



July 2017

# Connected Campuses

PREPARED FOR

**CenturyLink**

# Project Background

## Purpose

The Center for Digital Education was commissioned by CenturyLink to conduct an exploratory survey on the status, acceptance, and perceived benefits of connected campus technologies.

The ideal outcome of the project is to gauge the status of connected campuses in relation to the four pillars mentioned in CenturyLink's Government Brief: 1) engage and educate; 2) ensure safety; 3) reduce operating costs; and 4) increase revenue. Questions were asked about implemented connected campus technologies, procurement plans, current opportunities and infrastructure.

Data collected are intended to inform CenturyLink's publishable report and research-driven infographic.

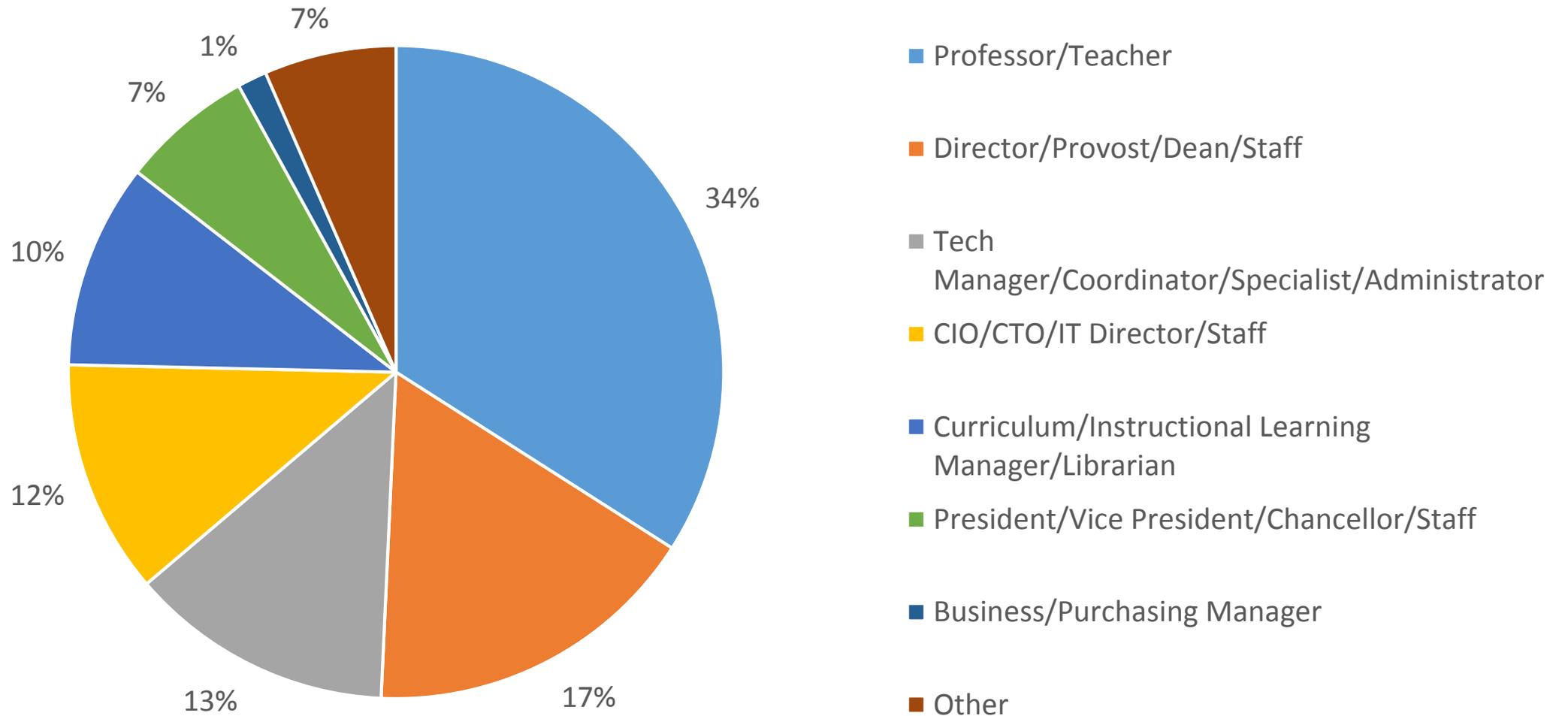
## Methodology

The Center for Digital Education was commissioned to survey 125 higher education officials. In total, 138 responses were received from the higher education community. Survey respondents were asked 20 questions.

A survey instrument was developed in partnership with CenturyLink to determine the acceptance of the connected campus and gauge the status of implemented Internet of Things (IoT) technologies at campuses.

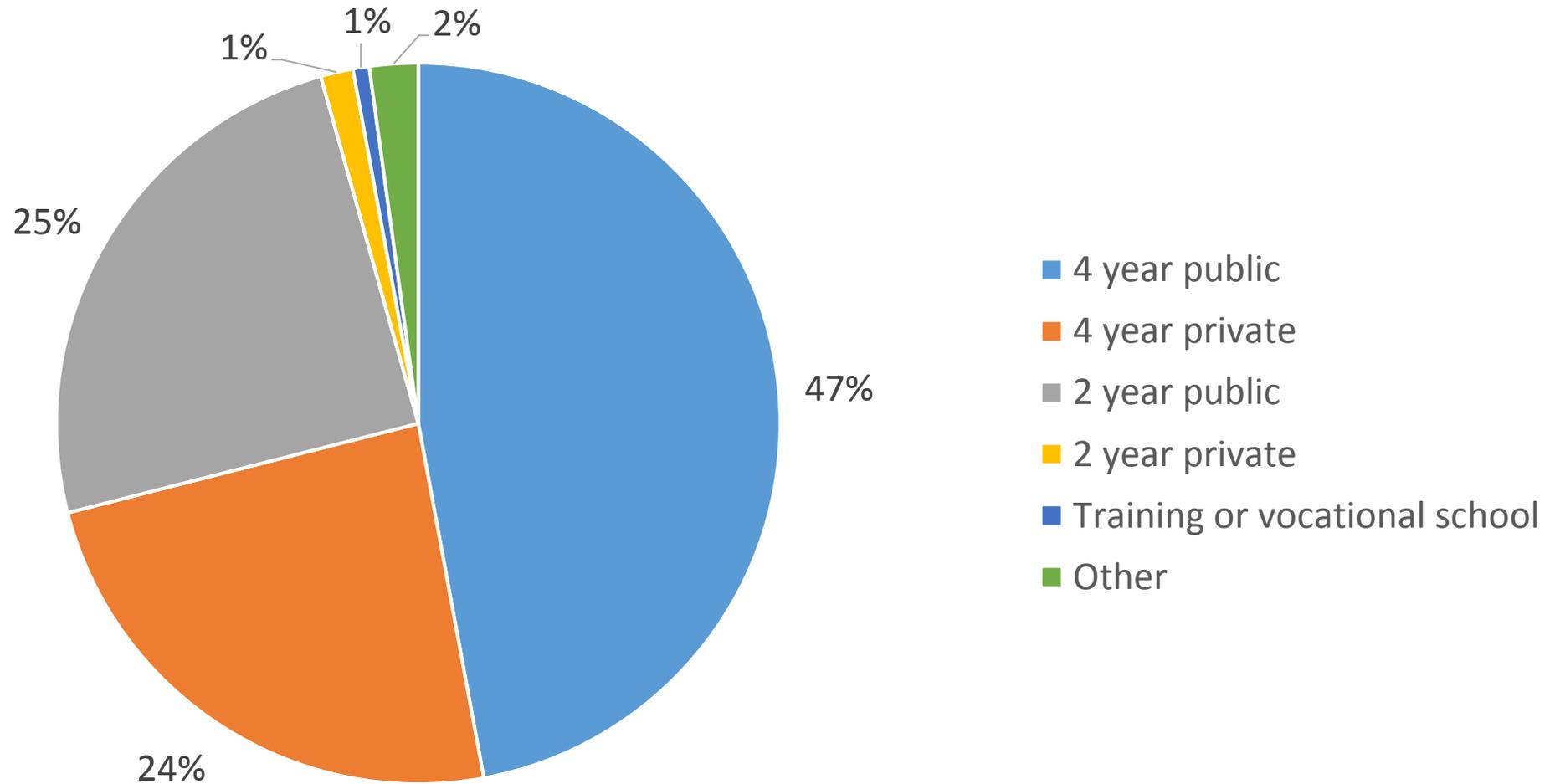
The survey was fielded to the Center for Digital Education's proprietary Exchange community in June 2017.

