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The Digital Transformation of Higher Education

CIO Perspectives on Education's Digital Future

In October and November 2020, Microsoft partnered with ucisa, the member-led professional body for digital practitioners in education, for a series of in-depth qualitative interviews with 14 CIOs and Heads of IT at universities across England, Wales, Scotland and Northern Ireland. The interviews were conducted with representatives from a range of different mission groups to understand their needs and perspectives on education's digital future.

> **Thanks to the heroic efforts of University and College IT staff at every level, the almost herculean task of enabling remote working for just under 3 million students, lecturers, researchers, academic leaders and support staff was achieved at pace in March this year.**
>
> **- Deborah Green, CEO, ucisa**

2020 has brought many challenges for us all, both personally and professionally, no matter what sector we work in. We have all been required to adapt, to innovate, to question established thinking and find pragmatic solutions at speed and under considerable pressure. Whilst it is perhaps invidious, therefore, to suggest that one sector has faced a bigger challenge than another, few would deny the pivotal role that IT departments have played to enable all sectors to respond and continue to deliver, despite the difficult circumstances that COVID-19 has brought.

This joint report highlights the key role that CIOs and the teams they lead have played in enabling the Higher Education sector's response.Thanks to the heroic efforts of University and College IT staff at every level, the almost herculean task of enabling remote working for just under 3 million students, lecturers, researchers, academic leaders and support staff, was achieved at pace in March this year. This is in addition to moving the delivery of higher education and research fully online.

As one Vice Chancellor put it, "our IT team delivered four years' worth of digital strategy in six weeks, enabling our whole operation to continue."

Having accomplished the initial challenge, CIOs found the IT departments they lead are now more valued in institutions; with staff at all levels more aware of the significant role they play. They have been quick to build upon the momentum, fully appreciating the opportunity this presents to accelerate the delivery of a truly transformational digitalisation strategy. CIOs understand the impact that a move to world-leading hybrid learning can bring to the sector, reinforcing the reputation of higher education in the UK, which contributes £95 billion in gross output for the UK economy.[1]

Ucisa are proud to have partnered with Microsoft to develop this report and appreciate Microsoft's recognition that in this new environment, suppliers will have an important role to play in facilitating collaboration across institutions and understanding the specific needs of the sector.

- Deborah Green, CEO, ucisa

The higher education sector is currently undergoing a significant digital transformation, accelerated by public health mandates and the rapid, en-masse shift to remote learning. Many universities have returned, kicking off the 2020-2021 academic year using a remote-only or hybrid learning environment that they pivoted to deliver in a matter of weeks. Digitalisation is not new to most higher education institutions; many have had a digitalisation strategy in place for years. Yet few had reached the stage of full-scale transformation: widespread roll-outs of digital collaboration solutions, upskilling staff and evolving their culture toward more digital ways of working. The past year has changed all that and put digital transformation squarely in the spotlight.

This inflection point sheds new light on what IT can offer and how it can be used in an academic environment. As institutions deliver effective remote learning today, whilst keeping an eye on the ever-evolving digital future, they are increasingly turning to their IT leaders to help them achieve their ambitions. In this defining moment for the higher education sector, the role of the CIO in the strategic decisions that will help their institutions remain competitive in this new digital world is more important than ever before.

To ensure CIOs are equipped to effectively deliver on their newfound responsibilities, they need support - from their institutions, technology companies, and from each other. In an industry known for its collaborative spirit and emphasis on curiosity and lifelong learning, higher education CIOs are keen to consult with others in their position and share insights that will help everyone succeed. That is exactly what this white paper is intended to do. It is our shared hope that IT leaders at colleges and universities across the UK will find this report useful as they engage in their important work.

