


 DIGITAL CAMPUS

 COLLABORATION

 PROCUREMENT

 PROJECT DELIVERY

 FIT FOR PURPOSE

 INTO THE FUTURE





# Technology offers opportunities

Tools such as projectors and audio systems remain commonplace in many lecture halls, but what effect are new and changing technologies making on learning and teaching, asks *Clive Couldwell*.

AV staff and technicians at universities and higher education colleges up and down the country are beginning to settle down to another term. However, in addition to carrying out the daily tasks associated with their role AV staff are now also increasingly expected to keep pace with a host of cutting-edge technological changes and product developments.

This is why we decided the latest of our *AV in...* supplements should examine more closely how Higher Education plans for, implements, uses and manages AV technologies.

## Current challenges

Demands now being made on HE are different from those of even two to three years ago. Colleges and universities have been forced to adapt their teaching and technology usage to an increasingly computer literate and ever more, let's say, 'challenging' student population.

They're having to meet the needs of the digital student generation and changing the way they operate to meet new financial challenges.

So, what effect are new and changing technologies making on learning and teaching?



Although tools such as projectors and audio systems remain commonplace in many lecture halls, the role of AV in higher education is quickly changing with online learning, learning space designs and next-generation learning environments coming to the fore.

Perhaps most importantly, the vast majority of AV equipment is now underpinned by IT systems – meaning that a good user experience can only be guaranteed if AV and IT teams work closely together.

It's essential support teams build and maintain relationships with colleagues in other areas of IT, largely because, even with additional training for AV professionals, it's likely they'll have to draw on the expertise of IT colleagues to achieve great results.

A handwritten signature in black ink that reads "Clive Couldwell". The signature is fluid and cursive, with a long horizontal line underneath it.

*Clive Couldwell, Editor,  
AV Magazine, [avinteractive.com](http://avinteractive.com)*



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# Satisfy these savvy, challenging students

The current generation of undergraduates expects to be wooed with state-of-the-art learning environments and easy connectivity. HE must make sure it delivers, says *Clive Couldwell*.



Colleges and universities have been changing to meet the needs of a digital student generation, increased internationalisation of their offerings and the potential of online courses.

You could say HE has more in common with corporates now being forced to invest and standardise in AV to attract the best students. So what ‘business’ challenges is HE facing?

“It’s very similar to the private sector.

Budgets remain tight; HE needs to do more with less. At the same time there is greater scrutiny over performance and results,” says David Zrihen, EMEA sales director at Vivitek. “Often, there can be a reluctance to embrace change, which can frustrate progress and the betterment of the learning process. Overcoming that mindset is a challenge for buyers. Meanwhile, users can be faced with scenarios where the AV solution hasn’t been thought through nor specified correctly, or there are installation issues. These are challenges hard-pressed IT teams in HE institutions don’t have the time or resources to resolve.”

There’s no doubt the HE sector is in the middle of an intense period of investment. It’s a competitive market for universities in particular. The facilities they provide are highly visible so it’s vital they keep up to date with technology – it’s what students want to see.

There is also a clear shift to collaborative learning – every university is creating spaces that support the collaborative process, but it’s a shift in transition.

Universities want to make their spaces as flexible as possible. Cranfield University, the UK’s only exclusively postgraduate university, for instance, wanted the spaces in its new building

– the AIRC (Aerospace Integration Research Centre) – to suit a variety of uses in future.

The building has a large, flexible open lab with four zones that combine in six ways. All zones have podium lecterns. Two have single projectors and two dual projectors, producing one large edge-blended image, displaying up to four sources simultaneously. Resources can be controlled with a tablet – freeing the presenter to roam the space.

But universities are not only refurbishing existing spaces, they are refitting whole buildings, some of which they have acquired from the public sector or the commercial world.

**“There are unique challenges when it comes to managing the variety of teaching, meeting and hospitality spaces found in the modern campus.”**

**Simon Carp, ONELAN**

For example, a £3 million refit is underway at the former town hall in Marylebone, recently acquired by the London Business School, while King’s College London has leased the five former BBC buildings of Bush House, between Aldwych and the Strand. They are being turned into what the university hopes will be world-class research and education facilities.

The University of Warwick’s new £19m teaching building on the central campus – The Oculus – is impressive. A total of 15 spaces were equipped with the latest technologies,

setting a new benchmark for teaching and learning spaces.

The Oculus houses a 500-seat auditorium and 250-seat lecture theatre, along with 12 teaching spaces, social learning and network spaces, all accessed via an entrance lobby, with a 4K video wall displaying digital art and maps of the building, while touchscreens provide dynamic wayfinding in the entrance

The 12 flexible seminar rooms combine projection with analogue and digital writing surfaces and have lecterns providing laptop connectivity, visualiser, lapel radio mic and touchscreen display.

The 250-seat lecture theatre is an expanded version of the seminar rooms with multiple projectors projecting on to a large (8m x 3m) screen and extra visualisers to fill the canvas, while the 500-seat auditorium provides three-chip DLP projection on to a huge 10.8m x 4m screen.

Lecture capture based on timetabling is provided in all teaching spaces along with wireless collaboration for BYOD connectivity. There is also an infra-red assistive hearing loop for those with impaired hearing.

There’s no doubt the adoption of pro AV in higher education has evolved rapidly. This means modern classrooms tend to come with a combination of legacy and digital AV sources. Systems integrators (SIs) have to find a way to smoothly integrate all these technologies – the increase in the amount of digital equipment using 4K, in particular, can make installations even more complex.