# Participant Demographics – Job Function



n = 138

# Participant Demographics – Institutions



n = 138

# Connected Campuses

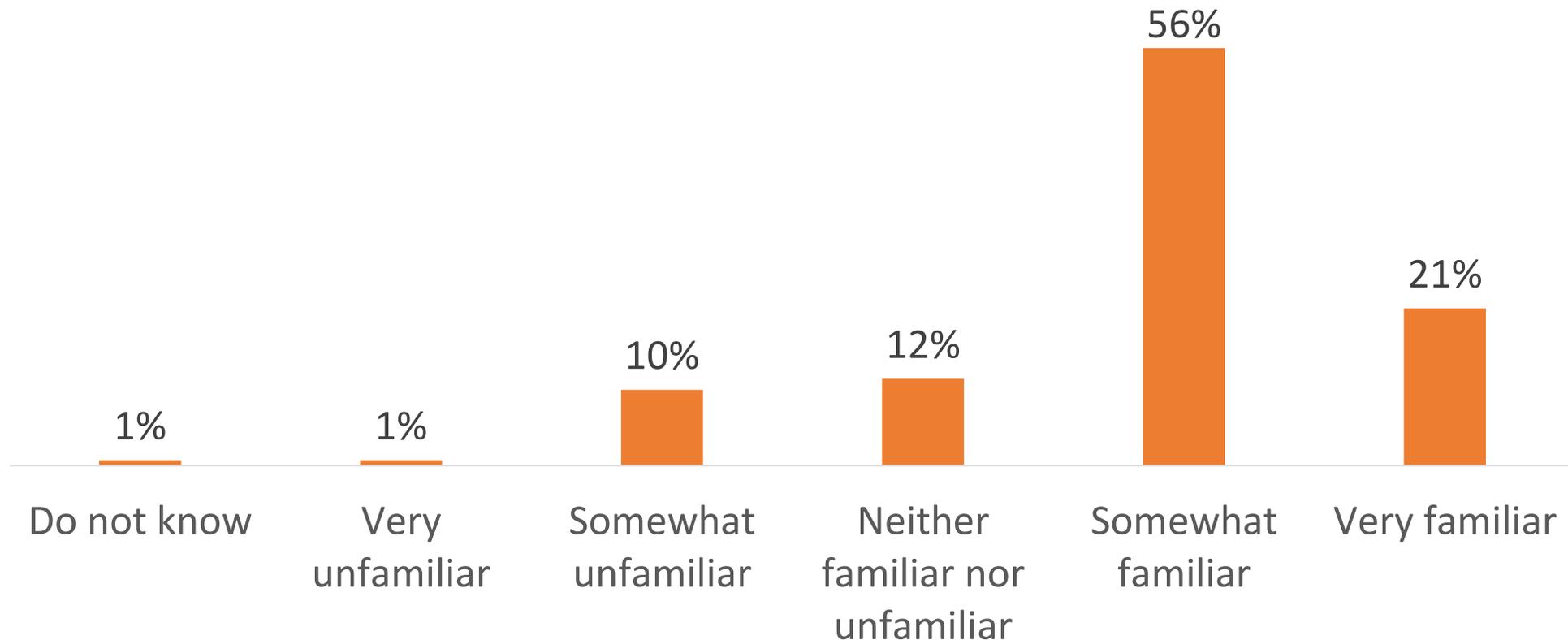
## Perceptions and Status

# Key Findings

- ✓ A majority of respondents report being **familiar** with the concept of a connected or smart campus before taking the survey.
- ✓ A majority of respondents **already consider their campuses connected** or in progress to being connected.
- ✓ Overall, connected campuses are an **accepted and envisioned future** for respondents' institutions.

# Concept of Smart/Connected Campuses

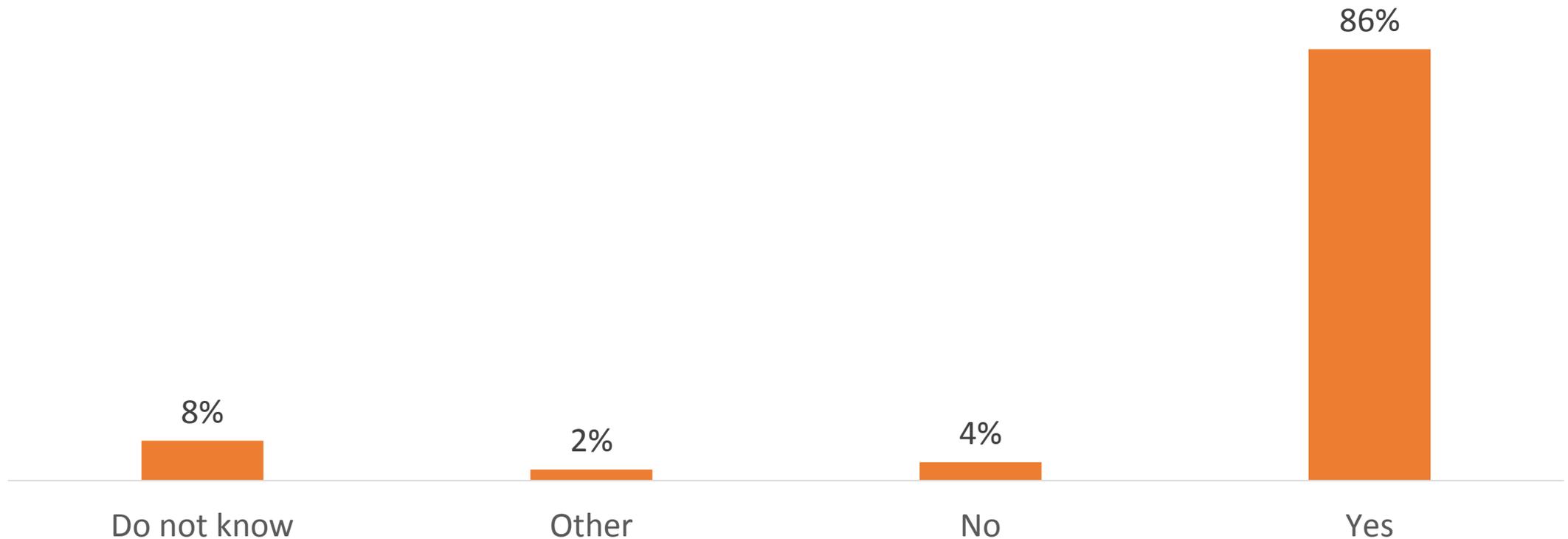
Over three-quarters of respondents were familiar with the concept of connected/smart campuses before taking the survey



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# Connected Campuses Are the Accepted Future

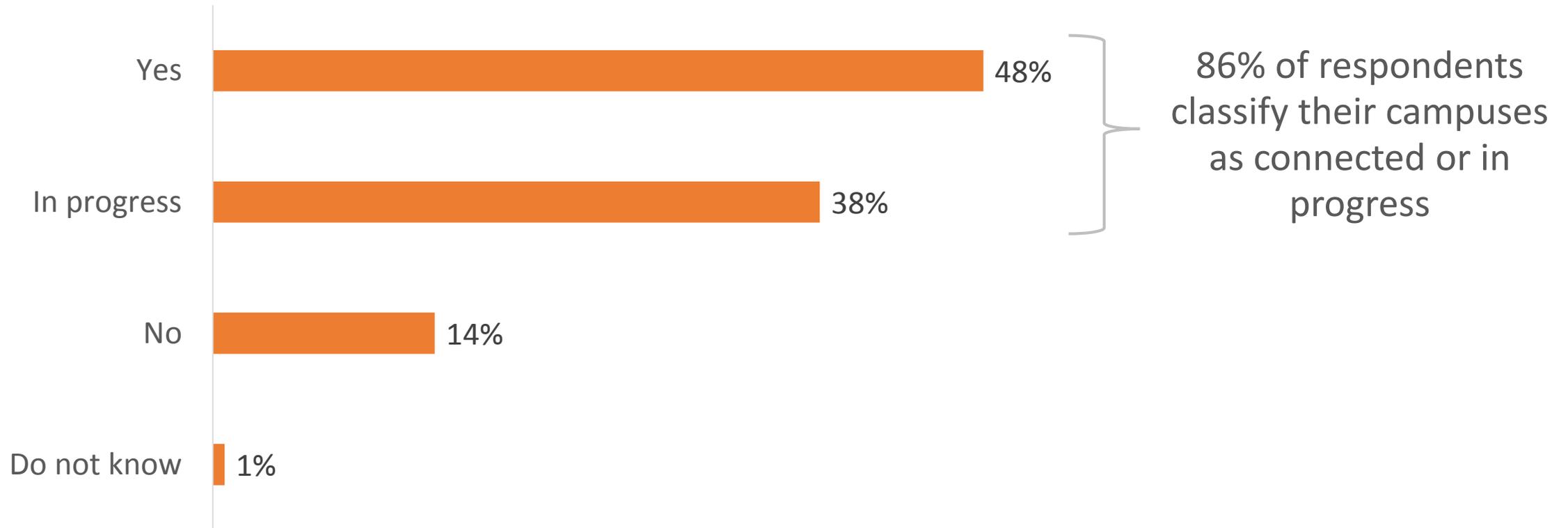
The majority of respondents think connected campuses are an accepted future for higher education at their institutions



