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HOW LEADING HIGHER EDUCATION INSTITUTIONS ARE MODERNIZING CONNECTIVITY AND BUILDING SMART CAMPUSES

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Overview

In this report, we'll analyze how new technologies and trends in connectivity are enabling higher education institutions of all sizes to modernize their campus experiences, leverage emerging smart campus capabilities, and improve the overall learning and teaching environment for both students and faculty.

In higher education, the most successful students are those who continue to grow and never stop learning. The same can be said for the IT organizations at higher ed institutions.

To better serve their students and faculty, and be more competitive in today's education landscape, higher ed institutions are looking to leverage new and innovative technologies to improve connectivity, increase opportunities, and bring modern capabilities to learning.

Today, higher education faces a number of transformative opportunities to use technology to improve campus life and how students learn. From smart campuses to virtual and augmented reality to hybrid learning, institutions of all sizes are looking to modernize and optimize the way technology drives education.

In fact, Aberdeen research has found that leading institutions aren't taking a piecemeal approach to these technologies. They are instead seizing the opportunity to modernize all aspects of campus technology, from implementing 5G to boost connectivity to deploying Internet of Things devices to bridging the digital divide.

As a result of these modernization efforts, they see significant gains in agility, innovation, and improved resource optimization. Higher education is embracing emerging technologies and new ways to bring connectivity—and in the process, they are modernizing all aspects of campus life, learning, and teaching. With this new opportunity to innovate, leading institutions are using this window to leverage technologies such as 5G to successfully drive these modernization initiatives.

The New State of Tech and the Challenges for Higher Ed

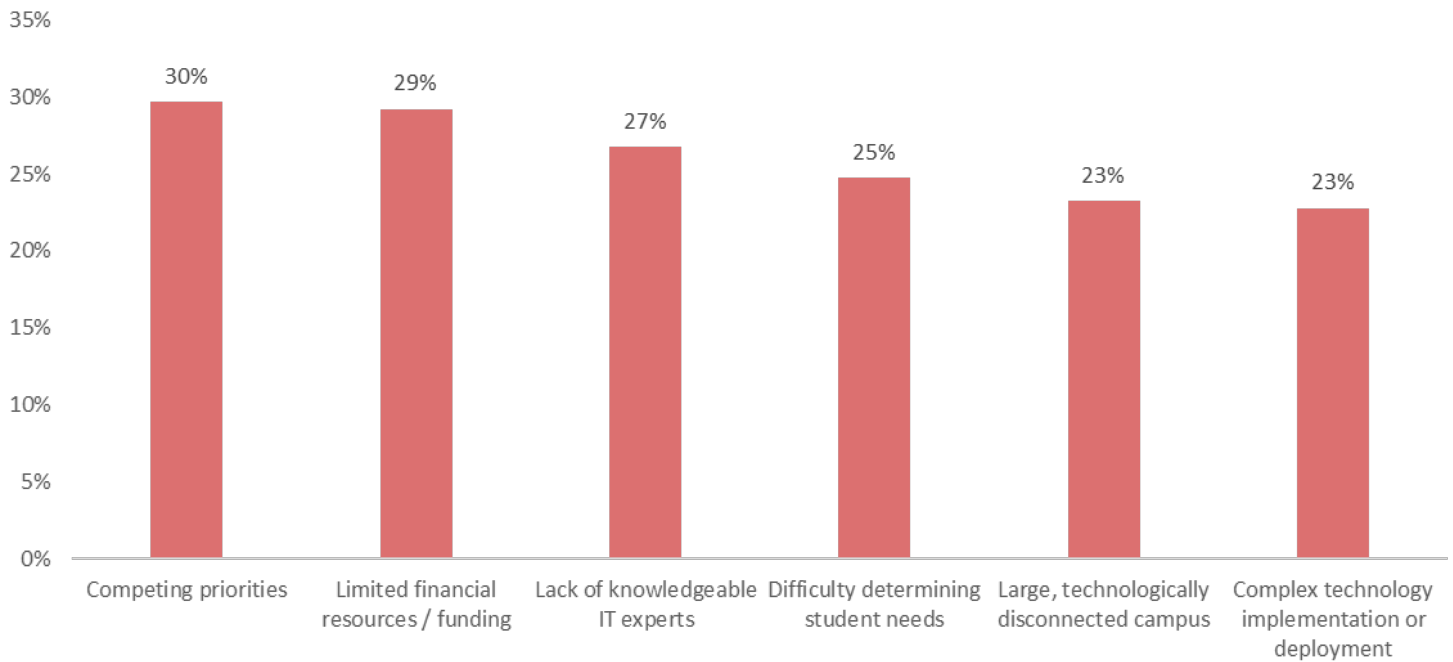
If one wanted to stress test internet connectivity and technology in general, there are few tougher environments than a modern higher ed campus. IT departments at these institutions deal with an extremely wide diversity of devices—laptops, smartphones, gaming consoles, VR headsets, smart IoT devices—streaming high data services such as real-