At Microsoft, we view supporting and empowering these institutions as key to our mission of helping every individual and organisation on the planet achieve more. That is why we partnered with ucisa on a qualitative survey of CIOs and Heads of IT at leading universities across the UK. Through a series of in-depth interviews, we endeavoured to uncover the factors influencing their move to digitalisation, their digital maturity prior to the unprecedented circumstances around COVID-19, the subsequent impact on their digital strategy, and their perspectives on the future of digitalisation within higher education. The results are a testament to the collaborative nature of higher education and a fascinating window into a sector in the midst of unparalleled changes.

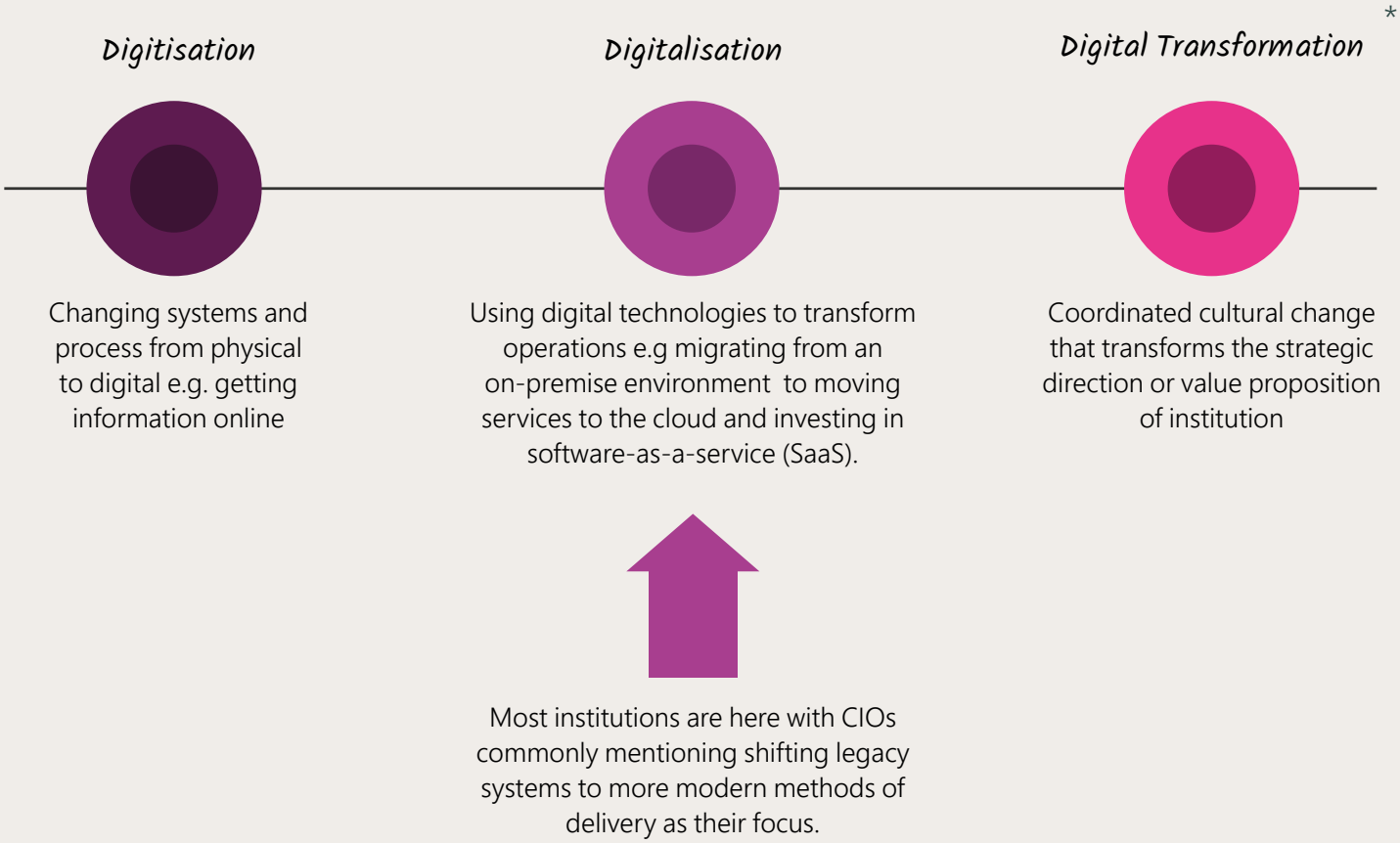
- Mark Rowland, Senior Product Marketing Manager - SMB & Education at Microsoft UK

