

Academic  
Research

Student Lifecycle &  
Success Management

Teaching &  
Learning

# Connected Campus & School Experiences



# Table of Contents

Introduction .....	3
Physical Safety and Security .....	9
Enhancing the Student Experience .....	14
Facilities Management and Energy Efficiency .....	21
Why Microsoft? .....	25

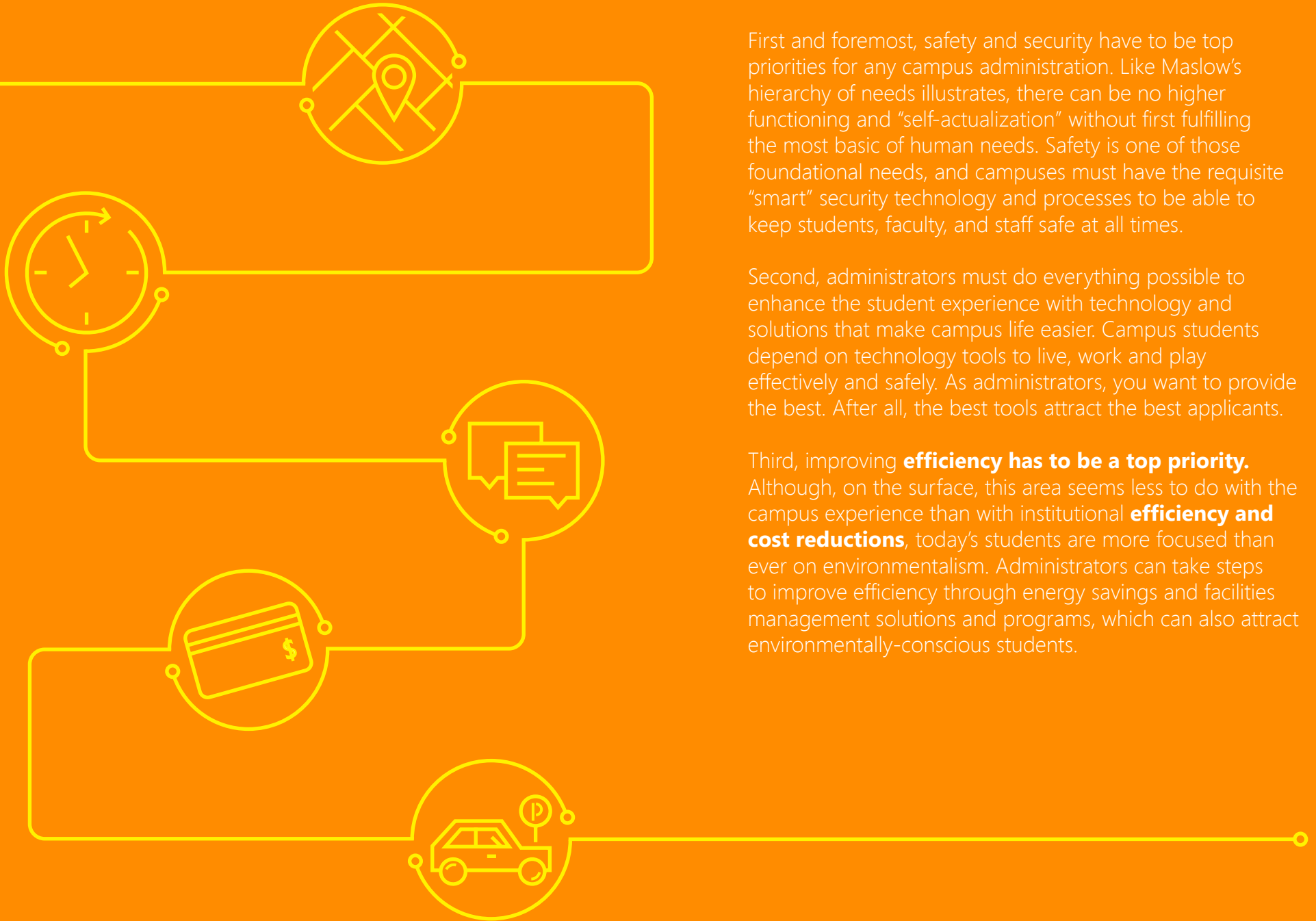
Today's college and university campuses are evolving to meet the growing and changing needs of students globally, including the influx of millennials or Generation Y.

According to *Forbes*, more than a quarter of a billion students globally will enroll in higher learning institutions by 2025. In order to effectively accommodate not just the volume of students on a campus, but their unique and growing needs, learning

institutions, by necessity must evolve and change to connect to current realities. In short, higher learning administrators and leaders must strive to achieve a "Connected Campus."

Despite the rapidly changing university and college landscape, there is one thing that remains the same: the importance of the campus experience. Of course, the campus experience usually refers to how students interact with their higher learning environment, but there are many different levels to that interaction.





First and foremost, safety and security have to be top priorities for any campus administration. Like Maslow's hierarchy of needs illustrates, there can be no higher functioning and "self-actualization" without first fulfilling the most basic of human needs. Safety is one of those foundational needs, and campuses must have the requisite "smart" security technology and processes to be able to keep students, faculty, and staff safe at all times.

