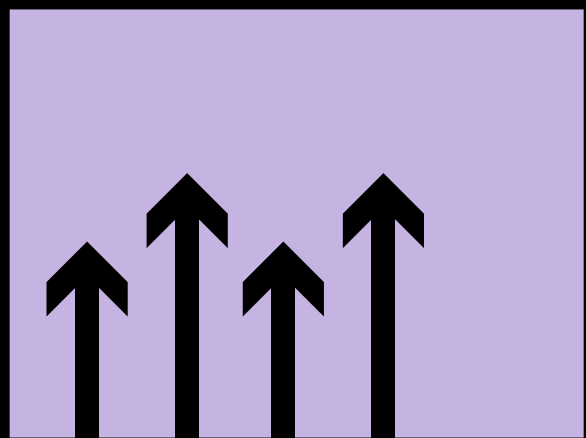


# Outsmart disruption:

Gaining greater value and  
agility from your business  
IT infrastructure

E-Book



 **InterSystems®**  
Creative data technology

## Introduction

With the start of the new academic year well underway, many higher education institutions have welcomed back both staff and students, whilst reflecting on the turbulence of the previous two academic years. Undoubtedly, the Covid-19 pandemic caused serious disruption for the entire education sector, having to rapidly adjust to new ways of working and learning.

Operating with a highly dispersed student and staff population presented universities and colleges with significant challenges, ranging from fully remote, online learning to ensuring a high level of cybersecurity continued to be maintained. Following a spate of cyber-attacks against higher education institutions ahead of the 2020/21 academic year, the latter continues to be of particular concern for many institutions.

While a return to in-person teaching is undeniably a positive position to be in, it has required a major readjustment for all involved. In the build up to the 2021/22 academic year, InterSystems surveyed IT decision makers from 150 higher education institutions across the UK and Ireland to understand the biggest IT challenges they faced over the course of the pandemic, their expectations for the coming academic year, and their technology landscape.



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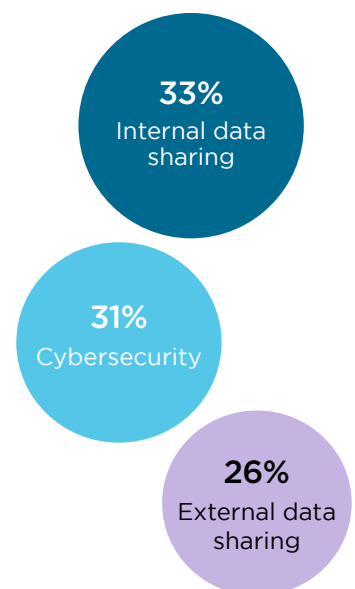
## A challenging year

During the height of the pandemic, two of the three biggest IT challenges faced by higher education institutions were around data sharing. A third (33%) of respondents cited the secure sharing of data internally as their biggest challenge, while just over a quarter (26%) referenced secure sharing of data externally. Having been forced to move almost everything online, these organisations adopted an even more dispersed network without being able to put the proper integrations in place to securely share and integrate data from both within and outside the network.

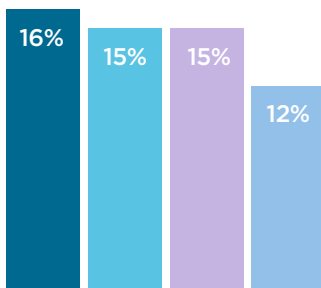
While this challenge will have been worsened due to operating remotely, it is likely many organisations had already struggled with this problem. Despite the prevalence of data sharing issues, only 17% of respondents have increased data integration between systems over the last year.

Cybersecurity (31%) was revealed to be the second-biggest IT challenge for institutions and reflects the growing threat from cyber-attacks. More than half (51%) of higher education institutions aren't confident that their current security infrastructure could hold up against denial of service (DNS) attacks or ransomware. However, only a quarter of respondents (25%) said security enhancements were the biggest change they made to their IT infrastructure during the pandemic.

## Top 3 biggest IT challenges:



## Changes made to IT infrastructure



- Intelligent automation
- Cloud technologies
- Business intelligence/analytics
- Replacing legacy systems

## Short-term solutions to long-term problems

The pandemic forced institutions to make changes to their IT infrastructure, with 32% making changes that they hadn't planned. For those with planned changes (33%), the pandemic simply accelerated the change.

Among these changes, 16% said introducing intelligent automation was the biggest advancement they made whereas 15% cited it was using cloud technologies, and a further 15% said it was introducing business intelligence/analytics. Only 12% focused most on replacing legacy systems.

On return to campus, more than half (52%) had to make further adaptations to their IT infrastructure, with 46% saying that they had previously only undertaken short-term fixes to see them through the pandemic.

Now, with the new academic year underway, adaptations of IT infrastructures should now become a priority for institutions to be able to meet future disruptions and to ensure full utilisation and effectiveness of both technology and data.

## Readjusting to a changing landscape

Returning to institutions full-time will bring its own set of challenges. A third (33%) of respondents think protecting student and staff data privacy will be their biggest challenge, while 30% expect it will be getting staff and students to reengage with the institution's cybersecurity policies.

Echoing this, 17% of higher education institutions regard evolving cybersecurity threats as the biggest external influence on their IT requirements. Phishing scams (18%), cloud vulnerabilities (15%), the downloading of malicious material or applications (13%), and insider attacks (13%) are also perceived to pose significant risks to security.