n = 138

# Connected/Smart Campuses

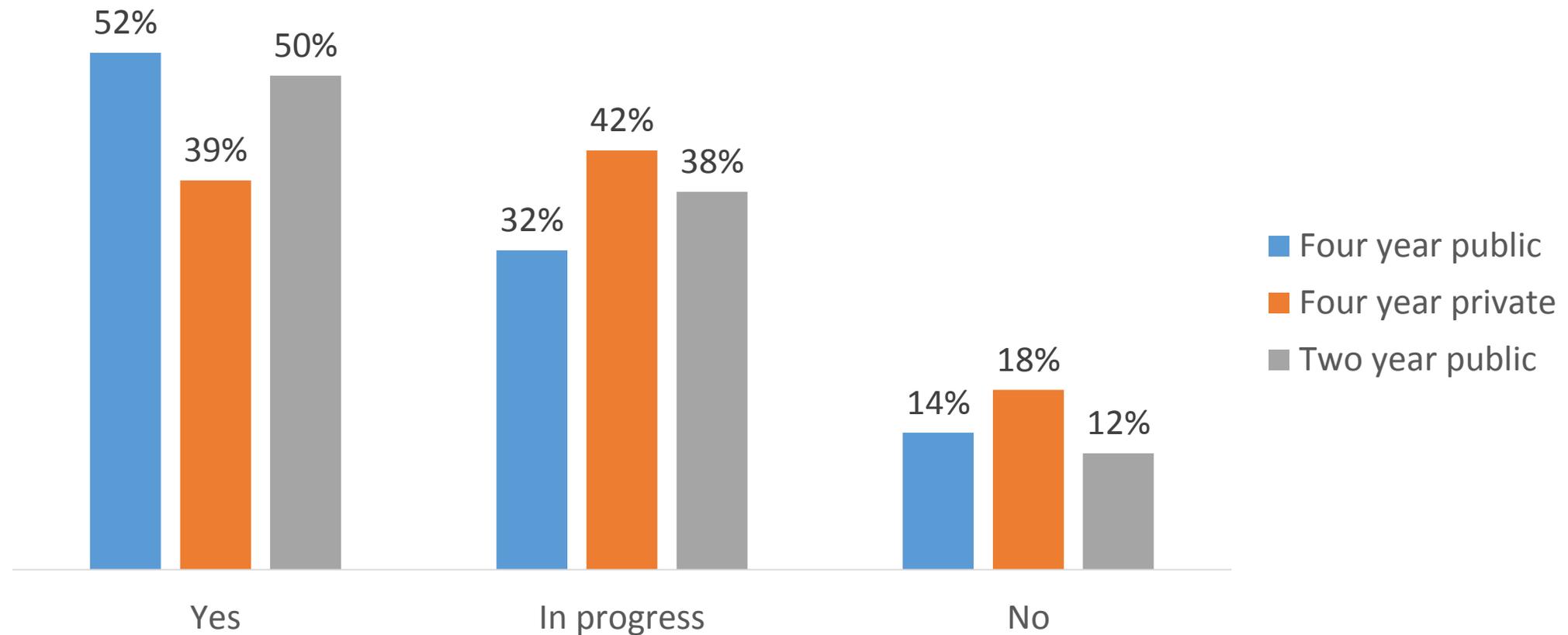
Most respondents would classify their campuses as connected or in progress to becoming connected



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# Connected/Smart Campuses by Institution Type

Private, four year institutions appear to be slightly behind public institutions when it comes to being a connected campus



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# Connected Campus Technologies

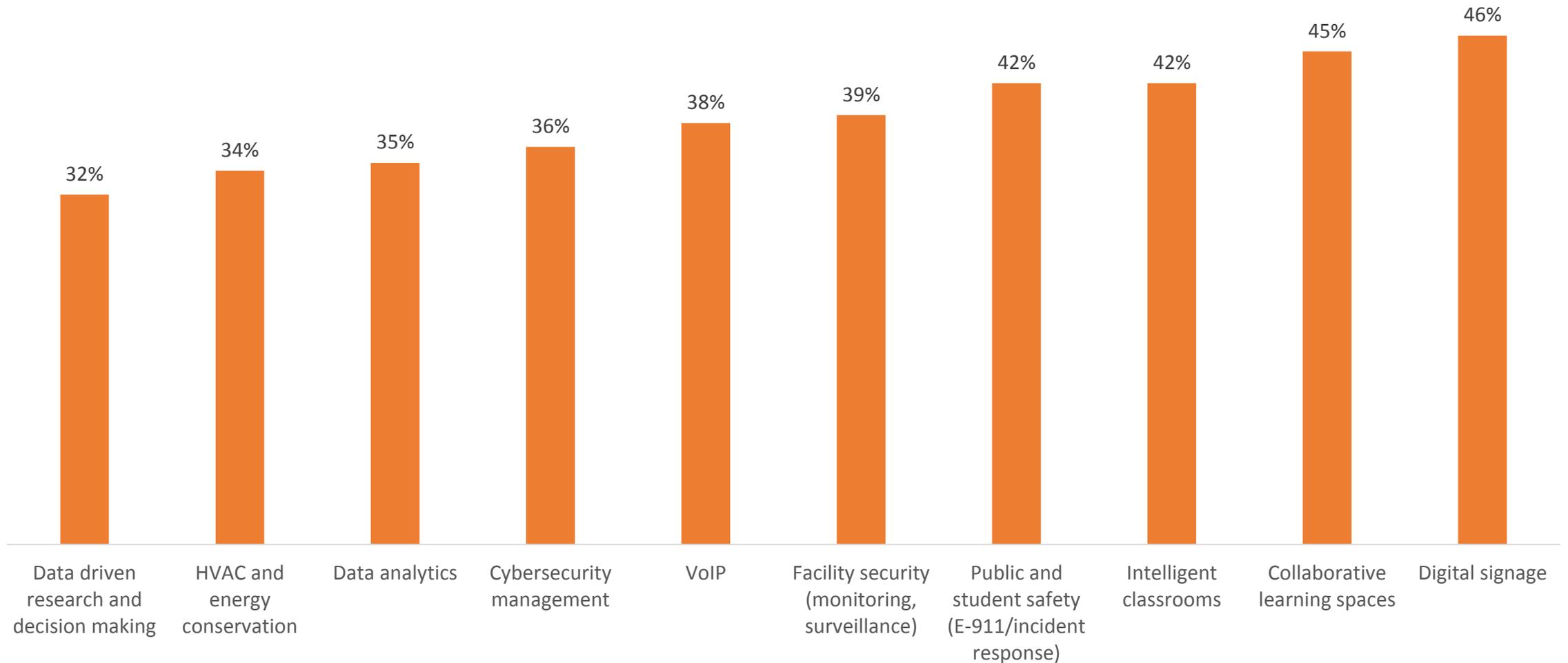
## Implementation and Benefits

# Key Findings

- ✓ **Digital signage** and **collaborative learning spaces** are the most frequently implemented connected campus technologies
  - ✓ “In progress” campus have not implemented intelligent classrooms and collaborative workspaces to the same extent as connected campuses
- ✓ A majority of respondents **agree** there are opportunities for IoT at their campuses
- ✓ The top two perceived benefits of IoT technologies are **teaching resources** and **student engagement**
  - ✓ These are also the top two experienced benefits