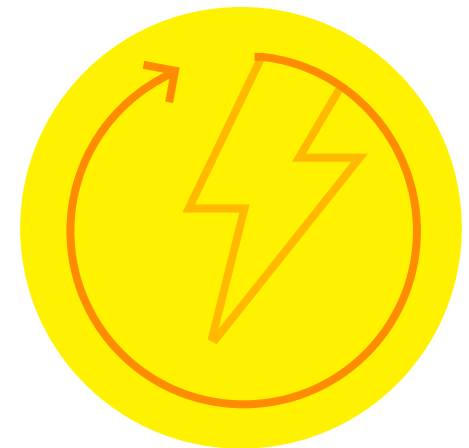
Second, administrators must do everything possible to enhance the student experience with technology and solutions that make campus life easier. Campus students depend on technology tools to live, work and play effectively and safely. As administrators, you want to provide the best. After all, the best tools attract the best applicants.

Third, improving **efficiency has to be a top priority.** Although, on the surface, this area seems less to do with the campus experience than with institutional **efficiency and cost reductions**, today's students are more focused than ever on environmentalism. Administrators can take steps to improve efficiency through energy savings and facilities management solutions and programs, which can also attract environmentally-conscious students.

At Microsoft, we believe these three keys – safety and security, enhanced student experiences, improved efficiency – are the three links to a thriving higher learning campus.

In this e-book, we'll take a look at the challenges ahead for campus administrators in striving to achieve this. Then we'll explore these three links, and the best solutions available to fulfill those needs, proven out and illustrated by case studies and other evidence.

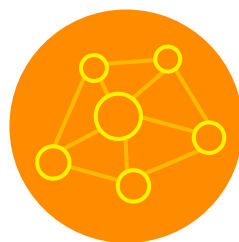
We know change isn't easy. And striving for a Connected Campus requires a willingness to change. You may well find, however, that it may not be as hard as you think.



## Top 4 challenges faced by higher education

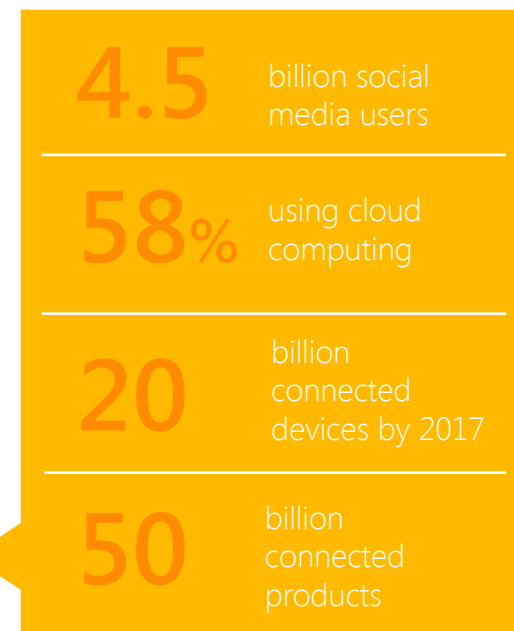
Achieving a thriving and Connected Campus in today's world isn't easy considering the challenges faced by administrators.

From the growing social media landscape, to financial and technology constraints, to greater competition, leaders at colleges and universities face formidable obstacles. These can be broken down into four major categories.



### Keeping up with a connected world

The onus is on learning institutions to adopt mobility and social media friendly technology and solutions that can help students connect, collaborate, and communicate in the way they know best.



### Funding

Funding is a pervasive challenge fueled by performance requirements ties to appropriations, as well as budget cuts. Other factors include the Return of Title IV funding, rising tuition, and increased reliance on raised funds.



### Greater competition

Universities are competing for a smaller pool of students on a regular basis. Other factors contributing to increased competition include shifting demographics, a changing delivery mechanisms of courses, and the rise of online classes.



### Legacy systems

Many higher learning institutions are saddled down by legacy systems that are expensive to maintain and that do not reach the potential that could be achieved by connecting data across systems and applying holistic analytics. These fragmented systems are often expensive and difficult to use. They also lack the mobile and social capabilities needed for today's campus population.

Am I confident about the physical safety and security on campus?

Are our transportation and parking systems up to date?

Are our buildings efficient?

Is my communications infrastructure able to keep up with our students?

## Meeting challenges by taking advantage of the latest technology

While these challenges are formidable, there are solutions and technology that can help you meet those challenges head on. As we explore the three links to achieving a thriving Connected Campus, it's helpful to get an initial high-level view of the technology that can be used to effectively address all these areas. This will lay the groundwork as we dive into the solutions later on in this e-book.