The State of Digitalisation in Higher Education

Digital transformation is not new – it is a long-standing goal of education leaders, with many institutions already mid-way through rolling out their strategy. Following our conversations, most CIOs reported that the biggest changes happening at their institutions over recent years have been large-scale investments. In particular, they have been upgrading their technical infrastructure to facilitate the delivery of a better digital experience for students, instructors and administrators.

However, while many institutions have improved technologies to facilitate better user experiences, most CIOs agree they have yet to achieve 'true and complete' digital transformation – with many at different stages of the journey. Many are still at an initial or intermediate phase of the process, focusing on improvements to the back end – for example, moving services to the cloud and investing in software-as-a-service (SaaS). Few are at the point where they are working toward more ambitious strategic plans, focused on a broader digital transformation.

For IT leaders, there is an important distinction between the technical transformation many institutions have already undergone, and the digital transformation strategies they hope to implement in the future. According to the CIOs surveyed, a key reason for this is because true digital transformation is about more than just the technology; it is about culture, people, and how technology is adopted and leveraged to transform an institution's ways of working from both a pedagogic and operational perspective. As Paul Butler, Director of Information & Library Services, University of Greenwich says: "I think the difference between a technology-driven strategy and a digital strategy is really about people. A digital strategy is about capabilities - digital skills, digital awareness, confidence, being able to navigate technology and use it effectively, whether you're a student, researcher, in professional services, or an academic."



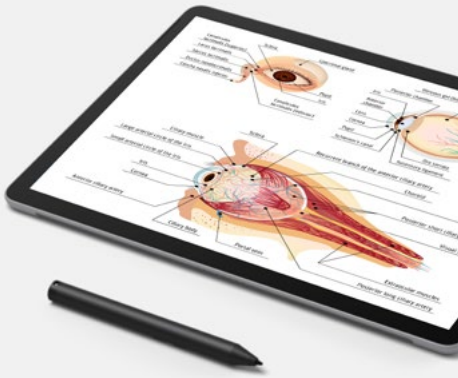
* Adapted from the 3Ds of digitalisation in Higher Education, Education Review: https://er.educause.edu/blogs/2020/6/consider-the-three-ds-when-talking-about-digital-transformation"

For many, the traditional culture of the higher education sector has historically been a key barrier to creating the change needed for such a transformation. Other factors that can impede or expedite digital transformation tend to vary by institution and include buy-in (or a lack of it) from key stakeholders, differing budget priorities, and university subject matter specialties. The interviews showed that those institutions that are more focused on sciences and technology are typically further ahead of those specialised in the arts, for example.

Despite the barriers, all CIOs recognise the need to evolve in order to meet the expectations of tech-savvy students. In fact, many cite student expectations as a key driver behind the long-term move to digitalisation. The latest cohorts of higher education students are 'digitally capable', with the ability to use a variety of digital tools appropriately and effectively, and expect the same seamless experience across all touchpoints at university that they have in their personal lives. Delivering on students' technical expectations has become critically important for institutions to remain competitive, with some CIOs pointing to the 'consumerisation' of higher education as a key driving force behind change.