# Top Ten Implemented Technologies

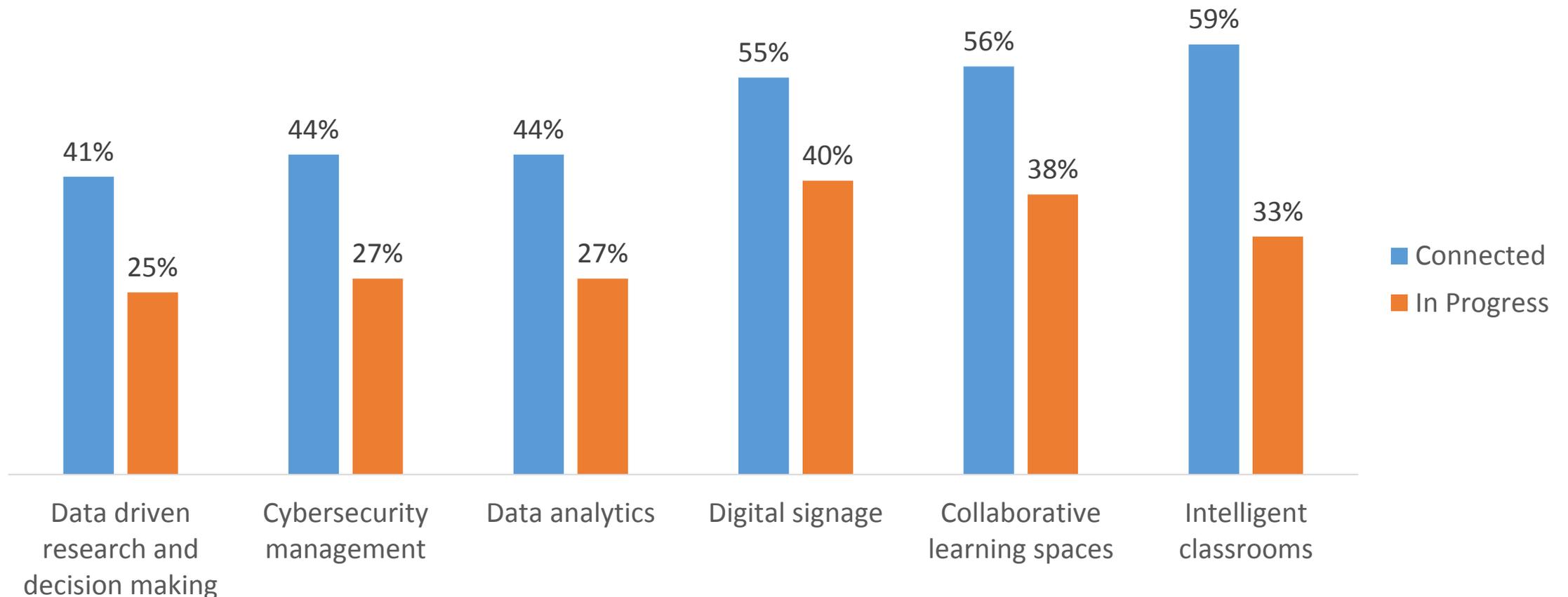
Current connected technologies on campuses:



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# Campuses Are at Different Stages of Implementation

Intelligent classrooms are implemented after other connected technologies



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# Respondents See Beneficial Opportunities for IoT

88% of respondents see beneficial opportunities for IoT technologies

- ✓ 36% report current opportunities for implementing IoT technologies on campus, but for others there are hurdles
- ✓ 31% of respondents indicate that funding is difficult to prioritize
- ✓ 14% say technological infrastructure needs to be improved first
- ✓ 7% of respondents report they see no current opportunities to implement IoT technologies, but they would be beneficial if they were implemented

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# Experienced Beneficial Outcomes of IoT

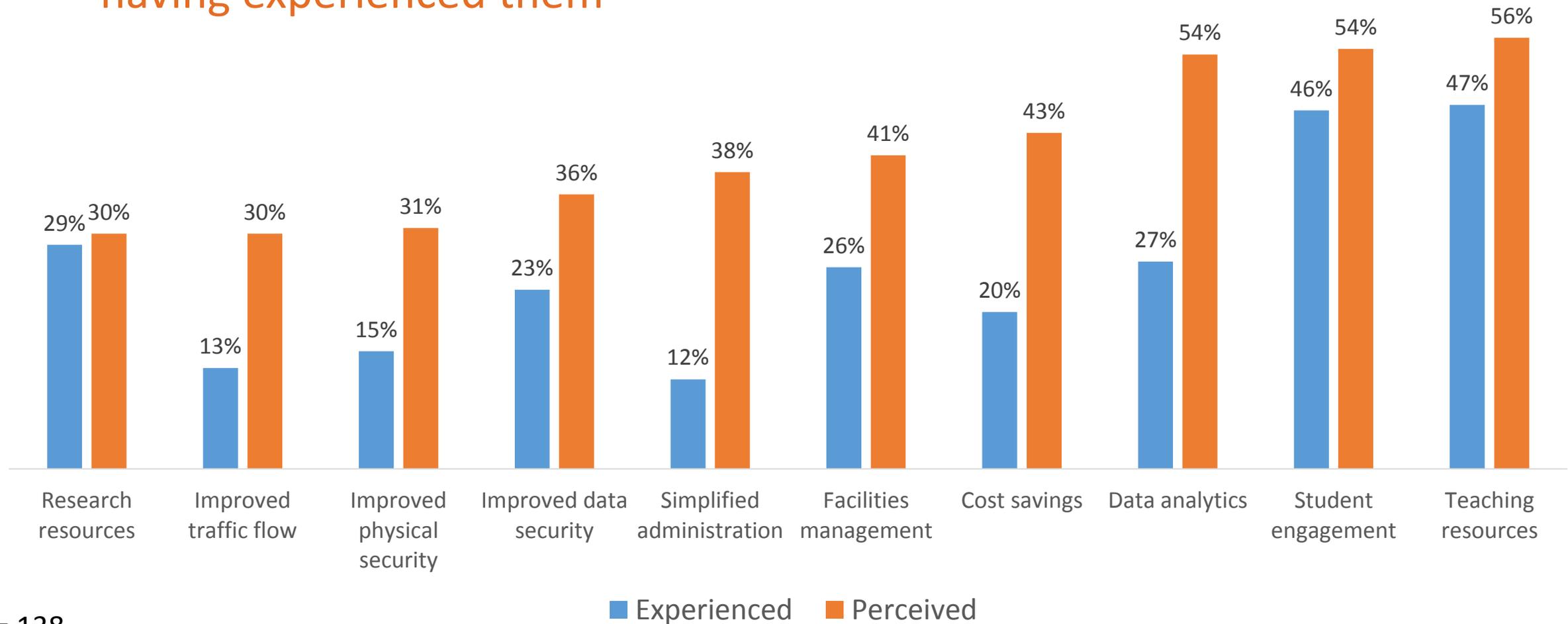
Most respondents' campuses have experienced the following benefits from implementing IoT technologies:



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# Top Ten Perceived Beneficial Outcomes of IoT

More respondents report perceiving benefits of IoT technologies than having experienced them