For example, college environments such as lecture halls – in which content is displayed simultaneously in a large, centralised area –

have to cope with a wide range of signals for projectors, video conferencing systems, and PCs. The core challenge in active learning classrooms, meanwhile, is to provide multiple inputs and outputs and the ability to control content centrally from anywhere, since this is a two-way environment with students and teachers both sharing materials.

Both scenarios must allow educators to quickly set up and switch between different content sources to save time. Therefore, SIs need to make sure the equipment control set-up is simple for teachers to operate so as to not interfere with their lessons.

For example, ATEN provided a solution for a major Japanese university that was undertaking a project to upgrade infrastructure for education and research facilities in its newest building. They needed an AV solution to be implemented throughout all the large and small classrooms, conference rooms, and seminar rooms that could cope with a wide range of different signals going to every room.

The ATEN solution offered a simple and cost-effective way to send high-quality HDMI

content to any of the HDMI displays and switch seamlessly between them, so professors could start classes without wasting a moment.

### What next?

In the past few years, technological advancements and their impact on social interaction have rapidly created new demands in the higher education sector. Keeping pace with these advances is both a challenge and an opportunity, as more and more universities and schools realise the increasing importance of equipping their facilities with room solutions that bolster their curriculums in appealing and effective ways.

“There are unique challenges when it comes to managing the variety of teaching, meeting and hospitality spaces found in the modern university campus. In the corporate space you would rarely find more than one system being utilised for booking rooms. However, this is standard practice in the HE world.

“Here, there may be one system used for academic timetabling, a second system used by staff to book ad hoc meetings and yet another

system used for booking spaces out to fee-paying parties. On top of this, universities also have to manage a much faster churn of campus users – the annual cycle of graduates leaving and freshman enrolling is beyond what a corporate would typically experience,” says ONELAN’s Simon Carp.

Network and security issues can restrict or preclude the use of technologies such as webcams, wireless devices and BYOD. Campus licensing issues can also have an impact on the use of BYOD. This is a big issue as universities move towards cloud-based collaboration and BYOD, which rely on wireless and network security – it reduces flexibility. As AV and IT converge and infrastructures becomes increasingly complex, in-house teams are up-skilling to meet the challenge. Programming and an understanding of AV-over-IP process, protocol and design are two aspects they struggle most with integration. It’s not necessarily that integrators don’t have the skills, but finding a supply/design/fit-out/programme suite of skills in one integrator is difficult. ■



**For the huge investment undergraduates are making in their education, they quite reasonably expect state-of-the-art learning environments**

# DISPLAYS & INTERACTIVE TECHNOLOGIES







# The digital campus

Today's students are used to a world where smartphone apps, plug-and-play technology and seamless connectivity are standard – and they expect the same from their learning environment. *Steve Montgomery reports.*

Universities and institutes of higher education throughout the world are investing heavily in digital equipment that enables them to deliver education more efficiently and effectively to students who are increasingly tech-savvy and who have ever-increasing expectations. Presented with a wide choice of universities and colleges, students will often base their choice, at least in part, on the establishment that offers the most appealing methods of teaching. Today's students expect modern methods, using all the forms of communication and technology that they are already familiar with, and will be using for the rest of their working lives.

Higher education establishments need to respond to student demands in order to attract the best candidates, generate revenue and maintain their position in the hierarchy of educational provision. They operate as

**“A lecturer will often ask whether students can hear him, but rarely whether they can see the information on the screen.”**

**Paul Wilson, Epson UK**

businesses, making decisions on investment in technology after careful consideration of potential return on investment.

As Jon Garaway, education leader at NEC, explains: “The new technologies being employed by institutes of higher education are student-led, but it's not just about the technology: the whole educational offering is being redefined to fit today's student lifestyle. A university is a business and the students are its customers. In order to attract the best students,

the university must offer a compelling environment and teaching methodology. Students look for a more flexible way of learning and universities need to acknowledge that with services that adapt to this need.”

“The latest generation of students has grown up with technology at their fingertips and expects the university to offer better equipment than they used at school,” says Mark Tildesley of Maverick AV Solutions.

“This puts pressure on IT departments to continually innovate and comes at a time when the AV technology available has never been more intuitive or reflective of consumer technology. Brands are emerging that offer a seamless and collaborative experience, rather than a one-way presentation.

“As a result, teaching is much more immersive and engaging than it used to be. Interactive flat panels such as Microsoft Surface Hub, Google Jamboard and

Promethean ActivPanel are becoming ubiquitous, enabling students to share their content, adding notes and pulling things directly from the web.”

Despite the growth in university attendance and class sizes, there is still a reliance on traditional teaching methods. “In one respect – that of live lectures – universities haven’t really progressed much at all: they still teach in a very similar way to that presented generations ago,” says Paul Wilson, business manager, visual instruments, Epson UK.

“A whiteboard or blackboard and projector screen is situated at the front of a large lecture hall or auditorium and the lecturer imparts wisdom from that position. Problems arise when screens aren’t large enough. A lecturer will often ask whether students can hear him, but rarely whether they can see the information on the screen.

“Flatscreens, while favoured by many in the higher education sector because of their looks, can actually be a disadvantage: often their size means that they are simply not capable of providing visible content for all the students in a large lecture hall.