time video classes and are serving a digital native population that will constantly strain any network bandwidth and capacity.

Add to this the diversity of the campuses themselves, from urban schools surrounded by apartments and businesses to bucolic rural campuses that need to provide connectivity over wide open spaces, and it's easy to see how these institutions are not only challenged when it comes to modernization, but also in day-to-day technology needs. On top of all of this, higher ed now has to transform rapidly in order to meet new learning requirements, such as increasingly remote or hybrid user bases.

To better understand these challenges and drivers to modernize, Aberdeen Strategy & Research surveyed over 200 higher education institutions, from large state universities to small rural schools, to understand the pressures driving them to modernize, the technologies they are leveraging to succeed, and how they are benefiting from modern capabilities in internet connectivity. In Figure 1, we see the top hurdles they are facing in their quest to modernize.

Figure 1: Higher Eds Top Challenges to Modernize Technology Capabilities



Source: Aberdeen Strategy & Research, 2022 n=202

Looking at this data we see that the top two challenges are institutional, meaning that IT must compete with other departments for limited

resources. In these situations, clear information on the benefits of modernization, for students and for the institution overall, is vital to successful transformations.

The remaining top challenges clearly illustrate the stress test that is modern higher ed. These IT departments have to deal with technological complexity that is only exacerbated by their own limited expertise in new technologies. They also have to deliver technology and connectivity across large, disconnected campuses and to students whose needs and technology demands are often changing and not clearly understood.

Despite these challenges, IT departments at these institutions must modernize and transform their capabilities. There are a number of pressures driving them to improve. These include:

- ▶ The need to develop a technologically-connected campus to promote communication and collaboration
- ▶ Boost improvement in digital literacy among students
- ▶ Increase student access to technology resources
- ▶ Develop and utilize innovative technology to advance academics and research