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# Connected Technologies

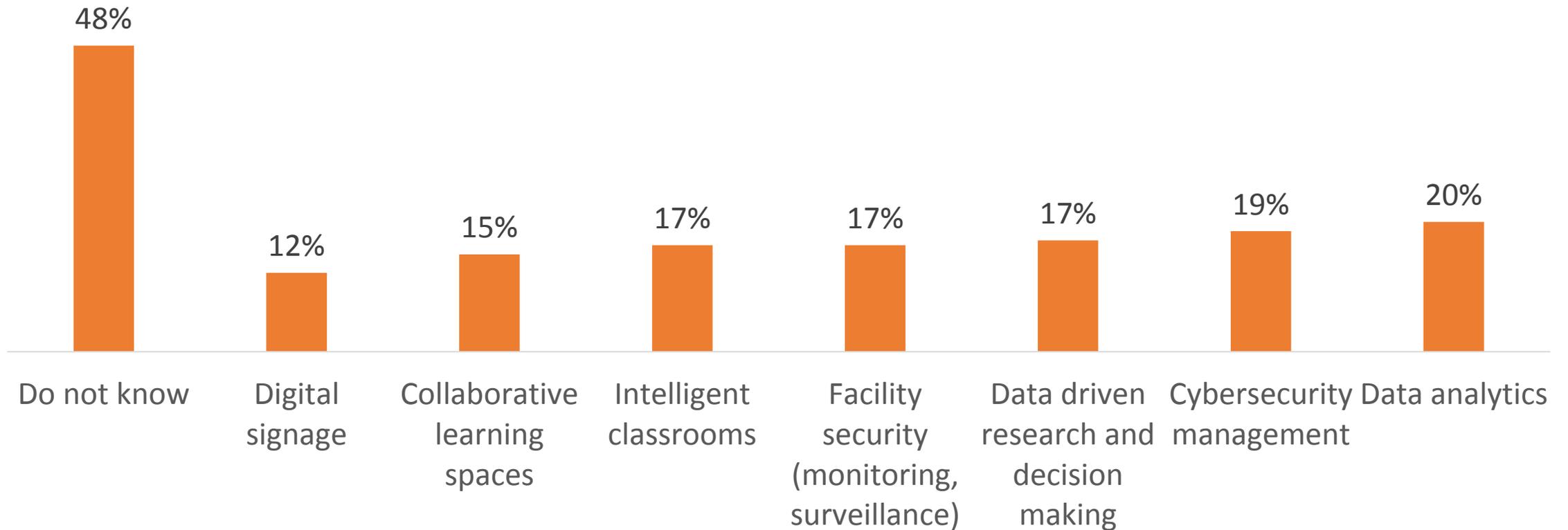
## Procurement, Drivers and Plans

# Key Findings

- ✓ The top technologies to be implemented or expanded in the near future are **data analytics** and **cybersecurity management**
- ✓ Key drivers for procurement of connected technologies are **cost savings** and **student retention**
- ✓ Most respondents do not know if their institutions have connected campus plans
  - ✓ Respondents identified several specific technologies included in plans
  - ✓ Safety issues and capacity of current infrastructure are key issues in connected campus plans

# Planned Procurement

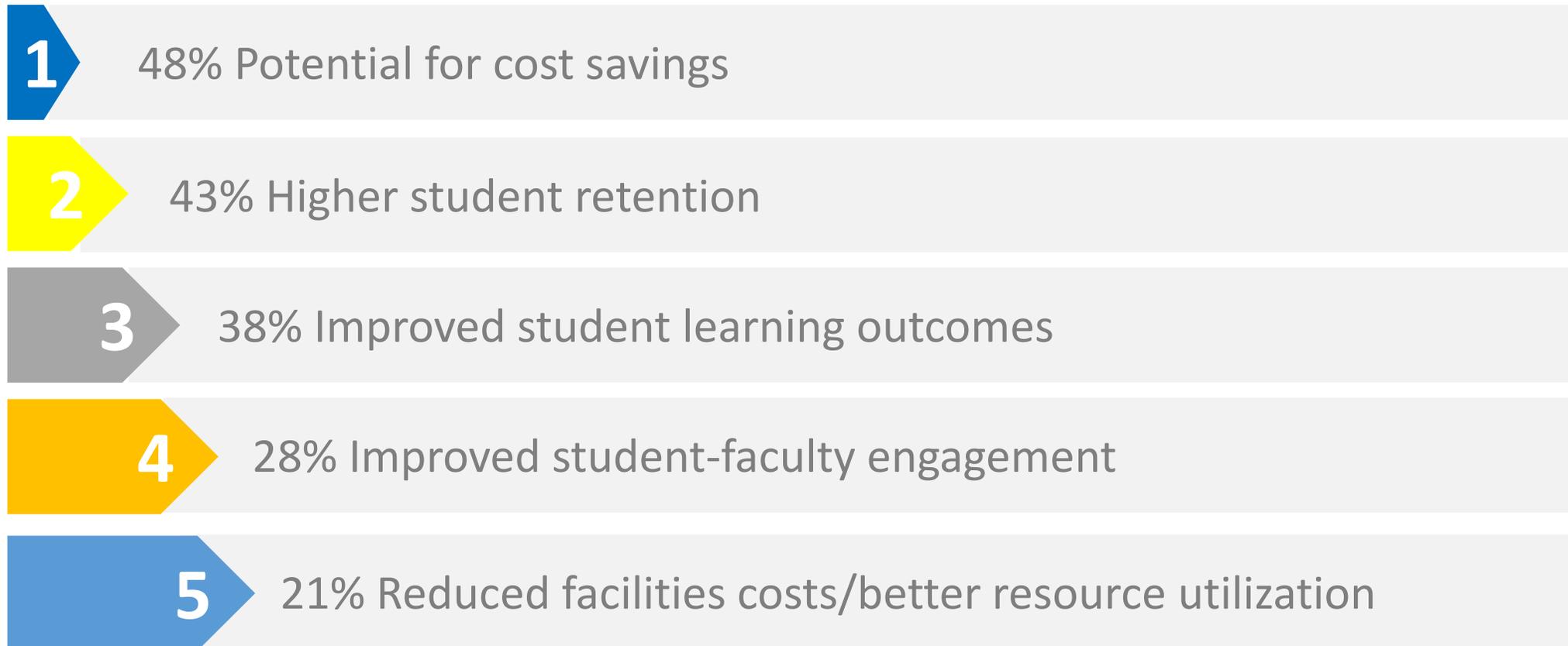
Connected technologies planned for procurement in the next 12-18 months are:



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# Key Drivers for Connected Campus Technologies

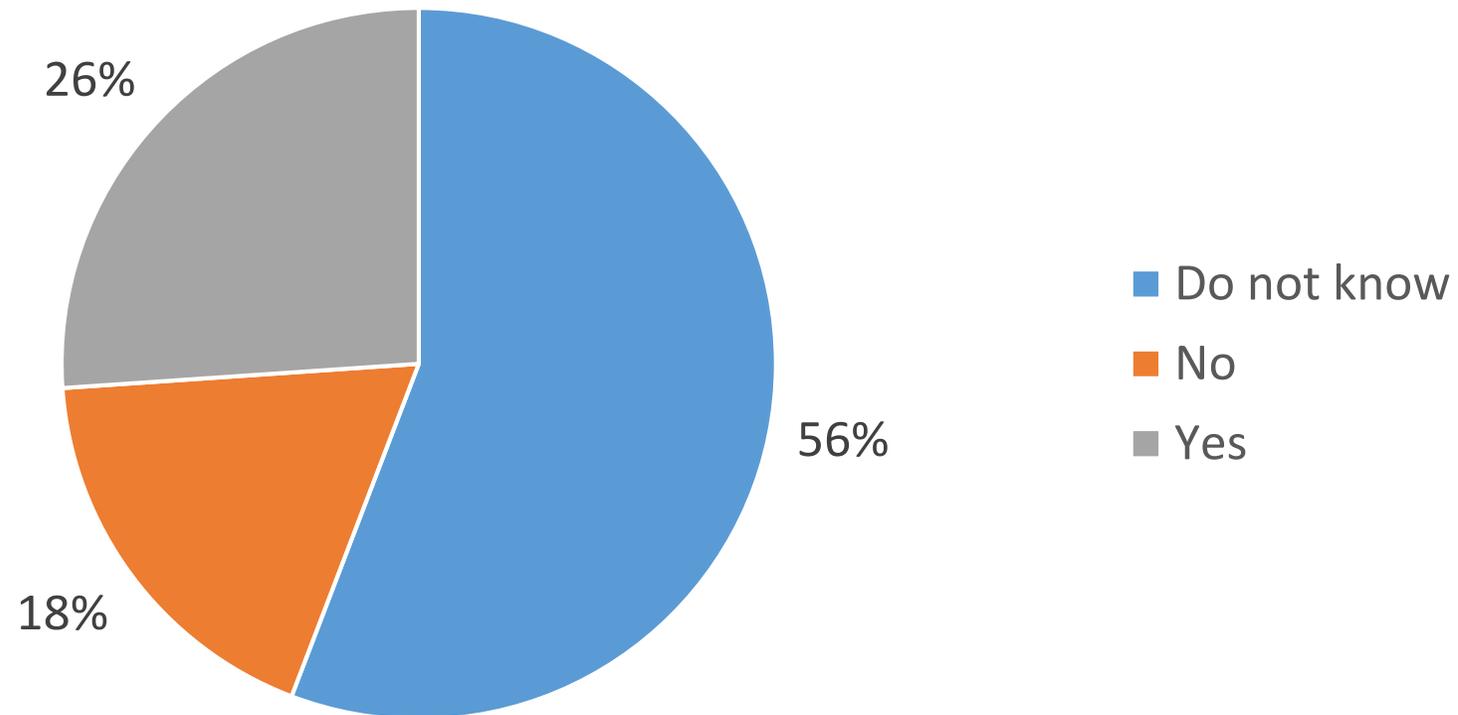
The student experience is cumulatively the key driver for adopting/expanding connected campus technologies