> **"Our first formal digital strategy was only published last year. Up until that point, we have produced IT strategies, which have largely looked at the systems landscape. The digital strategy has encompassed a far broader range of areas including platforms, skills, innovation and our online presence. We have also considered digital wellbeing which is an increasingly important consideration for both our students and staff as part of our broader wellbeing considerations."**
>
> **- Steve Watt, Chief Information Officer, University of St Andrews**

The Impact of the Shift to Digital Classrooms



The events of 2020 have accelerated the digitalisation of higher education like nothing the sector has experienced before. Regardless of how much progress they had made previously, all institutions surveyed report that they managed to swiftly and successfully move to a hybrid learning model in response to COVID-19. Despite the pressure to set up remote learning at a scale and speed never previously attempted, they have largely succeeded and managed to adopt digital solutions which allowed instruction to continue uninterrupted. This technical innovation has also extended beyond teaching and learning to support other elements of university operations including research, data management and administration. According to Drew Cook, Director of ICT at University of Lincoln, "As a consequence of the pandemic we were forced to move very quickly into online and remote teaching and learning. What might have taken a university 6, 12, 18, even 24 months to introduce as a significant change programme, literally happened in less than 6 weeks, with the move to fully online teaching in March this year."

Those that were further along in their digitalisation journey report that developments from previous years, such as moving services to the cloud, helped them adapt more easily now. For example, some had already invested in collaboration software, but had not yet undertaken widespread roll-outs. What is common across all institutions is that these measures were taken under severe pressure, and what has been achieved over the past 4-6 months is an impressive achievement. CIOs reported supply chain concerns at the start of the year, as they moved rapidly to deliver hardware to remote students. Whilst they were able to address these issues at speed as an urgent necessity, CIOs still recognise work lies ahead to create an effective, proactive digital transformation strategy that will work long term – and indeed, one that's flexible enough to adapt for what might be to come.

The good news is that the recent digitalisation response showcased how the sector can change at scale and at pace, and CIOs are eager to keep the momentum going. For many, this re-affirmed the possibility of more agile ways of working in future. While many CIOs report their institutions were historically cautious in implementing change, recent events have demonstrated this barrier can be overcome, and many view this as the evidence needed to assure others of their capacity to deliver change seamlessly at speed.

CIOs are also keen to build on the newfound visibility and authority that they and their teams are enjoying because of their role in moving their institutions onto remote learning. In some institutions, IT departments were traditionally viewed as 'delivery' teams with little alignment to the organisation's overall strategy. CIOs reported having a mainly operational role, reacting when something needed to be fixed or deployed. However, many now state that they have more authority and visibility within their institutions. They have become key advisors to the board and faculty, participating in strategic decisions about the future delivery of teaching and learning.

Case Study

Durham University

COVID-19 has forced many organisations to shift how they work and communicate. At Durham University, founded in North East England in 1832, classes had to move online, and staff needed to work remotely so that the university could continue to serve its students, academics, and departments. To respond effectively to the developing crisis, Durham University scaled up its use of Microsoft Teams to add to its online learning tool set, maintain community, and make it possible to collaborate and communicate remotely. Students now use Teams to attend classes, share resources, and interact with other students without physically being in the same space.

> **"We need an IT function that has the agility to allow us to react quickly. Ironically, through the transition to remote learning and working, we proved that we could do it."**
>
> **- Gareth McAleese, Head of Corporate Applications, Ulster University**

Of course, this newfound visibility brings new responsibilities, and the rapid shift to digitalisation has highlighted some significant challenges that IT leaders must help their institutions navigate. Some of those challenges are based on factors such as:

Subject areas: Many institutions are struggling to adapt specific courses that require on-site activities, such as labs or art studios, to online teaching environments.

Assessment processes: A common worry is how to accurately measure students remotely, without the benefit of in-person cues.

International students: Institutions that depend on international students must adopt new technologies to ensure the delivery of quality education due to travel restrictions and time zone differences.