## The Internet of Things (IoT)

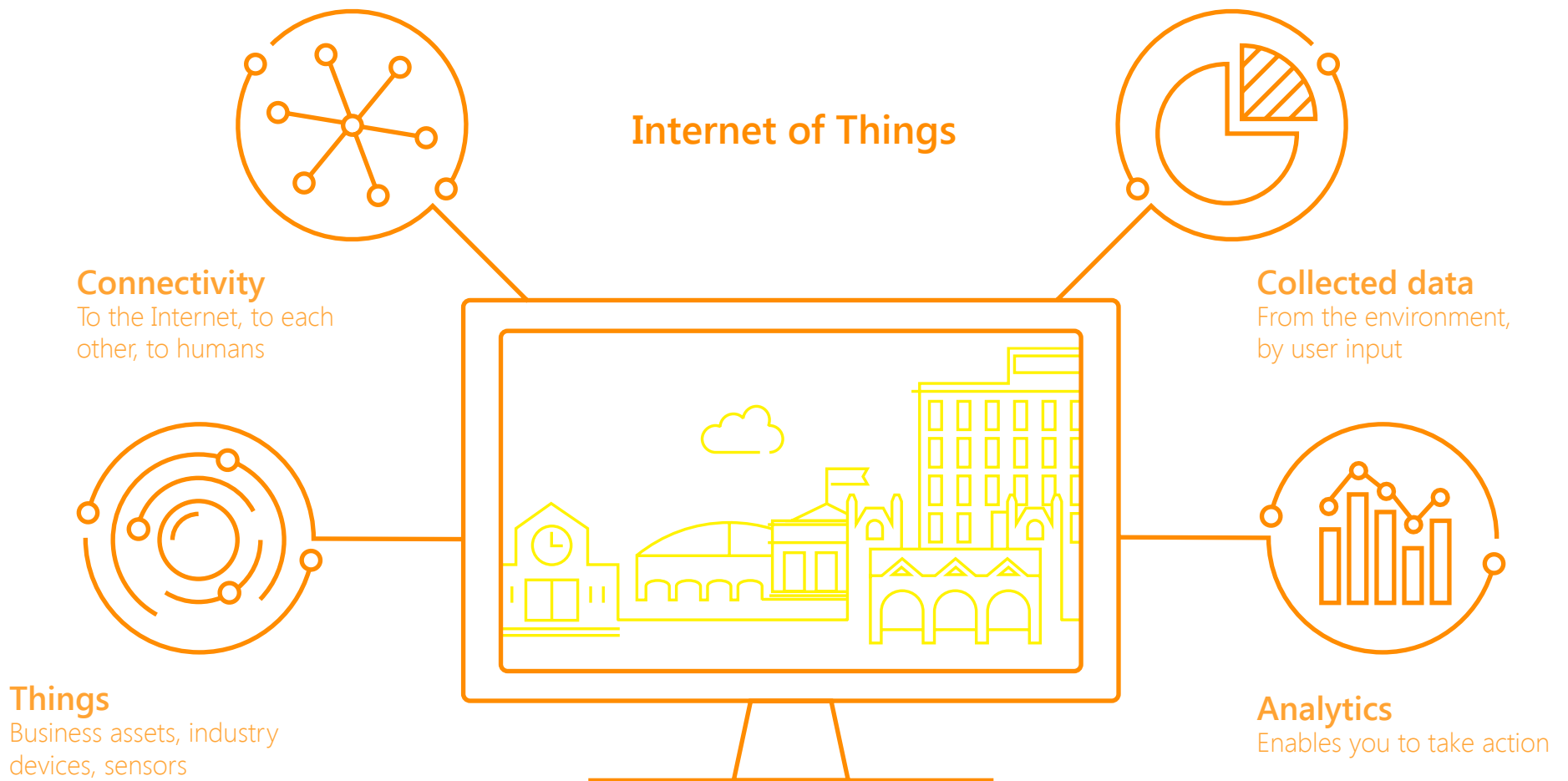
As you begin to think about the three links to a Connected Campus – safety and security, enhanced student experiences, improved efficiency – you'll naturally begin asking questions about your own campus.

These might seem like very daunting questions. The good news is that you're probably closer than you think, thanks to the **Internet of Things**, or IoT.

Having a strong IoT strategy is the first step on your Connected Campus journey. What exactly is the Internet of Things? IoT consists of four basic elements: things, connectivity, collected data, and analytics.

We'll discuss how IoT technology can be leveraged to achieve the Connected

Campus in greater detail later. But first, let's explore the three links that make up the Connected Campus, as well as examine the evidence and case studies that show the value and benefit to this proactive approach.







# Physical Safety & Security



The obvious consequences of not addressing campus safety in the strongest possible way are not only life-threatening, they can also negatively impact a college or university in the long-term.

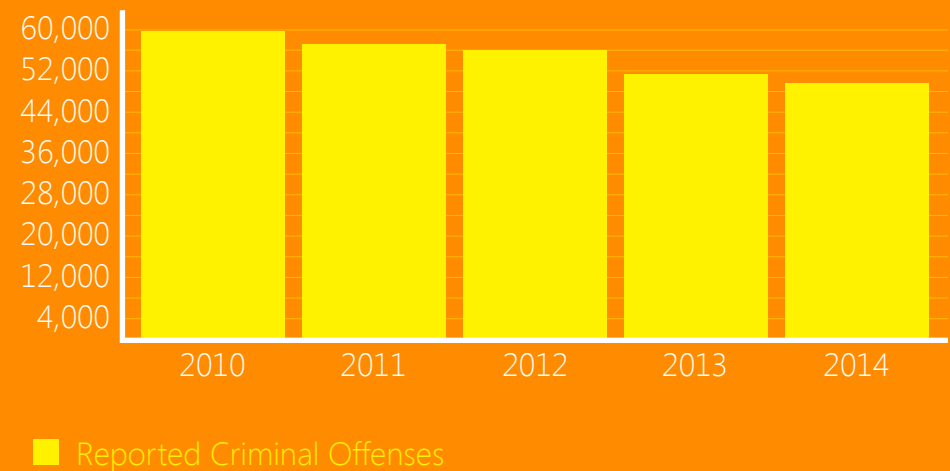
Irreparable damage can be done to the university brand image, large financial implications can devastate your higher education budget, and future recruitment may suffer if it's deemed that the institution has even a tinge of negligence.