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# Connected Campus Procurement Plans

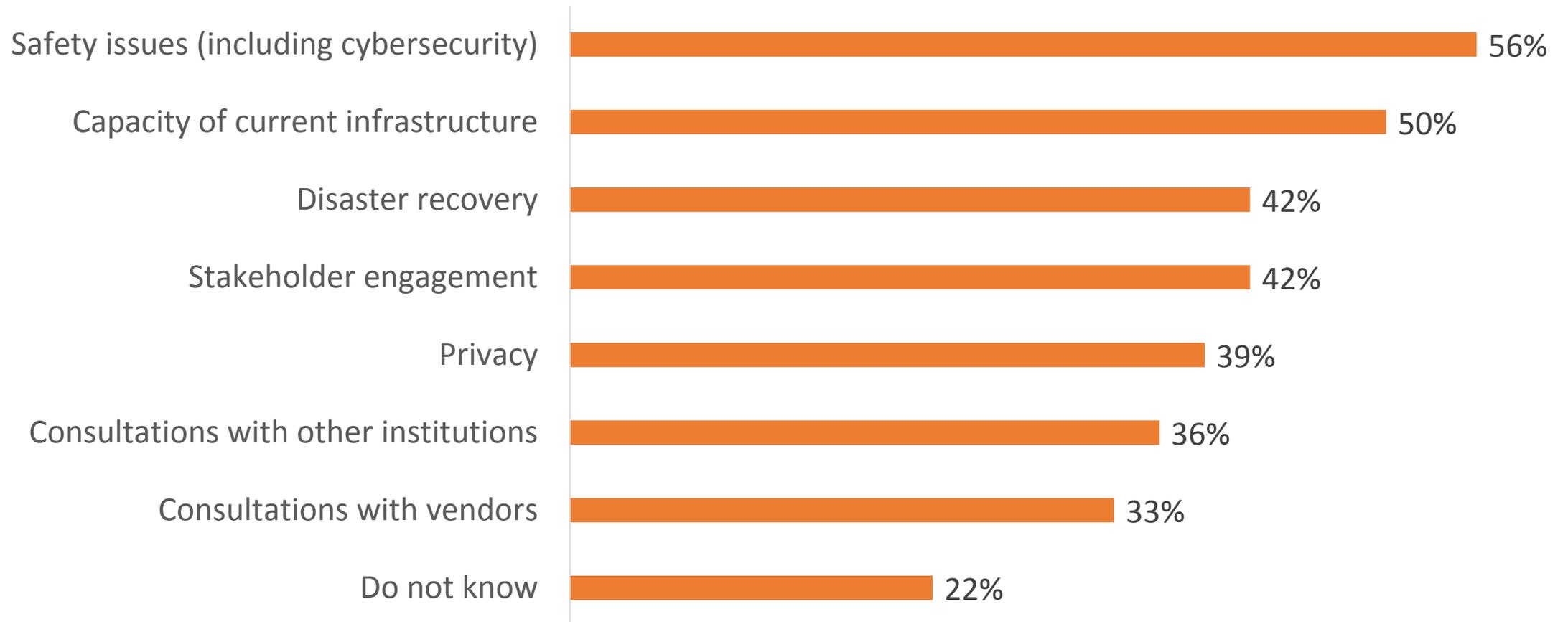
Most respondents do not know if their campuses have procurement plans in support of a connected campus



n = 138

# Connected Campus Plans

Key issues considered in plans for connected campuses are the following:



n = 36

# Campus Needs

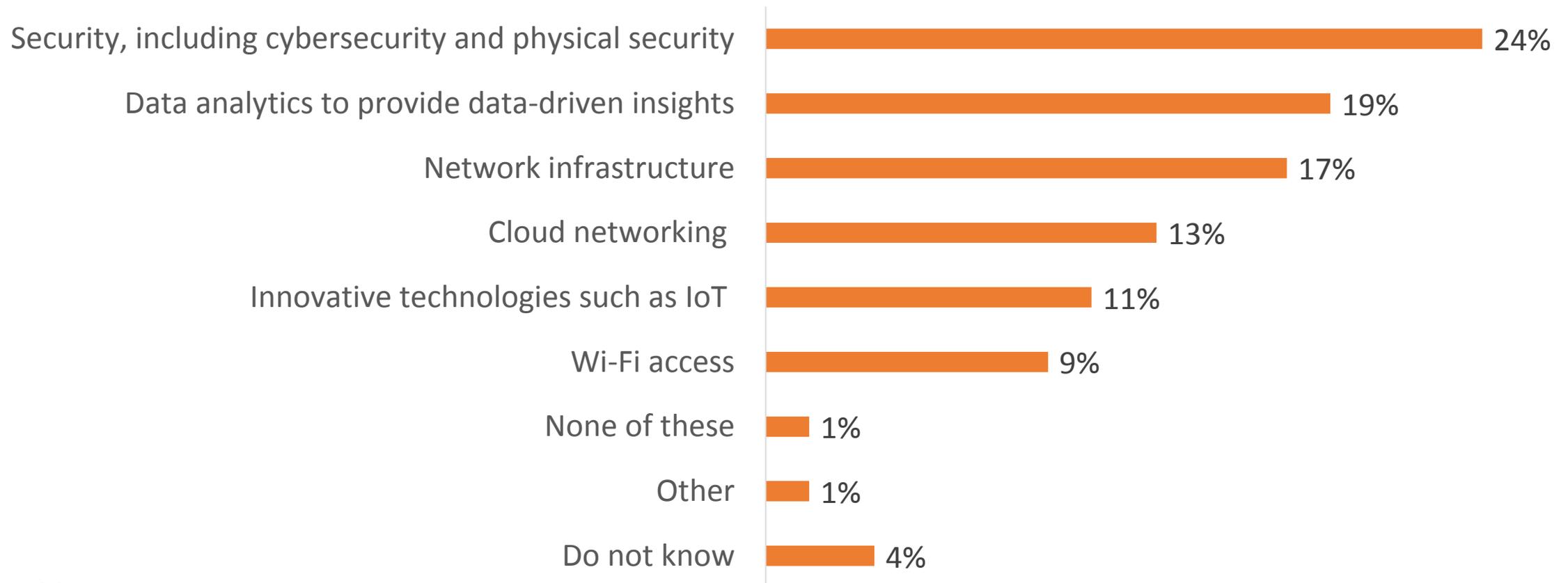
## Infrastructure and Stakeholders

# Key Findings

- ✓ Critical areas of investment are in **security, data analytics,** and **network infrastructure** for both campuses generally and for connected campus projects
- ✓ Half of respondents think their campus will be unable to support emerging technologies **within the next two years**
  - ✓ Expectations varied among institution types
- ✓ **Multi-stakeholder engagement** is an acknowledged need for connected campus initiatives by nine out of ten respondents

