shift in how educational materials are assigned/presented
- Troubleshooting technical issues
- Lack of end-user knowledge of best practices
- Lack of remote learning platforms/tools

Today’s college and university IT staff must also meet challenges specific to remote learning, from the provision of internet access to selecting and supporting the most effective e-Learning platforms.
CHAPTER 5:
Practical concerns in planning modernization
IT managers in higher education understand that infrastructure costs don’t end with the number on an invoice. Time must be allotted for tasks like setting up, troubleshooting, and learning and supporting new systems. Another cost to consider is the potential for security breaches, which may expose the institution to data loss or network disruption. Rebuilding data from backups in the event of a ransomware attack or malicious data destruction imposes costs in personnel time—as well as in lost productivity for users.

Further, education IT managers face limited budgets and a user population with rapidly changing needs. Given these constraints, survey respondents reported that they rely on a range of information sources that include consultants (39%), recommendations from peers or colleagues (38%), information gleaned from manufacturer or vendor websites (38%), and data found in online technology communities (35%).

**IN THEIR OWN WORDS: WHAT IT PROS IN EDUCATION ARE LOOKING FOR**

“The first thing we look for in a vendor is the expertise and positive reviews from other professionals.”

“We want a partner who has good customer feedback from schools on support needs and meeting those needs and expectations.”

“Superior customer service which includes proactively checking in with us to see if things are OK or if anything needs to be addressed with our infrastructure.”
CONCLUSION

The goals of modernization in higher education are ambitious, ranging from enabling remote access, to enhancing security, to supporting complex online learning environments. 2020 has already seen rapid shifts in technology demand, and these may extend or be expanded upon in the years to come. The need for modernization has never been more urgent.

To rapidly, economically benefit from today’s networking, storage, and computing technologies, IT managers in education can only benefit by working with a technology partner well-versed in security practices and experienced in infrastructure deployments that span the physical campus and beyond.

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**PROVIDER PERCEPTIONS**

- **80%** Security
- **73%** Service and support
- **69%** Price and value
- **64%** Find Dell Technologies to be a very credible provider

**Very important factors**
Dell Technologies: A trusted partner for modernization

Every technology provider brings its own mix of capabilities, but education IT professionals expect vendors to excel in security (80%), service and support (73%), and value (69%). Security is especially important in seeking out a technology partner, because a network that isn’t secure can’t be trusted.

Dell Technologies meets all three needs, starting with an integrated, proactive approach to security that weaves security best practices and tested technologies into every element of infrastructure. Dell Technologies ranks well among respondents in education IT on value as well as in support and can help educational institutions modernize every element of their IT infrastructure.

IN THEIR OWN WORDS: HOW HIGHER-EDUCATION DECISION MAKERS SEE DELL TECHNOLOGIES

“Dell support is outstanding—and that’s huge for us. Our account team is rock-solid, gives us consistently good pricing, and outstanding implementation support, too.”

“Dell is on the forefront of innovation, have been continually improving their offerings and have proven to be reputable and competent.”

“Dell provides end-to-end solutions that work well and are reasonably priced for us. They have consulting services that help us build what we need, no more and no less.”
Dell Technologies offers the industry experience and expertise education IT decision-makers count on to successfully integrate both hardware and software, and to deploy the deep infrastructure and security systems needed to continually improve the experience for students, faculty, and staff.

Dell Technologies excels at providing value, support, and built-in security, with a comprehensive portfolio of hardware, software, and services from networking technology to complete virtual desktop infrastructure solutions.

Ready to explore how Dell Technologies can help modernize your education IT environment?

Learn More

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Intel solutions for education

Intel’s comprehensive approach to education technology gives educators access to digital tools, content, and data that takes personalized learning to the next level. It enables students to hone 21st-century skills to better prepare for careers in the modern workforce while giving teachers the ability to tailor lessons and engage students. Learn more about Intel’s focus on education

VMware solutions for education

To accelerate transformation in education, Dell Technologies and VMware partner together to provide integrated support, co-engineered technologies, and turnkey solutions to increase productivity and reduce total cost of ownership (TCO), enabling K-12 and Higher Education organizations to deliver digital learning experiences, simplify IT management, and secure data in all locations. Learn more about VMware’s focus on education

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About the survey

Dell Technologies commissioned Spiceworks Ziff Davis to conduct a survey in April–May, 2020. This survey targeted 153 IT professionals and business decision makers in diverse educational organizations. Respondents included IT directors/managers, network/systems administrators, school officials and others who influence IT infrastructure decisions in organizations of all sizes. The objective of the survey was to gain insight into the challenges in educational organizations’ infrastructure, perceptions, and practices around IT infrastructure, as well as future plans.

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Sources