It is essential that the AV system is specified to meet the requirements of each location and that the screen size is the biggest it can be.

**“It is essential that the audio solution suits the space, in order to avoid unclear delivery of lectures. This is especially true in larger theatres.”**

**Patricia Finlayson, Polycom**

Integrators must consider all aspects of the room and application: factors such as room size, number of seats, lighting, angles of view and type of content that will be shown.”

Patricia Finlayson, senior product and solutions marketing manager at Polycom, adds: “Educational establishments need to be equipped with high-quality video and audio in order to be able to supply quality education. It is essential that the audio solution suits the space, in order to avoid unclear delivery of lectures.

“This is especially true in larger theatres and lecture halls intended to record speeches, as muffled sounds can compromise students’ ability to learn from the lecture. Here, distributed pick-up microphones and state-of-the-art voice processing on conferencing

phones are the key to clarity and understanding.”

One of the more significant areas of change lies in the approach to group working and self-learning, with students working together in dedicated collaboration areas, overseen by lecturers. “A preference for informal, small-group learning has led to universities installing adaptable pods equipped with a large touchscreen to provide the visual interface,” Garaway says.

“These pods need to be able to receive students’ own devices, allowing them to connect wirelessly, present and collaborate with each other. Lecturers can also select and switch the content from any pod and broadcast it to all the other pods, and to a main screen, to reinforce or discuss individual points.”

Video capture of lectures is rapidly becoming one of the key differentiators between establishments. There are several aspects to this technology and its use that can affect the educational outcome. One of the most effective applications is simply to record a lecture and make it available to participants directly afterwards. This provides great benefit, as Brian Davies, director of GV Multimedia, points out: “Simply capturing the lecturer’s voice and Powerpoint slides and loading them





on to a server, unedited, for later access by students allows them to concentrate on the content of the live presentation without having to take notes or photograph the screen with their mobile phone.”

**Growth in demand**

Eliot Fulton-Langley, solutions architect at CDEC, agrees with this sentiment: “Lecture capture and electronic voting systems have seen a growth in demand as universities look to offer a more flexible and interactive learning experience. By offering recordings of lectures that enable students to revisit topics, catch up on missed subjects or watch pre-recorded sessions ahead of a seminar, learning becomes more inclusive and collaborative, and that encourages debate and discussion rather than passive learning. It is now a service that students demand and expect.”

The ability for universities to webcast has been in big demand for nearly a decade, although a realistic lecture-like experience has been harder to achieve. Wayne Andrews, senior product manager at Matrox, observes that: “In the past year, there have been major developments in modernising the higher educational environment, particularly on the software-media-management-platform side.

“These include innovative applications such as live streaming through social media, with real-time feedback and commenting and multi-stream playback that allows the viewer to see synchronised streams at the same time and switch between sources. Many video management systems – for example, Ensemble Video, Kaltura and Presentations 2Go – have developed multi-stream players. They allow students to change their viewing layout at will, putting the power to personalise their learning experience in their own hands.”

**Vast stock**

Once an establishment has implemented a system for recording lectures, it soon becomes apparent that it needs to manage a vast stock of recorded material. Video management platforms allow institutions to manage assets centrally. They are increasingly becoming the centrepiece of AV investment in higher education.

“There are some key requirements for any institution looking to implement a video platform,” says Peter Ingle, Panopto’s general manager.

“Students use lecture recordings primarily as a revision tool but may want to review only 10 minutes of a one-hour lecture for an exam. This

can be aided by indexing spoken and written words for student search. Video platforms should also be tightly integrated with the institution’s Virtual Learning Environment (VLE), ensuring that the recordings are shared effectively. This allows academics to concentrate on delivering great teaching, knowing that the right content will be served to the right students at the right time. Students can sign in to the already-familiar VLE and easily access lecture content, making their learning more productive.”

**Equipment and expertise**

The step of turning a raw recording of a lecture into a professional-looking video for delivery to a wider audience requires effort, equipment and expertise. To create this type of content, the establishment needs to set up and administer a programme-making facility that can record, edit and deliver material. High-quality content is essential to the rapidly expanding MOOC (Massive Open Online Courses) industry. Many of the thousands of courses on offer are supplied by some of the best institutions, including Harvard, MIT, Caltech and the University of Oxford.

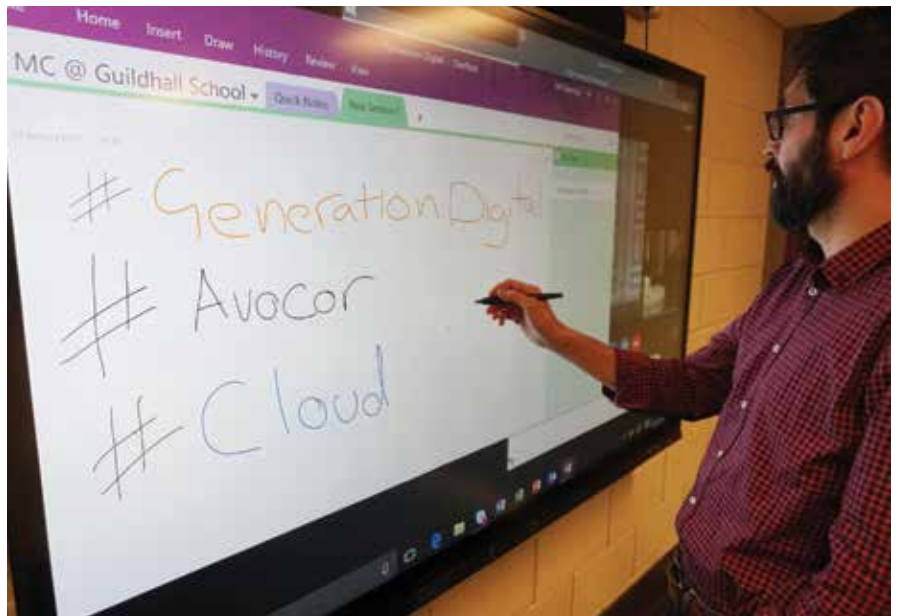
“There has been a huge growth in online and on-demand learning in the form of MOOCs and