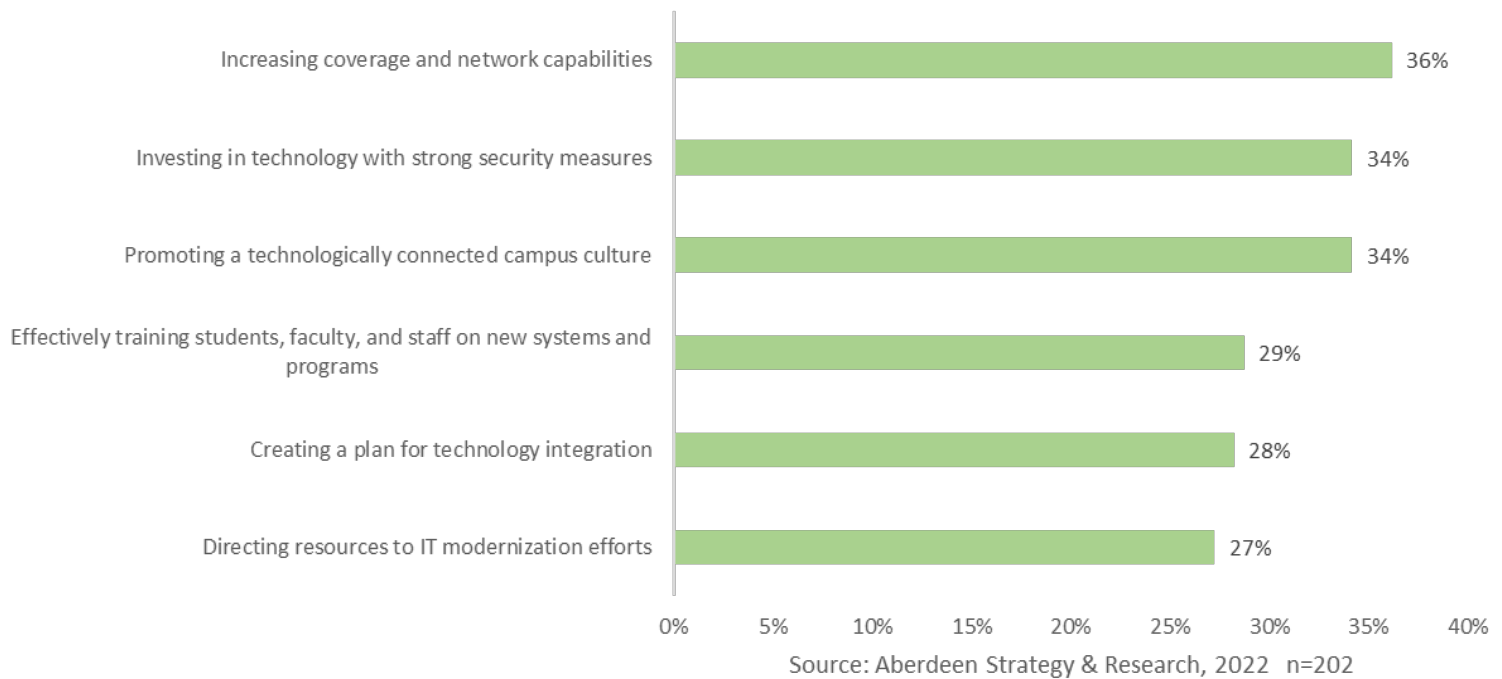
With all of these challenges and pressures, modernization of technology at higher ed can seem daunting. But this time of transformation also presents a huge opportunity for those institutions willing to modernize all aspects of their campus connectivity and IT infrastructure.

The Window of Opportunity to Modernize

Meeting the drivers and overcoming the challenges outlined above is currently job number one for IT leaders in higher ed. None of these institutions can afford to “take a gap year” and leaders are working hard to take the right steps to effectively transform.

To understand what steps are being taken to modernize, we asked survey respondents what actions they were taking in order to remove pain points and improve their technology capabilities. In Figure 2, we see that IT at higher ed is working across the board to improve and modernize how they serve their community.

Figure 2: Top Actions to Modernize Higher Ed Technology



Here we see a strong focus on modernization at higher ed institutions. They understand that improving technology capabilities means ensuring strong security and having effective integration for all technology stacks. They know that building an effective connected campus means increased training and having enough resources.

But clearly, the number one and most important action that these institutions are taking is to increase their network connectivity capabilities. Every other part of their modernization efforts relies on this connectivity.