Of course, keeping students safe isn't limited to criminal incidents. Natural disasters, fires, accidents, and health-related concerns all fall under the umbrella of campus safety. All potential hazards mandate the use of the latest security monitoring, communications, notification and emergency response systems and technologies in today's campuses. And all must address not just student safety, but that of faculty and staff as well. Smart security cameras, emergency notifications and situation management tactics are all part of the safety equation.

Maximizing safety on campus relies on investments in four key areas:

- Emergency notifications
- Video cameras
- Access control
- Social media mining

According to the most recent findings from the U.S. Department of Education, nearly 50,000 criminal offenses were reported on college campuses in 2014. Although that number is significantly down from a high of over 84,000 in 2005, reported criminal offenses have continued to hover in the 50 to 60K range since 2010. And, while the trend is slightly downward, campus security and the overall safety of student remains a high priority for administrators today.









## University of Puerto Rico, Humacao

### Situation

- University is a safe haven in an economically depressed region, but has security challenges
- Sprawling 62-acre campus has emergency call towers too far apart result during a crime spike
- Ability to issue timely warnings in case of a dangerous situation must improve to secure funding

### Solution

- University works with an MS partner, INVID, on a mobile app that acts as an emergency button
- When activated, a notification and GPS data are sent to the university security office
- User notification data adheres to strict privacy standards and meets the school's limited budget

[Learn more](#)



## Mansfield University of Pennsylvania

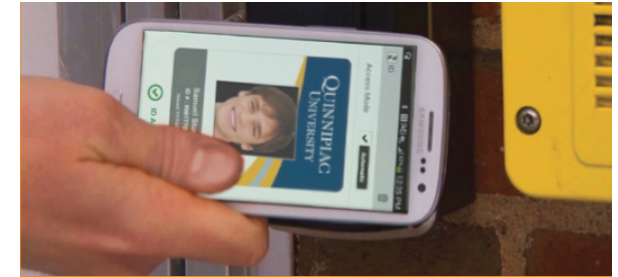
### Situation

- After Virginia Tech shooting, university takes a fresh look at security and safety systems
- Initial assessments indicate multiple security gaps and issues, especially with controlled access
- Video surveillance was also identified as lacking within certain key campus areas

### Solution

- Microsoft partner, Blackboard Transact, is chosen to enhance their access control setup
- Comprehensive and integrated solution consists of card access controls and video surveillance
- With plans for campus expansion, the system is scalable to meet the university's growing needs

[Learn more](#)



## Quinnipiac University

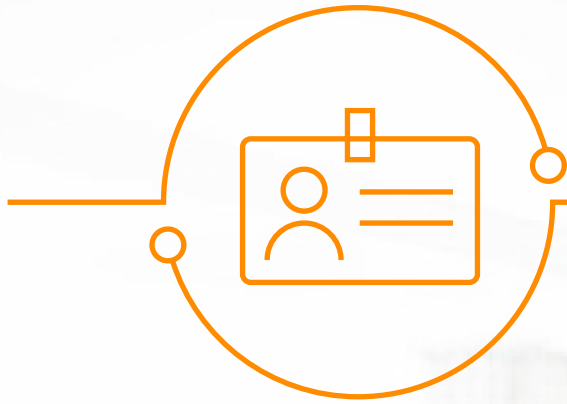
### Situation

- Existing card access and financial transaction system is aging technology with many limitations
- Excessive wear and tear from physical swipes causes frequent card replacing
- Existing magnetic-stripe cards were easy to duplicate, causing a security issue

### Solution

- University chooses MS partner, Blackboard Transact, for access control and transaction solution
- Contactless multi-function readers are installed and an easy-to-use card alternative distributed
- Results – improved security, plus simplified and faster transaction processes at POS or contact

[Learn more](#)



# Enhancing the Student Experience



The second link needed to achieve a thriving Connected Campus is enhancing the student experience with technology, solutions, and amenities that simply make campus life easier.

This effort encompasses a variety of improvements in the way students interact with their campus environment for greater convenience and time savings.

Enhancing the student experience can mean getting to and from places, finding parking spaces, paying for school items without cash, quicker and easier communications, getting relevant and real-time information from the school, and finding and scheduling available resources.