**Polycom's EagleEye Director II tracks lecturers as they move around the auditorium**



**Mediasite enables automated and integrated lecture capture and multimedia management**



**The Guildhall School of Music and Drama has a bespoke Avocor collaboration system**





**Surrey University's vet school features easy-to-use presentation systems and lighting control**

boot camps, predominantly servicing the further education space to meet the skills gap in areas such as computing,” explains Ben Davis, senior market analyst at Futuresource.

“Higher education institutions retain the competitive advantage in terms of qualifications because employers place value in them. But to remain relevant, institutions of higher education should look to embrace all technologies that promote flexibility and active learning.”

### Digital learning

Davis also cites other significant digital technologies that institutions need to consider in order to stay abreast of the challenge of digital learning: “On-demand access is hugely important but brings with it new problems related to content delivery and learning management. Fortunately a range of solutions is available to assist: learning management systems, such as D2L, with increasingly advanced feature sets such as data analytics and adaptive learning; remote collaboration platforms, such as Cisco Spark, which facilitate distance learning and team collaboration; adaptive learning platforms, such as RealizeIT, which set the parameters and influence the direction of self-guided study; and finally, data analytics solutions that are helpful in drop-out prevention, instructional design and campus

management.”

An essential area of consideration is network security. Higher educational institutions hold considerable amounts of students’ personal information and highly valuable research and commercial material.

“Network security lies at the forefront of any implementation and must be considered at the inception of any project. With the convergence of AV and IT and the proliferation of network-enabled and accessible devices, there are many points of access. The underlying network security procedures must be as robust as those in commercial organisations,” explains Davies.

“This situation is complicated by the sheer number of students we have requiring campus-wide access over Wi-Fi, the enormous bandwidth required to handle multiple streams of video and visiting lecturers’ need to connect their own presentation devices to on-site facilities.”

Many institutions manage a network for their own services and an isolated and completely separate network for guest access. All switching and access devices are located in secure computer rooms, with access limited to IT staff.

### Students and educators

New technologies – and the evolving digital



**Epson projection in Essex University's "pods"**



**A Crestron tablet touchscreen console**

campus – are clearly benefiting both students and educators, with both parties embracing the technology. At the Guildhall School of Music and Drama, a recent £90 million expansion project included an extensive bespoke cloud-based collaborative environment based on an Avocor system. “The school serves a wide range of students and teachers around the globe and the goal was to provide more students with internet-enabled learning systems, so they could learn anytime, anywhere,” explains head of IT Richard Antonel.

“In addition, we have increased revenue by offering online courses and a mix of physical and virtual content courses. Students and staff alike can access standard collaboration packages under Windows 10 without the need for extensive training, and the wealth of connectivity allows cloud-based and immersive meeting experiences, virtual online course delivery and large-scale webinars – all providing a transformational learning environment to deliver world-class digital collaboration.

“Since we put the system in, meeting and conference rooms have been used in a much more collaborative way than we ever imagined, and some people who we never expected to warm to the technology are now using them in a big way.” ■

# A hub for collaborative teaching and learning

Wireless technology answers the younger generation's need for instant, collaborative communications, according to Holger Graeff of Vivitek. *Lindsey Reynolds* reports.

Higher education is very competitive, says Holger Graeff, general manager for Vivitek EMEA, with universities investing on a significant scale to make sure they attract students.

Graeff says two of the technologies at the top of university agendas are laser projection and wireless collaboration.

The business case for laser projection is compelling and becoming well understood in HE, where laser is increasingly specified for room upgrades and new builds.

Solid-state illumination eliminates the lamp, giving minimal maintenance over the 20,000-hour life – equivalent to about 7-10 years, Graeff explains. “We have laser projection at 5,000 lumens and above, including a 4K model with 7,500 lumens for a very crisp, bright image on larger screen sizes.”

## Collaboration essentials

Universities also want their teaching spaces to provide a collaborative environment: “The younger generation expects faster communications and to be able to share different sources,” says Graeff. “And it has to be instant. Wireless collaboration systems support this, enabling small-team

learning, visualisation and easy information sharing.”

Vivitek's solution is NovoPRO, which serves as a wireless hub, enabling anyone to connect to the room display. “It gives teachers and students the flexibility they want,” says Graeff. Up to 64 users can connect their devices and view up to four sources simultaneously in a quad-split screen. Devices can be also be mirrored.

“Educators often misunderstand mirroring because they have encountered only iOS mirroring or Miracast, which are only one-way. We have to make sure they realise it can be a two-way communication that is much more powerful,” comments Graeff.

“NovoPRO is open to any platform. From the start we knew this was key. Students need to be able to use their own devices.”