# Critical Areas of Investment Generally

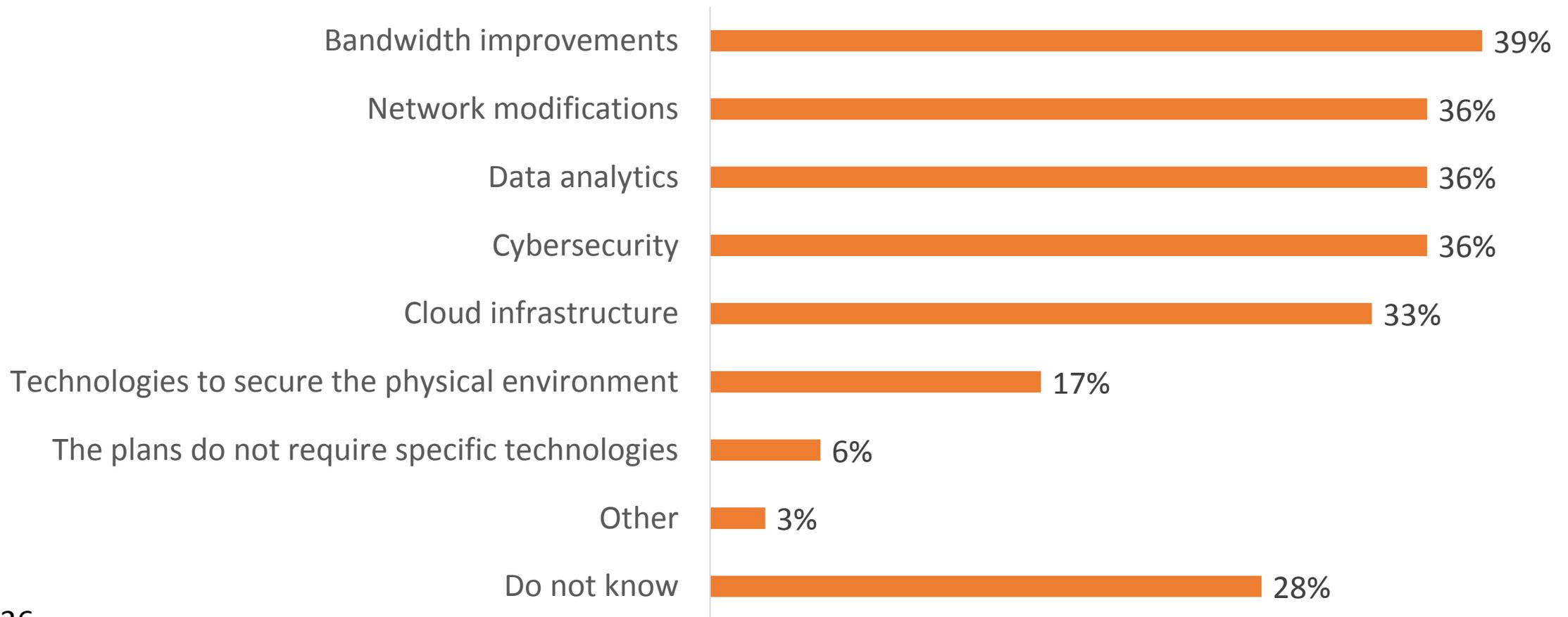
Respondents identified critical areas for investment for the campus as a whole, independent of connected technologies



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# Investment Needs for Connected Campuses

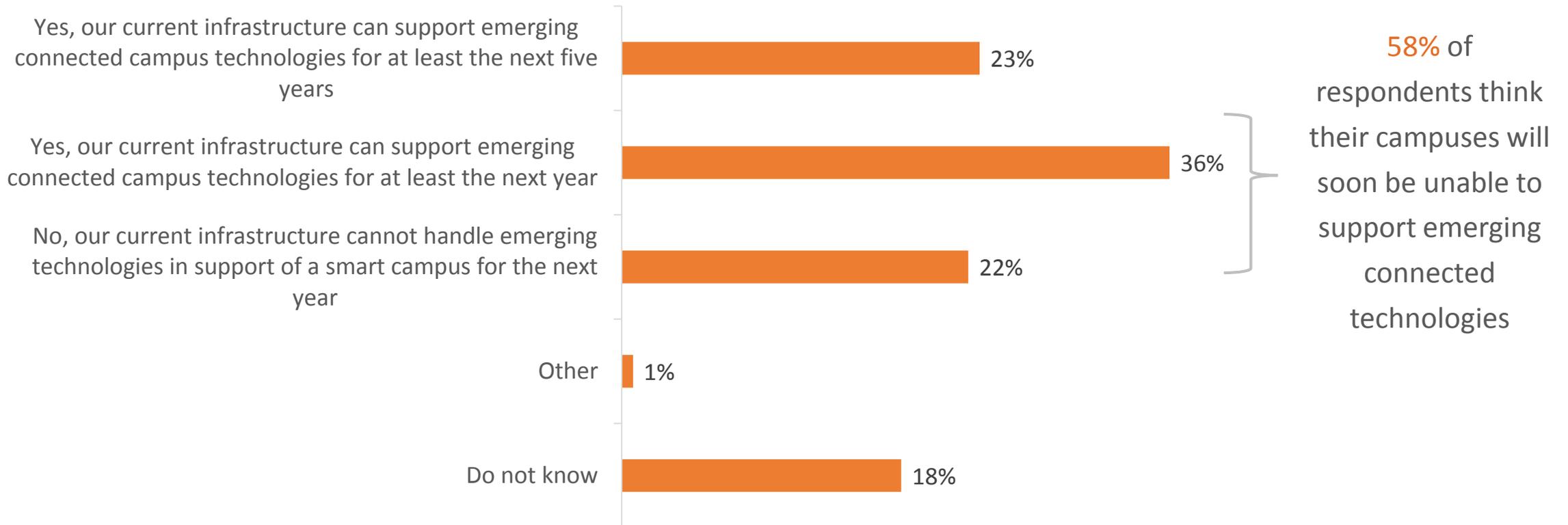
Respondents familiar with procurement plans for connected campuses indicated that specific technologies need to be procured in tandem



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# Capacity of Current Campus Infrastructure

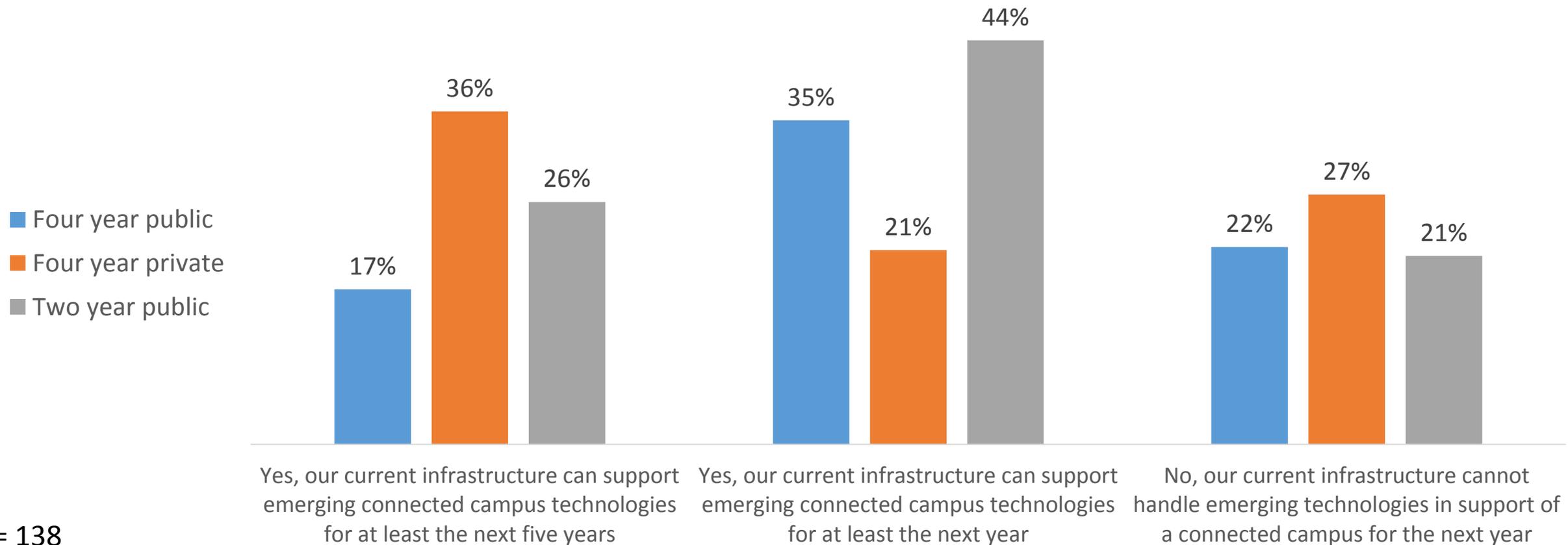
Nearly a quarter of respondents report that their current campus infrastructure cannot handle emerging technologies for the next year as they move toward being a smart or connected campus



n = 138

# Capacity of Campus Infrastructure by Type

There are variations in perceptions of capacity to handle smart and connected technologies by institution type