When looking at strategies to enhance the campus experience for students in the ways that would have the greatest positive impact every day, there are three primary areas to explore improvements:

- Campus transportation and parking
- Campus transactions and instant payment
- Communication infrastructure

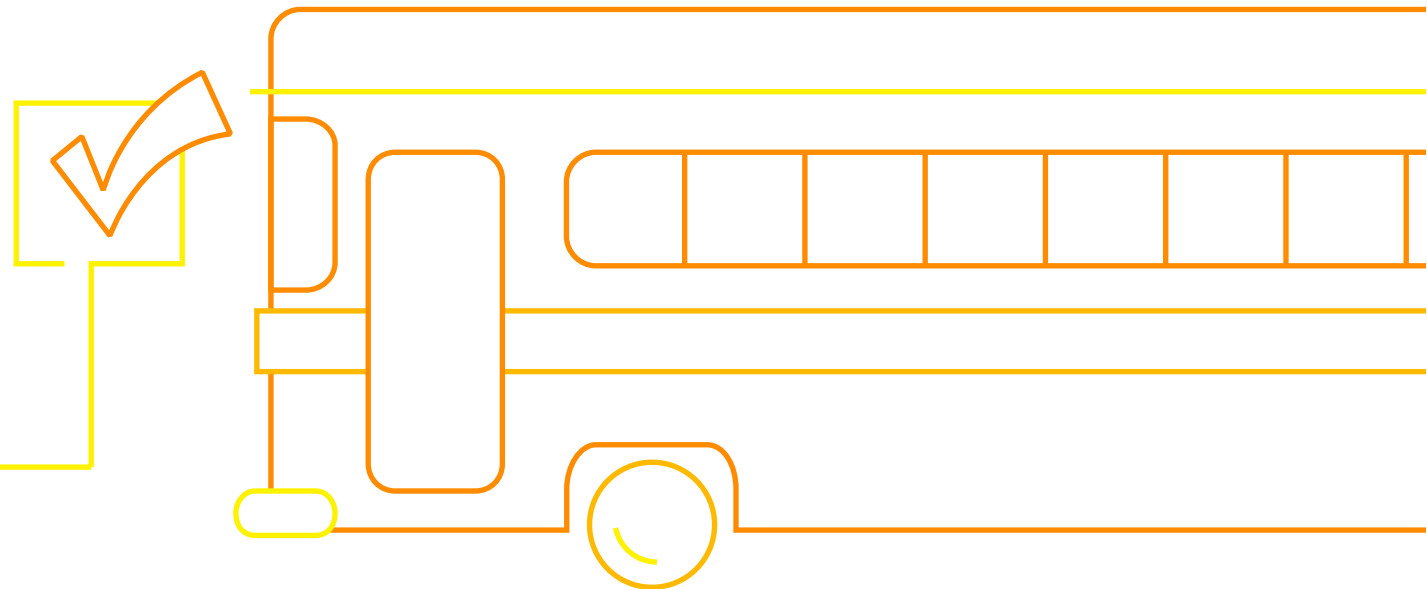


## Campus transportation and parking

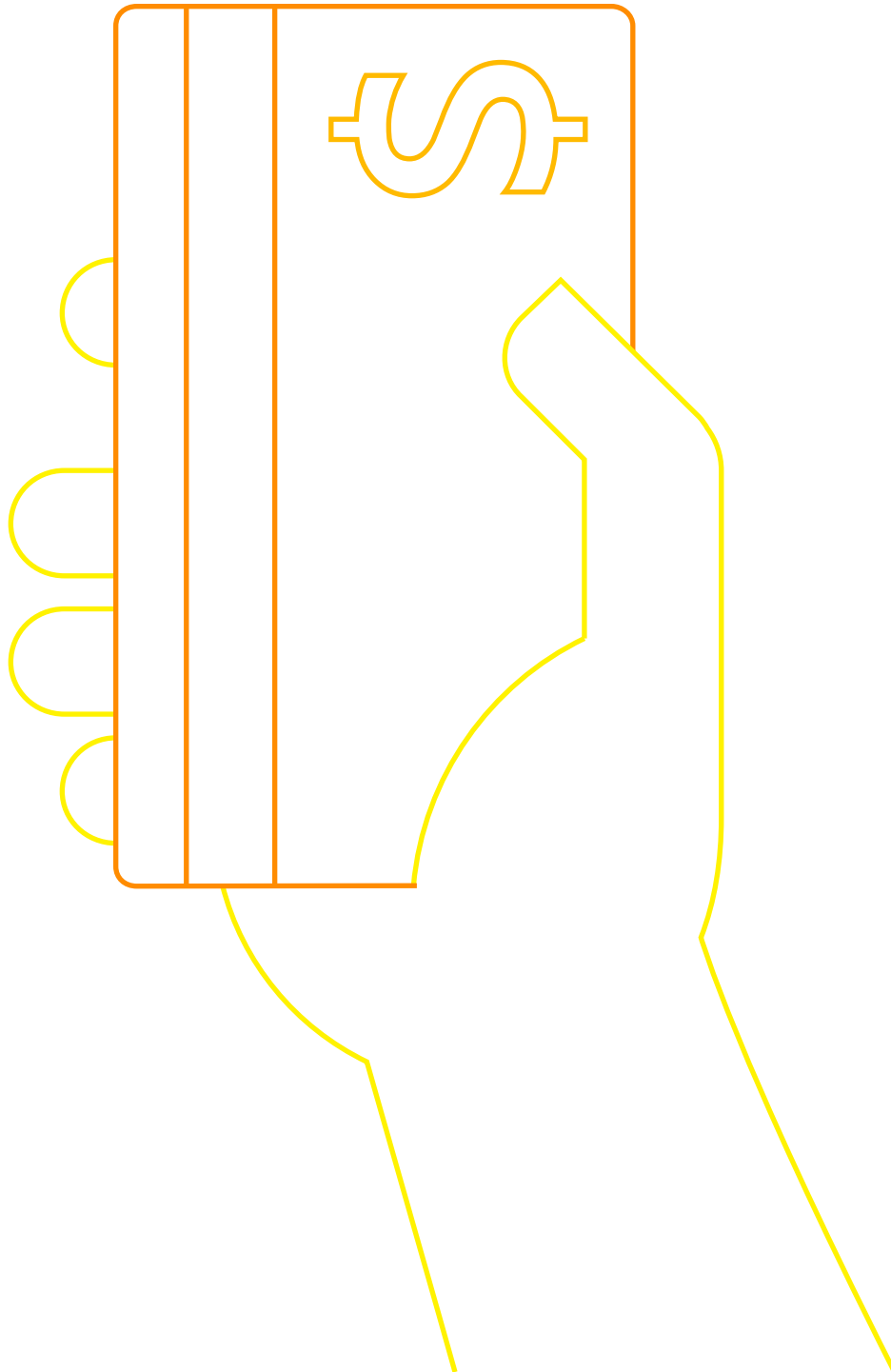
Today's best transportation solutions should provide a 360-degree view of operations. As a result, schools can improve and efficiently manage bus service, promote safety, and strive to reduce environmental impact and costs.