**“The younger generation expects faster communications and to be able to share different sources. And it has to be instant.”**

**Holger Graeff**



**Holger Graeff: “We want our users to have the latest feature sets”**

Graeff also emphasises that Vivitek charges neither for software upgrades nor a monthly subscription for NovoPRO. “Our engineers are constantly developing the system, making changes and improvements. We want our users to always have the latest feature sets to ensure they have the best user experience.”

## Inspiration

Higher education is going through a period of immense change. In addition to general trends such as the transition to laser projection, Graeff reports some universities are also actively exploring alterna-

tive and more expensive display technologies such as flat panel with and without touch (Vivitek has both) and LED (Vivitek has indoor and outdoor with up to 1.5mm pixel pitch).

“I recently had a conversation with a university that wanted to see a variety of technology solutions,” says Graeff.

“They said not to worry about the cost; they wanted to be inspired. Of course price matters, but they are looking to explore the new and different to see how they might use them. It’s an exciting time for universities and for suppliers alike.” ■

# Reimagining AV in the learning zone

The role of the AV integrator is expanding in the ever-changing world of higher education. Tracie Bryant-Cravens of AVI-SPL tells *Lindsey Reynolds* what some of the challenges are.

» Huge changes are underway in higher education, says Tracie Bryant-Cravens, vice-president of sales, state, local government and education at AVI-SPL, one of the world's leading AV integrators.

“Technology is changing. The way they buy is changing. Even their purpose is evolving, with increased focus on preparing students for the workplace. They are not only equipping students with the technology-based skills they will need for their careers; we also see community-focused education, producing a skilled workforce to benefit their local economy,” Bryant-Cravens explains.

“Higher education (HE) is looking at any technology that lends itself to collaboration, especially collaboration on a large scale.

“They are developing multiple campuses internationally that can be linked by AV-over-IP. We see increased student mobility, with students learning and participating from anywhere, not only the traditional campus. We also see more exchange programmes.”

More non-traditional students are getting involved in further and higher education (older people returning to education to help them change careers, for example)



**Tracie Bryant-Cravens: helping to deliver a return on investment**

and universities are looking for technologies that open up education – such as more MOOCs (Massive Open Online Courses) – and transform it. Medical training, for instance, is being revolutionised by simulation technology.

## Rapid change

“The technology itself is also moving at a rapid pace and as an integrator it’s our responsibility to keep up and share expertise with HE institutions,” Bryant-Cravens continues.

“But we also see a change in the buyer’s journey – how they collect information, research technol-

ogy, review brands and products, how they share information and best practice. This all takes place well before they engage with an integrator.

“We also see HE institutions adopting a DIY model, relying

**“While we help our customers innovate, our job is not merely to rip out and replace but rather to reimagine.”**

**Tracie Bryant-Cravens**

on their internal personnel for installation. The real challenge – and where these institutions hit difficulties – is in making sure everything works together. They might buy from several different vendors, which didn’t realise all the components would be integrated, or they might simply have bought displays with the wrong inputs.

“This is why integrators are so valuable. Our job is not only to provide new technology; we make sure it works with everything else. We also have to own it – make sure it works consistently. And we have to make sure it is adopted and fits into the curriculum,” Bryant-Cravens explains.

AVI-SPL is one of the world’s largest integrators of AV communications and collaboration solutions. With local support across Europe, USA, Canada, Middle East and Asia, it designs, builds, implements and supports projects in HE, corporate and other vertical markets throughout the world.

“While we help our customers innovate, our job is not merely to rip out and replace but rather to reimagine,” Bryant-Cravens adds. “We drive the evolution of a space – optimise what they have, add new applications and continue that return on investment journey.” ■

# A laser-like focus for top-quality teaching

Digital Projection's Chris Axford tells *Lindsey Reynolds* how the DLP pioneer is bringing high-end 4K laser to larger university teaching rooms and lecture theatres at an affordable price.

**»** Digital Projection is synonymous with top-quality projection. The company has been at the leading edge of the technology since its inception – making the world's first three-chip DLP projector – and it was the first to market with professional laser illumination.

The past five years has seen the product set broaden, with new 4K laser models. “We are bringing high-level engineering at a more accessible price,” explains international sales and marketing director, Chris Axford.

“Universities already buy our range-topping native 4K DLP projectors for visualisation,” says Axford. “They need the best but it comes with a big price tag. We are now offering more accessible 4K laser projection – ideal for higher education. They get the best available resolution in a projector they can fit and forget.”

The 20,000-hour lasers have no other serviceable parts needing attention during their seven years of run-time. The environmental benefits add to laser's appeal – no lamps means no toxic mercury.

## Maintenance costs

Many lecture theatres use multi-lamp projection. If one lamp fails, all tend to be replaced early to ensure consistency and any edge-



**Chris Axford believes universities are prepared to pay for the best**

blending and warp needs to be recalibrated. It all adds up to a lot of maintenance.

Eliminating these issues has an enormous impact on running costs, explains Axford. This gives laser huge appeal, especially for those running multiple facilities – such as universities. Indeed, laser is becoming a mandatory requirement for installation of projector upgrades in HE.

“When they are upgrading, it's a natural step to move to 4K. We provide a five-year warranty as standard, so universities know they need to future-proof for that period and 4K is a logical choice. The 4K infrastructure is not quite there yet, but it will be soon.”