> **"If you are completing a business studies course, it is easy for it to all be online. If you're doing chemistry or engineering, where there is an element of labs, you still have to have some of that physical. So one of the things we are examining is how do you start pulling this into a more online environment?"**
>
> **- CIO**

In addition to overcoming these challenges, CIOs overwhelmingly report a key barrier to a remote-only approach: the importance of the campus experience. According to the CIOs surveyed, the 'student experience' is the most cited barrier preventing a permanent shift toward complete remote learning in future, particularly for new students entering university for the first time. CIOs recognise that students come to university for different reasons, and that being on campus and having face-to-face interactions with staff and other students is a meaningful part of their overall experience. Furthermore, many mention this is particularly true for international students, for whom the holistic experience is more important. Given the prevalence of international students at universities across the UK, the ability to offer a unique on-campus experience is quickly becoming a crucial competitive differentiator.

CIOs agree that mitigating these challenges and barriers requires a new approach – one that combines remote learning with in-person instruction where required. This hybrid approach allows institutions to combine the benefits of on-campus learning with a digital experience that keeps students actively engaged. While the recent rush to digitalisation put many institutions in a better position to deliver effective hybrid learning, CIOs recognise many decisions were made at the start of the year on a needs-must basis, and more work is needed to implement a hybrid learning model that works for their institutions long-term.

CIOs are conscious of not wanting to accrue 'technical debt', having prioritised short-term solutions to address these immediate needs. Now, they recognise there must be a level of supervision from senior leadership to ensure that governance processes are adhered to, that further digitalisation is driven strategically and to ensure that the interoperability and security of these systems gets built in.

Regardless of where universities were on their digitalisation journey prior to COVID-19, this shift to remote and hybrid learning has levelled the playing field across the sector. At the same time, it undoubtedly creates greater competition in the sector, too – shifting the emphasis from the on-campus student experience to the digital experience. Universities that deliver effective hybrid learning will be well-positioned to differentiate themselves and remain competitive in attracting and retaining tech-savvy students.

Case Study

Imperial College London

Imperial College London is a South Kensington-based university with a mission to benefit society through excellence in science, engineering, medicine, and business. With a large international student population, the pandemic threatened to curtail the student experience that is so central to the institution's culture. However, the college had already begun using Microsoft Teams prior to the pandemic, which allowed them to swiftly and seamlessly move lectures and labs online, while providing international students with the ability to continue their learning - wherever they happened to be in the world. Dr Paul Franklyn, Principal Teaching Fellow and Senior Tutor in Materials, credits Teams with the College's ability to successfully support its students: "We are now relying on Microsoft Teams for the delivery of all lectures, for the delivery of all remote labs. Right now, as we speak, we have students dialed in all the way from China, right across the globe to America."

Challenges and Opportunities of Hybrid Learning

The rapid shift to a remote environment has led to a permanent change in the way institutions approach teaching and learning, and has established blended learning as the future of education. CIOs agree the institutions that will be most successful in this new era are those that can harness the benefits of remote learning - and combine it with the best elements of being on campus.

This is easier said than done, of course, and education leaders face a number of challenges. According to the research, addressing digital inequality is top of mind for institutions seeking to deliver effective remote learning. In many cases, digital disparities reflect broader societal divides, such as differences in income or education status. Less advantaged students often struggle to access the equipment or necessary broadband connection to participate in the digital classroom.

Another common barrier CIOs cited is a lack of digital capabilities among both faculty and students. Even for the more tech-savvy faculty members who are comfortable teaching online, the pace of change has meant that staff have had very little time to prepare and adapt their approach and materials to suit this new style of learning. Institutions are discovering they must invest in re-skilling or up-skilling their staff, while offering opportunities for continuous learning as technology evolves.

A lack of digital capability is not just a challenge for the faculty. Many CIOs report that they have found students struggling to adapt to remote learning technologies. While some may be proficient in social media and other mobile apps, first-time students in particular have often had little exposure to software which is common in higher education and professional settings. According to one CIO, "The biggest challenge with technology is the acceptance and use of it, by both academic staff and students. There has been a lot of talk in the higher education industry for many years about digital natives in the context of young adults who are learning, but of course, learning to use Instagram is very different from learning to study and research online."