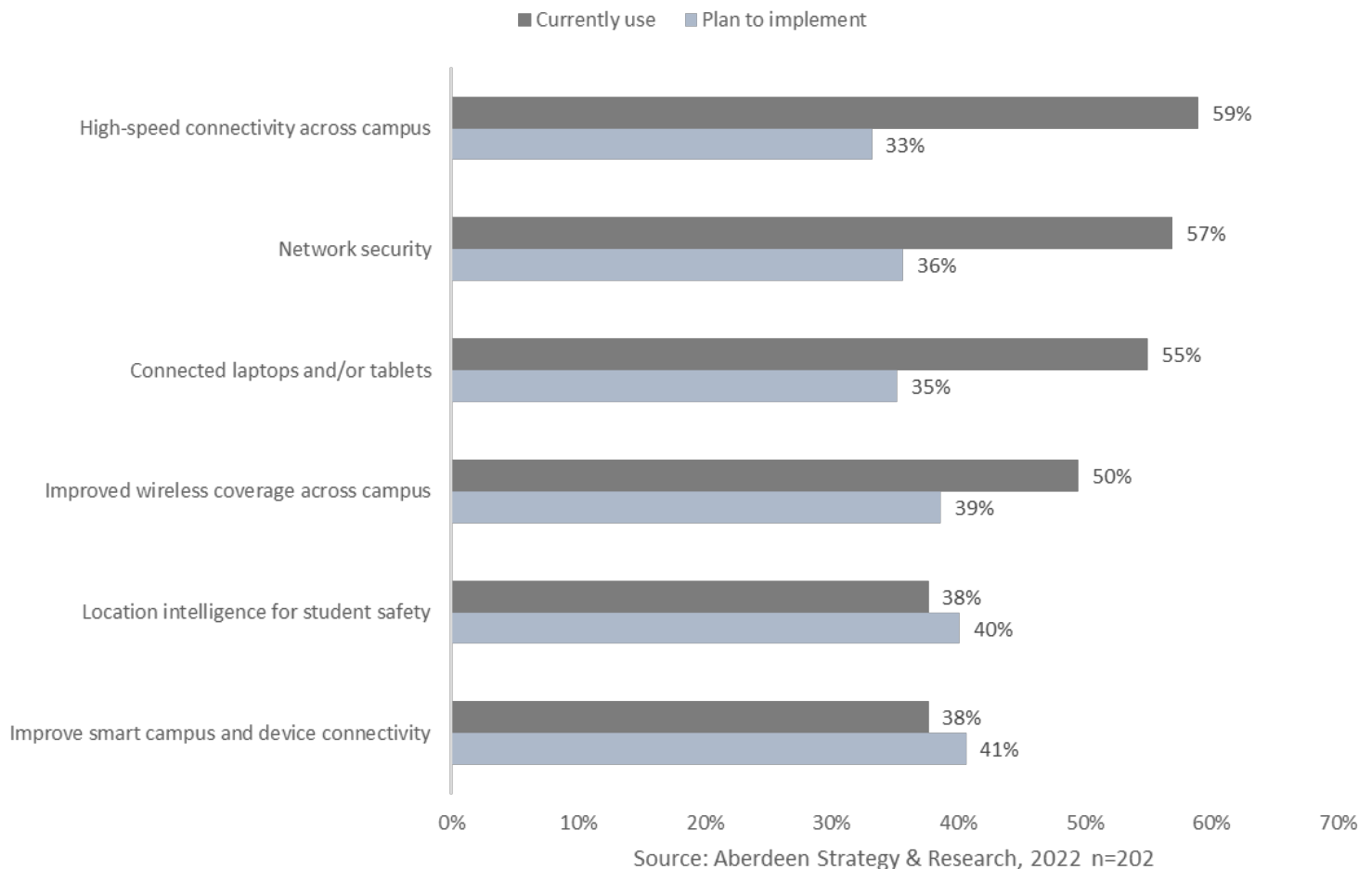
Smart campus initiatives fail without broad and reliable internet access. Innovative learning and collaboration without the proper connectivity can bog down and frustrate students and faculty. Bridging digital divides and building an innovative campus culture won't work if the connectivity bridge is down or slow all the time.

How an End-to-End Focus on Connectivity Leads to Success

We've seen that one of the top actions that higher ed IT is taking to modernize is to focus on building a connected campus culture. However, this isn't a singular action.

Leading higher ed institutions are realizing that promoting student success relies on a number of key strategies and technologies in order to succeed. In Figure 3, we see what steps these organizations are currently following or planning to follow in order to build a connected campus.

Figure 3: How Leaders Graduate to a Connected Campus



To build a successful and innovative campus culture that uses technology to promote learning and bridge digital divides, leading institutions understand that those connections must be secure—both when it comes to internet access and when it comes to ensuring physical safety. These organizations know that their connectivity must be reliable and accessible to any device, from laptops and tablets to IoT devices and smart classroom assets.

But again, we see that the number one priority is high speed connectivity across the entire campus. Every part of modernization hinges on end-to-end, reliable, and fast connectivity.

Somewhat fortuitously, coinciding with this higher ed drive to modernization is the arrival of a technology designed to bridge these connectivity gaps, to bring higher performance and reliability to users and devices across even the most innovative and demanding connected campus.