Axford says two models are well suited to higher education. The first is the Insight Laser 4K series, as used in Glasgow School

**“Laser is becoming a mandatory requirement for installation of projector upgrades in higher education.”**  
**Chris Axford**

of Art's School of Visualisation and Simulation for cutting-edge medical and heritage visualisation, commercial projects and academic research. “These are high-level projectors and you're paying for the best.”

For use in larger teaching rooms and lecture theatres, there is also the HIGHlite Laser 4K, a 12,500-lumen, three-chip DLP projector that has scooped a number of awards.

Buyers need to understand not all 4K is equal, Axford explains. “The optical design of the system needs to be top class. True 4K should have at least 8.3 million visible pixels on-screen – just as ours do.

“We sell through the channel, not directly to universities, but we do engage both with them and organisations such as SCHOMS, the professional body for senior managers working within UK higher education, so they get to test the quality for themselves.” ■

# Innovation drives new services for universities

Spiros Andreou of CDEC talks to *Lindsey Reynolds* about the AV integrator’s innovative managed service offering and real-time communications tool, bringing new applications to campuses.

» CDEC is a supplier to a number of universities and colleges across the UK. “We put the customer at the heart of everything we do and we asked ourselves: ‘What problems can we solve for universities?’” says Spiros Andreou, service delivery manager at the multi-award-winning AV integrator.

As the former service delivery manager at Goldsmiths, University of London, Andreou is well placed to bring an understanding of the strategic challenges facing universities to the integrator’s business.

Universities have to attract and retain students, he explains. All universities’ undergraduate fees are the same, so they must compete on the calibre of the technology and the experience it delivers, which is increasingly reflected in tenders – with price taking second seat to quality.

Universities also face the significant challenge of attracting and retaining staff. As a result, the AV technology needs to be top class, consistent across learning spaces and, because AV is a critical component of the student experience, it must work – consistently.

**Managed AV services**  
To keep the AV up and running 24/7 (and running optimally), CDEC has developed a fully



**Spiros Andreou: helping to bring AV and IT even closer together**

managed AV service for universities – an industry first in the UK.

Andreou explains: “AV is becoming part of the IT world. Every device on the network is an equal citizen that can be monitored, updated and often fixed over that network. Our service brings AV on to the same playing field as the servers, printers and all other IT devices and provides a service

**“We asked ourselves: ‘What problems can we solve for universities?’”**  
**Spiros Andreou**

around it – delivered by us as the contracting partner.

“We use all our experience to provide the level of support universities receive from the best IT managed service providers – our AV service desk complies with all the standards and frameworks universities look for, including ITIL, Six Sigma and SIAM.”

ITIL is a set of detailed practices for IT service management. “This is the service management framework we use and our enterprise service desk is fully compliant with ITILv3,” says Andreou. “ITIL is standard throughout the IT world, and now CDEC is bringing it to AV.”

Six Sigma, Andreou explains, is a quality-management,

problem-solving and ‘Lean’ toolkit that helps an organisation improve its capability and maturity, eliminate mistakes and reduce waste: “We use the tools and techniques described in the Six Sigma toolkit to improve our processes,” says Andreou.

The third key standard universities look for is SIAM (Service Integration and Management). “This is the standard framework our customers would use to integrate our AV managed services,” says Andreou. “It sets out how we would expect to work with them. This makes sure we are talking the same language and integrating seamlessly with the customer’s existing services and processes.”

Once looked upon unfavourably, outsourcing now enables commercial and public-sector organisations to operate at peak efficiency without the expense of a very large resource in-house. Outsourcing the service to an expert firm augments the existing staff and infrastructure and optimises use of its assets.

“Universities increasingly meet the challenge of managing more and more technology with the same or reduced in-house resource with a managed-service approach for IT,” says Andreou. “In total, 66% of universities already use an out-of-house service and 80-90% use cloud-based services such as Microsoft Office 365 or Google





**Industry first: CDEC provides a fully managed AV service – every device on the network can be monitored and updated over that network**



**The CDEC service desk is fully compliant with the standards university IT departments expect, including ITIL, Six Sigma and SIAM**



**CDEC worked with Canterbury Christ Church University to upgrade and standardise teaching spaces at a rate of more than 60 a year**



**Six standard area types were defined when CDEC handled the supply and installation of AV systems across the Goldsmiths campus**

G-Suite. An AV managed service is what universities need – it makes sense. We can provide a higher-quality and more affordable service.”

### Multiple spaces

Any university has a vast number of people with which to keep in contact over large and distributed campuses, with multiple teaching buildings, accommodation blocks, libraries and social spaces.

CDEC now provides a communication tool that enables real-time communications and engagement with students via their personal devices, desktops and digital signage – active and passive.

It integrates with the university data sources – VLE, timetabling, student record system, for instance – and its network to automate the communications process.

The university can message anyone on the system and have a meaningful and relevant exchange when a student identifies themselves. If a student wants to know how to get to their next lecture, a tap of their smartcard on a wayfinding totem tells them how to get there, and in their native language.

The university can track student preferences and needs – identify what media they engage with, who gets lost on campus, for instance – and provide push notifications

for emergency messaging, room changes for seminars and event news.

They can address personal safety: for instance, a student who is feeling unsafe could push a button on a touch screen to connect with a real person over Skype – who can help get them help.