Technology solutions available today can help schools with transportation management including:

- Transportation safety
- Asset and fleet management
- Parking management
- Route optimization
- Wi-Fi connections in motion







## Campus transactions and instant payment

Students and their parents expect convenience and security navigating campus, visiting the bursar, or just doing laundry. Today's best campuses surpass student expectations while maximizing returns on technology investment with secure, unified transaction solutions.

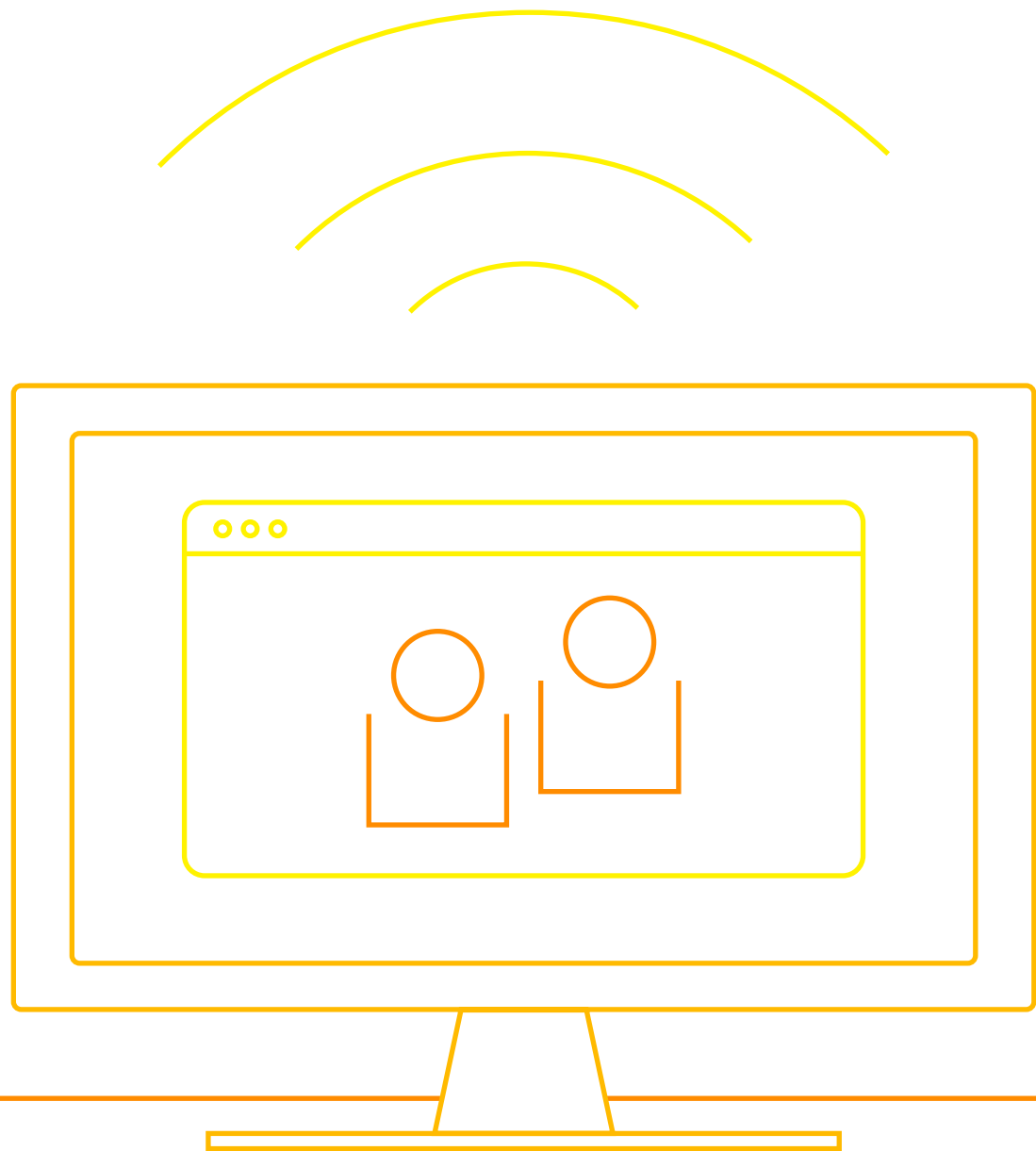
A single card can allow your students to purchase books and material from the bookstore, do laundry at onsite facilities, or even pay for a pizza off campus — all without cash.