> **"We're putting modules up for individuals to improve their digital skills. There is quite a lot of digital up skilling to do across our communities (colleagues and students (present & past)). But, like anything else, we've got some ahead and some who just require a bit more support."**
>
> **- Nathalie Czechowski, CIO University of South Wales**

CIOs say their institutions are closely monitoring the situation this academic year to understand the impact on faculty, students, and administrators. As well as assessing the aforementioned challenges, they will also be examining the benefits of hybrid learning. Many of these benefits are already well-documented and include:

Flexibility: Instructors can organise their classes more efficiently, and students can catch up on lectures when and where they want, leading to an improved experience for all.

Accessibility: The hybrid learning model benefits those with special learning needs, making education more accessible for all. Students who usually struggle to speak up can also more confidently engage online as they feel less exposed. And for those who would not otherwise be able to enroll in on-campus courses, a new world of learning has opened up.

Improved collaboration and student engagement: Digital collaboration tools help facilitate communication, teamwork, and engagement, whether students are connecting virtually or are together on campus. The diverse demographics of the student population means hybrid environments can benefit those who would traditionally have been on-campus as well as those who need adaptability for family life and part-time work commitments.

More effective measurement: Digital analytics and monitoring solutions give instructors insights on when and how students are engaging and how they are progressing, allowing them to intervene quickly when needed.

It may take time before many institutions can realise the full benefits of the hybrid model. Most CIOs report their current systems are set up for instruction to be delivered either entirely remotely, or entirely in person. However, as the sector moves out of reactive mode and universities begin or continue to formulate longer-term strategic plans for blended learning, CIOs recognise that they will need to make further investments in new technology to facilitate a true hybrid delivery model in the future.

This is reflected in the challenge of providing synchronous and asynchronous learning, whilst place-based learning remains popular with students. CIOs recognise there is a challenging future ahead in ensuring that different student needs are met. A few of those institutions interviewed are looking at the potential of Virtual Reality solutions that will allow disparate students to engage with practical activities, whether or not they are physically in the room.