Students who fail to engage with student services – the library and IT, for instance – are the most likely to drop out, Andreou explains. Attrition rates are one of a university’s greatest challenges: they lose substantial income in tuition and accommodation fees when a student drops out. The deep level of engagement that the

communication tool provides enables them to address this challenge.

“We also provide management dashboards for finance, IT and facilities, for example, to give managers an at-a-glance representation of the data they need to make decisions, as well as a vice-chancellor’s dashboard showing top-level information such as how many unconditional offers have been made or the current attrition rate.”

It’s an exciting development, says Andreou. “Students expect instant and personalised communications and we believe this will change the world of communications in higher education.” ■

A photograph of a man and a woman sitting at a desk, looking at a laptop. The man is on the left, wearing a dark t-shirt, and the woman is on the right, wearing a white blouse. They appear to be in a collaborative work environment. A large, semi-transparent circle is overlaid on the image, containing the word "COLLABORATION" in a black, sans-serif font.

# COLLABORATION



# Building a better future

If technology-enabled collaborative learning is becoming a linchpin of higher education facilities, why is this happening and what are the factors influencing its implementation?

*Rob Lane investigates.*

Chalk may be a thing of the past in today's schools and colleges, but it really wasn't all that many years ago that blackboards were ubiquitous and the technology that has superseded them was widely considered a luxury add-on to traditional learning methods.

Now, of course, technology is a vital component across all education sectors and there's no chalk dust to be seen. And while 'education technology' used to refer just to blackboard-replacing digital whiteboards, the past few years have witnessed a revolution in the use of wider tech in both higher education and junior/primary school systems.

## Tech-led processes

Students and educators continue to benefit hugely from innovative, tech-led teaching processes, including virtual classrooms, online lesson plans and collaborative learning – cur-

**“The fresher the fresher, the more the demands of an ultra-connected world are influencing how we communicate in all walks of life.”**

**David Wilson, Engage Works**

rently the big tech-in-education story – allowing teachers to share content with students and vice versa.

“The need for collaboration is a trend across all AV and control systems sectors – and this is especially true in the realm of educational technology,” says Toni Wong, senior marketing executive at connectivity specialist ATEN. “Educators have always needed to foster teamwork in the learning environment as a basic

educational tool, but advances in classroom technologies have widened the scope of what is available to innovate and create environments that incorporate collaboration spaces inside schools and classrooms.”

There are two big drivers behind the rise in collaborative learning: today's students are all first-generation digital natives who haven't experienced life without the internet or touchscreen tablets and expect an interactive, collaborative learning environment; these students are very demanding consumers who – in higher education, at least – incur huge debts as the price of their education, and they realise that the modern workplace demands collaboration – and tech-savvy professionals.

Indeed, a 2015 survey by Hart Research Associates for the Association of American Colleges & Universities (Falling Short? College Learning and Career Success – Selected Findings from Online Surveys of Employers

and College Students) found that more than 80 per cent of midsize or larger US employers look for collaboration skills in their new employees.

It also concluded that 91 per cent of employers agree that for career success, “a candidate’s capacity to think critically, communicate clearly, and solve complex problems is more important than his or her undergraduate major.”

So, how standard is technology-enabled collaborative working becoming in the education system, particularly HE? Certainly as the blending of devices for work, play, leisure and learning have become more blurred, we have seen a shifting evolution of expectation in each passing year.

“The fresher the fresher, the more the demands of an ultra-connected world are influencing how we communicate in all walks of life,” explains David Wilson, workplace consultant director at Engage Works. “Ultimately this is being seen in all work spaces and education spaces – be that from the humble Google Docs G Suite right through to full-on scan/focus/act collaboration methodologies.”

Wilson believes that collaborative working is so crucial to today’s postgraduate working environment that it should be taught as a module in higher education institutes – an interesting broadening of the discipline from practical, day-to-day usage to business qualification.

“I really think it should be on most curricula/ syllabuses,” he says. “The modern workplace is so flexible, and we can effectively work from anywhere so people come together to work as teams when they come into the ‘office’ – so we should actually teach them how to work effectively as a group in a physical space.”

**“IT and AV departments are certainly converging in the higher education industry. We saw a similar merger when telecoms became a part of IT.”**

**Joan Vandermate, Logitech**

It certainly makes a lot of sense for establishments to use their collaborative technology investments as income generators by adding specific collaboration qualifications to their roster, and it surely won’t be long before this is the norm. However, it is still early days.

“I do not see yet that this is a standard feature of many courses, although some disciplines may regard collaborative learning as necessary,” says Dennis Sagel, assistant chief engineer of media systems, satellite campuses, university media services, Northeastern Illinois University.

“In the several examples that I have where collaborative learning spaces were requested, it was the academic learning specialists who pushed these types of technology upgrades. They seemed to have been basing their requests on research done in higher education doctoral programmes that suggested such resources boosted a student’s learning retention.”

So collaboration as a learning resource as opposed to an academic component – at least for now. However, there’s no denying its growth as a learning tool.

“It’s fair to say that we are seeing greater demand for it,” says David Zrihen, sales

director EMEA at Vivitek. “You have a whole generation of not just students – but lecturers – who, if not necessarily tech savvy, are used to engaging with tech day to day. Their familiarity with it will fuel demand for more IT-based collaborative working solutions.”

Nevil Bounds, key account director at Feltech, agrees: “It is now certainly a standard feature. Sharing and collaborating has been difficult and costly in the past but we are seeing the HE sector trying to provide this as a standard fit for new-build projects.”