## Communications infrastructure

Campuses today thrive on collaboration. As you look to improve your institution's communication infrastructure, students expect to have access to flexible platforms and tools that allow them to connect with each other in a variety of convenient, real-time, and practical ways.

For administrators, the challenge is to offer a campus communications infrastructure that can accommodate and provide reliable services for the predominant kinds of communication forums and mediums, including:

- Online classes
- Virtual meetings
- Group projects
- Voice communication



## Office 365 and Enterprise E5

Microsoft Office 365 offers the best in enterprise productivity experiences. Now with Enterprise E5, you can enhance your communications infrastructure with online classes, virtual meetings and other collaborative functions.

You'll also benefit from features like:

### Complete cloud communication

Connect students and educators from virtually anywhere, on any device.

### PSTN conferencing

Use a tolled dial-in number to join meetings from any device.

### Cloud PBX

Centrally manage students' communications, email and content from Office 365.

### PSTN calling

Subscribe to calling plans from Office 365.

**Fact:**  
100 million meetings are conducted each month using Skype services.



## European School of Management and Technology

### Situation

- Aims to offer an optimal learning experience by connecting with experts around the world
- Administrators look to foster an active student culture and create collaborative classrooms
- School seeks a flexible solution for access to missed classes and more

### Solution

- MS Surface Hub brings connectivity, access, and multimedia power to students
- An easy-to-use interface makes for smooth and fast adoption among both faculty and students
- Skype for Business is integrated to support communication and collaboration

[Learn more](#)



## Femeba Foundation (Fundación Femeba)

### Situation

- Medical training foundation relies on a Moodle learning platform, yet has limited capabilities
- Tools are needed to create a more collaborative and dynamic work environment
- School seeks a solution that will work seamlessly with its current platform, and enhance it

### Solution

- University works with an MS partner, INVID, on a mobile app that acts as an emergency button
- When activated, a notification and GPS data is sent to the university security office
- User notification data adheres to strict privacy standards and meets the school's limited budget

[Learn more](#)



# Facilities Management & Energy Efficiency

The efficient management of facilities and energy use has to be top-of-mind with university and college administrators, especially considering the tightening budgets and rising energy costs.

But improving efficiency on a campus isn't just about cost containment. Today's environmentally conscious students have increasingly high expectations that the higher learning institutions they are considering attending make wise use of our limited natural resources by using energy-efficient technology.

In addition, energy efficient facilities and buildings are typically environmentally more comfortable, which means students, faculty, and staff are likely to be happier and more productive on campus. Comfortable conditions also contribute to an effective learning environment.

Today's administrators and campus planners are looking to improve their grounds by augmenting more and more "smart buildings." These campus structures are specifically designed to make use of today's latest energy-efficient technology to help:

- Reduce energy consumption
- Predict and detect faults
- Reduce minor disasters
- Help you save money and go green



# 83%

In a recent survey of American university leaders, 83 percent pointed to energy management as their single most relied upon cost containment strategy.

# Fact:

With smart buildings, schools and university campuses can save 10% or more through facilities management and energy efficiency.



## K-12: The Peirce School

### Situation

- Consolidation into one building and a large chiller investment brings energy efficiency concerns
- The school district's tight operating budget meant that energy bills would need to be reduced
- Energy management systems fall short of pinpointing faults and energy inefficiencies

### Solution

- Azure and MS partner, ICONICS, help deploy a fault detection and diagnostics (FDD) solution
- FDD immediately detects chiller cycling inefficiencies that helps extend the lifespan by a third
- Azure seamlessly stores big FDD data, speeding fault detection and increasing energy efficiency

[Learn more](#)



## HED: Carnegie Mellon

### Situation

- Studying operational efficiency of buildings and facilities worldwide presents big data challenges
- Traditional systems capture disparate data from sensors, but lack predictive and efficiency tools
- These systems are expensive to deploy and run, so a more advanced solution is sought

### Solution

- MS Power BI and Azure Machine Learning power an advanced facility monitoring system
- Real-time predictive analytics helps building managers address problems or potential fails
- Azure powers models that can predict temperature and energy needs, reducing usage by 20%

[Learn more](#)



## Microsoft Campus

### Situation

- Campus administrators struggle to unify an incongruent array of sensors from different eras
- The 125-building campus brings enormous energy efficiency challenges
- Goal – to transform the MS grounds into one of the smartest corporate campuses in the world

### Solution

- Initial software test run in just 13 buildings identifies substantial energy savings potential
- Software harvests billions of data points weekly from sensors to enable insights and diagnostics
- Microsoft initiates "Internet of Things meets Big Data" approach in all 125 buildings