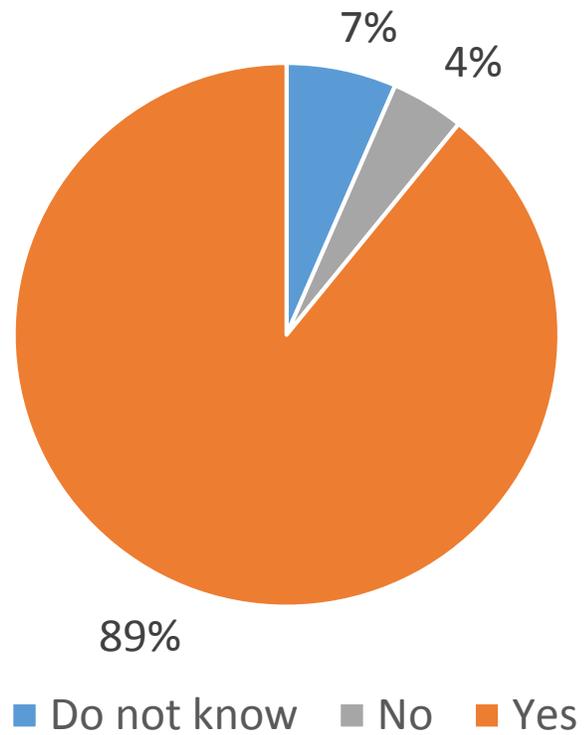


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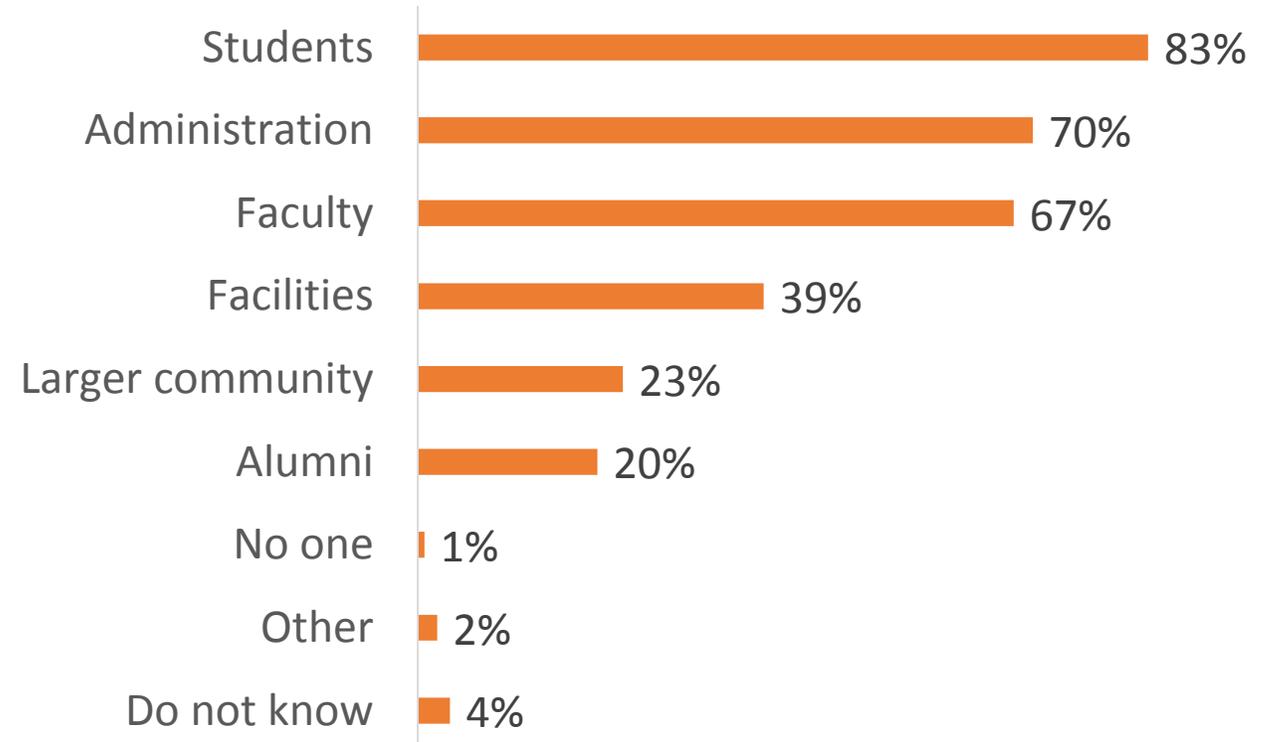
# Multi-Stakeholder Engagement Is Necessary

- ✓ Respondents indicate that connected campus implementation **requires engagement** and it will **benefit** students, administration, and faculty

Stakeholders Required?



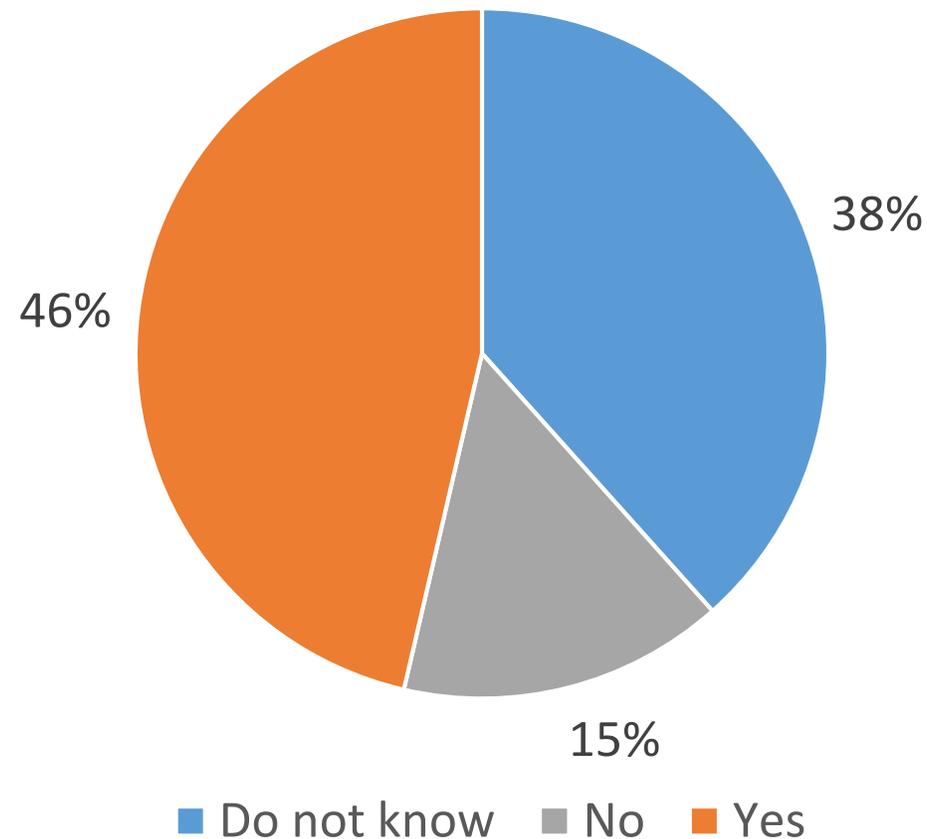
Who Would Benefit the Most?



n = 138

# Interest and Need for Data Analytics

46% of respondents report their administrations have an interest in or need for implementing data analytics and management services



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# Perceived Benefits from Data Analytics

Data-driven decision-making is the top perceived benefit of data analytics and management



n = 138

# Overall Procurement Findings

- ✓ Critical areas of investment were viewed differently by respondents

Status	Data Analytics	Network/Infrastructure	Security/Safety
Perceived Benefit	✓		
Interest/Need	✓		
Procurement Plans	✓		✓
Critical Investment	✓	✓	✓
Connected Campus Plans		✓	✓

# Overall Key Findings and Summary

- ✓ Most see **connected campuses as the future** and consider their campus as connected or on the way to becoming connected
- ✓ Higher education officials see **beneficial opportunities** for IoT technology implementation
  - ✓ Top benefits are teaching resources and student engagement
  - ✓ Top drivers are cost savings and student experience
- ✓ Respondent's perceptions of the connected campus vision:
  1. **Engage & educate**: agreed
  2. **Reduce operating costs**: yes, but secondary
  3. Ensure safety: not yet experienced, but one-third anticipate this benefit
  4. Increase revenue: not yet experienced or expected

# Recommendations

- ✓ Connected campus plan template and effective practices in developing them
  - ✓ Additional research such as interviews would be needed to support content
- ✓ Benchmarking Survey:
  - ✓ How is the connected campus evolving?

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