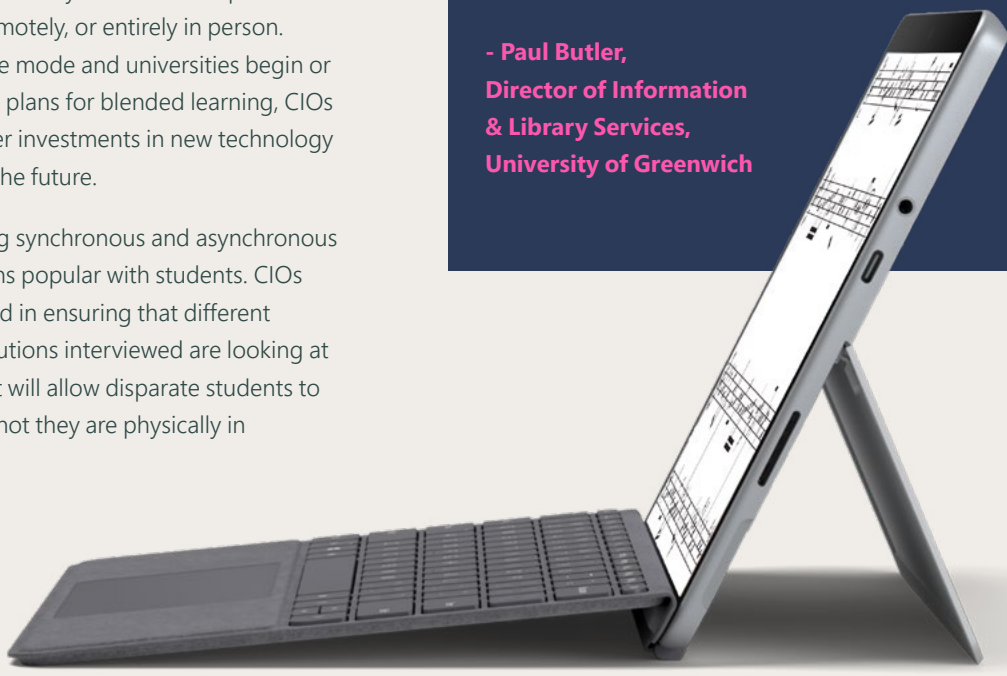
Case Study

University of Lincoln

Internationally recognised for its highly ranked computer science programme, University of Lincoln tapped into the power of the Microsoft 365 platform to manage its swift transition to remote learning. Microsoft Teams allowed the university to quickly move all teaching and learning online within 24 hours. The close integration of Microsoft Teams with other essential learning tools, such as Microsoft Word, as well as the security and integrity of the Microsoft 365 platform, are highly valued by staff and students alike. Given this success, the university plans to integrate Microsoft Teams into its ongoing operations. Dr Derek Foster, Computer Science Programme Leader, says, "Remote learning is going to remain as an integral part – or one of the tool-sets that we'll use – to enhance the student experience."

"It's those institutions that are able to flex and provide smart services, to really blend the best of digital with the best of on-campus - and use these smart new technologies. They're the ones that will succeed."

- Paul Butler, Director of Information & Library Services, University of Greenwich



Conclusion

There is broad agreement across institutions that a hybrid learning model will be the future of higher education, combining the best of remote and face-to-face delivery. Staff and students have now adapted to remote learning, but there is still work to be done to facilitate a blended approach that yields pedagogical, operational, and financial results.

COVID-19 has offered CIOs an opportunity to progress their strategy by significantly accelerating the process of digitalisation. Regardless of progress to date, all institutions have quickly switched to hybrid delivery, proving historical barriers can be overcome and change can be implemented at pace. CIOs are keen to keep up the momentum and carry out this shift in a sustainable way that benefits all stakeholders across their institution, including faculty, students, administrators, and other staff.

CIOs have also established a newfound visibility and authority within their institutions. Their efforts in moving to remote learning has established IT teams as strategic advisors to the board and faculty, and they now participate in key decisions regarding the future delivery of teaching and learning. As institutions begin to evaluate their long-term plans, CIOs are firmly placed to support on digital strategy.

The transformation the sector has experienced this year has helped demonstrate the benefits of hybrid learning for both students and staff, such as more flexibility and accessibility, as well as better management of classes and improved student engagement. However, it has also highlighted challenges, too; digital poverty, digital capabilities and other issues all still need to be addressed and overcome. It has highlighted to CIOs that there is no one-size-fits-all solution, and many now recognise how complex it will be to create a long-term hybrid learning model that works across their institution.

This is an area where technology companies can step in and support IT leaders on this journey. Digital transformation is about more than products; it is about people, processes and technology working in harmony to drive sustainable business outcomes. Therefore, technology companies have a real opportunity to meaningfully engage with higher education institutions and help set them up for success during this pivotal moment for the sector.

CIOs are looking to the future and want to ensure that their herculean efforts in recent months can benefit their institutions' long-term business objectives. They are not looking for transactional conversations with suppliers about individual technology needs. Rather, they want to build partnerships that help deliver the 'big-picture' strategy. As institutions look for collaboration, the consolidated support and partnership of suppliers is more important than ever before.

To learn more about the results of the study, or to speak with Microsoft about digital solutions that can support a hybrid delivery model for your institution, **www.microsoft.com/en-gb/surface/business/education**

Founded in 1992, ucisa is the member-led professional body for digital practitioners in education. Open and inclusive, it works together to use its collective technical knowledge and digital expertise to help transform teaching, learning and research by supporting operational efficiency and an excellent student experience. Further information can be found at www.ucisa.ac.uk

[1] https://universitiesuk.ac.uk/news/Documents/uuk_achieving-stability-higher-education-april-2020.pdf