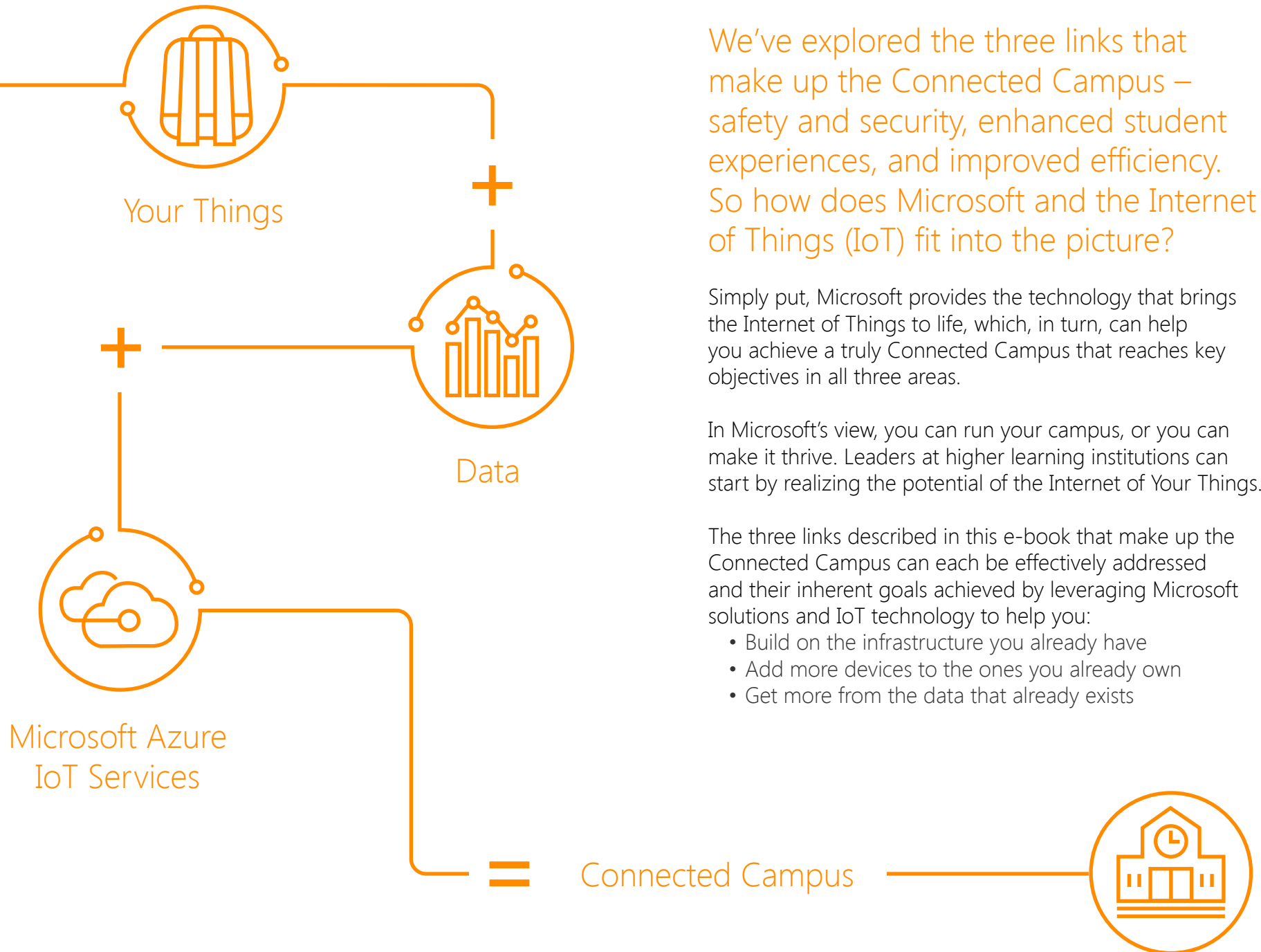
[Learn more](#)





# Why Microsoft?





We've explored the three links that make up the Connected Campus – safety and security, enhanced student experiences, and improved efficiency. So how does Microsoft and the Internet of Things (IoT) fit into the picture?

Simply put, Microsoft provides the technology that brings the Internet of Things to life, which, in turn, can help you achieve a truly Connected Campus that reaches key objectives in all three areas.

In Microsoft's view, you can run your campus, or you can make it thrive. Leaders at higher learning institutions can start by realizing the potential of the Internet of Your Things.

The three links described in this e-book that make up the Connected Campus can each be effectively addressed and their inherent goals achieved by leveraging Microsoft solutions and IoT technology to help you:

- Build on the infrastructure you already have
- Add more devices to the ones you already own
- Get more from the data that already exists

# Get Started

If you're a college or university administrator, and would like to begin your journey toward a Connected Campus, all it takes is three steps...

1

Identify your priorities.

2

Choose solutions that best fit the needs on your campus.

3

Talk with your Microsoft rep who can connect you with the right partners.

## Sources and references

1. <http://www.forbes.com/sites/danschawbel/2013/09/04/why-you-cant-ignore-millennials/#19a6a3cb6c65>
2. <http://ope.ed.gov/campussafety/#/>
3. 2014 Emergency Notification Survey, Campus Security Magazine: [http://www.campussafetymagazine.com/article/campuses\\_continue\\_to\\_invest\\_in\\_emergency\\_notification\\_systems\\_and\\_upgrades/notification](http://www.campussafetymagazine.com/article/campuses_continue_to_invest_in_emergency_notification_systems_and_upgrades/notification)
4. Cambridge University study, Social Media Mining: <http://dmml.asu.edu/smm/SMM.pdf>
5. The Chronicle of Higher Education, April 2009 Survey: <http://chronicle.com/>