With the rise of 5G wireless network connectivity, higher ed institutions can quickly bring a level of coverage, bandwidth and performance that can meet the most demanding real-time media and data needs. So it's no surprise that our research shows that higher ed IT organizations that are the most successful in modernization are embracing 5G, and that a majority of higher ed institutions are focused on leveraging 5G.

According to Aberdeen research, the number one planned technology to promote student success is 5G. And 83% of respondents say that 5G is very or extremely important to their IT modernization plans.

Leading Higher Education Institutions Benefit from 5G and Modernized Infrastructures

They say that the three most important factors in real estate are location, location, location. When it comes to modernizing technology in higher ed and building a smart and connected campus, you could also say that the three most important factors are connectivity, connectivity, connectivity.

This is why leading institutions are taking advantage of 5G. By enabling fast, high bandwidth, and reliable connectivity for any devices anywhere on any campus, 5G serves as the bridge for a modernized and connected campus.

Aberdeen research shows that for leading higher ed institutions that have already leveraged 5G as the foundation of their modernization efforts, this level of connectivity is already paying off in a big way. Looking at the data in Table 1, we see that 5G not only eases modernization, but it also leads to more effective and more innovative campus cultures.

Table 1: Successful Campus Modernizations Powered by 5G

Higher-Ed institutions that have deployed 5G are:

45%	More likely to be completely prepared for remote and hybrid learning
2x	More likely to be utilizing augmented and virtual reality in learning
30%	More likely to have implemented smart campus IoT devices
2.5x	More likely to have security to prevent unauthorized network access

With 5G enabling high bandwidth and fast connectivity, these leading higher ed institutions are innovating when it comes to learning. When compared to higher ed without 5G, they are 45% more likely to be completely prepared for remote and hybrid learning, and they are 2x more likely to be enabling cutting edge learning tools such as augmented and virtual reality.

These leaders in campus modernization are also boosting their smart campus initiatives, as the broad connectivity and coverage of 5G makes them more likely to have IoT devices on campus. Additionally, the IT at these higher ed organizations is ensuring safe and secure connectivity, as they are 2.5x more likely to be able to prevent unauthorized network access.

Along with these benefits, 5G is enabling these institutions to meet their connectivity goals. Our research shows that they are 17% more likely to have optimal wireless network performance and they are 33% more likely to have wireless coverage across all of their exterior campus spaces.

Recommended Steps and Key Takeaways

Higher ed institutions are facing rapid changes and the need for transformation to keep up. As they are working to modernize and build connected and smart campuses to boost learning, student growth and opportunity, they need to take this window of opportunity to innovate through connectivity that can meet these new demands.

IT at higher ed that are succeeding at modernization understand this imperative and are embracing 5G technologies as the backbone of their efforts to transform and innovate across their campuses. To join these leaders and give your institution the connectivity it needs to succeed, follow these key recommendations:

- ▶ **Build a connected, digital campus with end-to-end connectivity.** Today's smart campuses utilize IoT devices, multitudes of computing interfaces, rich and real-time learning, and large spaces. Leaders invest in technologies that boost connectivity, ensure strong security, and provide a solid foundation for modernization.
- ▶ **Get 5G on your agenda.** We've seen how 5G adoption is a vital element of successful connectivity and how 83% of higher ed institutions consider it key to their IT modernization plans. Higher ed IT organizations should accelerate their 5G adoption and realize the benefits of improved performance, coverage, and innovation that leaders are already seeing.
- ▶ **Improve connectivity and boost opportunity.** Limited connectivity can lead to limited learning experiences. With technologies like 5G, higher ed can provide high levels of connectivity for every student and improve their own capabilities to build a smart, connected campus.
- ▶ **Seek out partners with 5G experience.** We've seen how top challenges to modernization include lack of expertise with new technologies. That's why leading institutions are working with experienced partners who understand how to effectively implement and manage key technologies like 5G in a simple and cost-effective manner.

About Aberdeen Strategy & Research

Aberdeen Strategy & Research, a division of Spiceworks Ziff Davis, with over three decades of experience in independent, credible market research, helps **illuminate** market realities and inform business strategies. Our fact-based, unbiased, and outcome-centric research approach provides insights on technology, customer management, and business operations, to **inspire** critical thinking and **ignite** data-driven business actions.

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