As threats continue to evolve and with so many institutions concerned their current set up won't hold up against attacks, now is the time for them to adopt a more holistic approach to security and begin to tackle it in earnest. Developing a robust cybersecurity strategy and implementing technologies such as artificial intelligence (AI) and machine learning (ML) that can help to identify vulnerabilities in their infrastructure and automate security protocols will help to safeguard their networks, their data, and their people.

## Responding to changing attitudes and expectations

As well as a changing landscape in terms of threats and risks, the return of staff and student return means institutions are faced with evolving attitudes and expectations. There is an increasing expectation for a more digital experience and more streamlined, innovative systems which they have become accustomed to, like online shopping, banking, and entertainment – which most institutions are not yet able to offer.

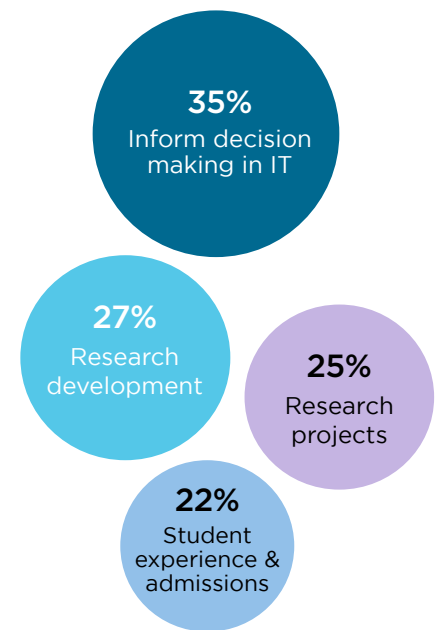
Providing these experiences and services will require higher education institutions to make more effective use of both technology and data. Currently, only 10% of institutions can access the data they collect in real-time, with most organisations (32%) saying it takes them anything between 4 and 23 hours, while it takes 26% up to a day. This lack of availability of real-time data means they are unable to make fast, informed decisions and can mean delays in receiving information.

Additionally, how institutions use data leaves room for improvement.

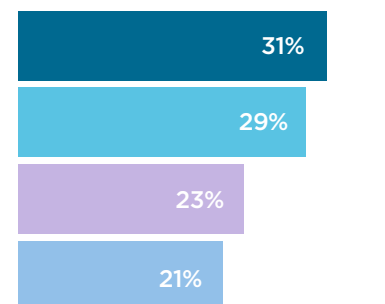
Thirty-five per cent of institutions use data to inform decision making within the IT department, while 27% use it for research development and 25% research projects. However, only 22% utilise data to make informed decisions about the student experience and just 22% use it for admissions. With these areas arguably having the most impact on students, who are expecting more personalised services and interactions, it is clear that more institutions would benefit from adopting a data-driven approach to student-related initiatives.

Technology will prove vital here, particularly solutions that allow institutions to make more effective use of their data and generate valuable insights from it. For example, access to real-time data can inform institutions of attrition rates, course enrolment sizes, and student performance. These insights can then inform decisions, such as which rooms lectures take place in, as well as allowing for timetables and courses to be redesigned based on the students' needs, elevating the experience institutions can offer. However, the technologies that allow for this aren't yet being widely adopted, with AI currently only being used by 31% of institutions, analytics by 29% and ML by 23%. Just 21% of institutions use a data management platform – a surprising finding given the huge volumes of data (staff, student, research, and otherwise) that these organisations hold. That said, 32% are planning to increase investment in a data management platform over the next 12 months, while 29% will be investing in intelligent automation. This is followed by increasing integration and interoperability (29%), analytics (23%), and data fabrics (21%).

## Data usage in higher education institutions:



## Adoption of technologies allowing institutions to make more effective use of their data



- AI
- Analytics
- ML
- Data Management Platform



*The data fabric is an architectural approach to data management that speeds and simplifies access to disparate data across the organisation.*

## Investing in the higher education institution of the future

Following a significant period of upheaval, now is the time for higher education institutions to take stock and make the changes needed to futureproof their organisation. This requires IT decision makers to look at their IT infrastructure holistically and map out future investments that will help them to achieve objectives such as improving the student experience, fully integrating data, as well as enhancing their cybersecurity.

With investment in data platforms set to increase, opting for solutions that contain embedded analytics will allow higher education institutions to gain a range of capabilities without additional investment in data specialists. As integration becomes a bigger priority, it is time for institutions to look at how they can securely connect and share data with data fabrics, while lower on the investment wish list, proving to be an effective solution.

The data fabric is an architectural approach to data management that speeds and simplifies access to disparate data across the organisation. It accesses, transforms, and harmonises data from multiple sources, on demand, to make it usable and actionable for a wide variety of initiatives. Institutions can extend these capabilities further by implementing smart data fabrics, which embed a range of powerful analytics capabilities, directly within the fabric, including data exploration, business intelligence, and machine learning.

A smart data fabric allows existing legacy applications and data to remain in place, removing the need to move data, reduces architectural complexities, and offers much higher, real-time performance. As a consequence, it is faster and easier for organisations to gain new insights while maximising the value from their previous technology investments.

By making these changes to their infrastructure, universities and colleges will be better placed to cope and overcome the identified challenges, from increasing threats from cyber-attacks to growing demand for more innovative systems from students. In turn, the promise of a secure and innovative institution will become more appealing to potential students looking to embark on the next stage of their higher education journey.

For more information, visit [intersystems.com/uk/he-research](https://intersystems.com/uk/he-research)



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