Student experience remains the main driver in implementing modern learning solutions in the classroom, with some educators struggling to adapt their teaching content to modern formats – either through lack of trust in the equipment or lack of skill in its effective usage.

“It is still a problem,” explains Spiros Andreou, service delivery manager at CDEC. “However, with the NSS (National Student Survey) and TEF (Teaching Excellence Framework), the pressure is on to make these changes. Students will soon be used to having interactive touchscreens or collaborative presentation tools in their secondary education.”

**Specifying spaces**

When it comes to specifying and building collaborative spaces within educational establishments, there are a number of key considerations for implementers to consider, aside from the obvious budgetary constraints. The ongoing convergence of AV and IT also looms large.

“IT and AV departments are certainly converging in the higher education industry,” says Joan Vandermate, head of marketing at Logitech Video Collaboration. “We saw a similar merger in the early 2000s, when telecoms became a part of IT.”

According to Sagel, the key design considerations are budget, space allowances, teacher familiarity with equipment and ease of use and maintenance. “We do not document each case per se,” he explains. “We discuss with the faculty ‘clients’ and then discuss among ourselves what we believe their request translates into in user functionality and our need to maintain and/or train users. Planning typically includes infrastructure needs, budget considerations and a review of what technologies are available.”

“Any system design needs to be driven by the need – the primary purpose,” Wilson says. “Tech is an enabler; if you shoehorn technology into existing and established spaces without



**A study area at Bolton University: students increasingly expect interactive learning spaces**



Students arrive on campus with plenty of their own technology

consideration of the need (through process, design, tech and cultural influences), then adoption will be low as the system and the space won't fulfil the requirements. Like any tool, it needs to fit the purpose."

Of course, standardisation of AV system design and consistency of specification is key – as it is across the corporate and other IT-driven sectors – with the trend to have as many similar spaces as possible, along with premier, multi-use areas. As well as collaborative learning spaces, many universities also have to design for office spaces and other commercial environments that the business owns, such as subsidiary companies. This can present challenges to the AV build teams, but it also presents the additional earning opportunities for the educational establishment.

"If a university develops a collaborative capability within its campus – perhaps a centre that has this digital capability – then it can also be used to attract business into the space to hire it out and to build relationships with the university, its students and workplaces," says Wilson.

Although design work at most universities still tends to be led by an in-house AV designer, consultants and vendors are increasingly getting involved to assist with specifying equipment. As is the case across other sectors, IT is at the forefront of most of the decisions – although others are now getting in on the act.

"It is absolutely IT that is the driving force behind the AV teams, even in institutions where

AV comes under the facilities management or estates sections," says Andreou. "Some institutions have managed to merge their teams and make a success of this, while others are 'de-merging' again. While it seems an easy sell for AV team members to learn IT skills for some career progression and variety in the job, the opposite is much more difficult."

"Interestingly, we are seeing more control and instigation coming from CIO/CMO roles, rather than standard IT heads," says Wilson. "These are roles that are developing to have a higher focus on the user experience; they have a responsibility to the end-users – the students."

### Ownership

Bounds agrees: "In most cases it is the IT team, but increasingly we are seeing large amounts of ownership coming from senior people within the institution itself."

"Like plenty of institutions, our audio-visual and media production teams are under the umbrella of university technology services," explains Sagel. "Each department within this larger structure reports to the university's CIO, who in turn reports to the vice-president of finance and administration. More often than not, AV systems require some level of programming; therefore, our structural placement is an asset because of the ease in working with IT folks to provide us with IP addresses and approving devices on the network."

While collaboration is the most frequent



Wall-mounted display systems in use at Northeastern Illinois University

technological demand across the education sector – particularly HE – budgetary constraints have a much bigger say than is the case in the equally collaboration-hungry enterprise sector. Brexit and the changing geopolitical global landscape certainly aren't helping.

"With the changing political and financial landscape in education, most institutions are not investing in premium solutions," explains Andreou. "This has been a quiet year, in contrast to previous years when the full impact of Brexit, tuition fees and student visa constraints may not have been obvious. Where there is appetite to invest is in facilities that will be used by conferences and external events, and the return on investment is more apparent to the finance teams and budget holders."

"Budgetary constraints are an issue on almost every project," adds Bounds. "However, there are more and more cost-effective solutions available that enable an HE institution to roll out quite large projects at moderate cost."

Reliability and system longevity remain key considerations, particularly for the non- or partially commercial education sector. And with purse strings tighter than ever, educators will be looking to ensure that their collaborative technology buck goes a long way, even as student demands for the best possible solutions increase. Collaboration functionality is not, unfortunately, as cheap as chalk, but it's definitely becoming just as much as an educational mainstay. ■

# More than just technology for HE

Universities have a new way of looking at AV, shaped by the changing landscape and students' expectations. Steve Goodwin of Midwich tells *Lindsey Reynolds* more.



Steve Goodwin: "AV-over-IP opens AV up into an enterprise solution"

Universities need to attract students, offering a compelling learning experience with the latest in technology. That's shaping the way they look at AV, says Steve Goodwin, external sales specialist at Midwich.

The latest AV delivers the student experience they are looking for, Goodwin adds, which is driving major programmes of technology upgrades, refurbishments and new buildings across the HE sector.

## Broad choice

With more than 1,000 product lines, and a wide choice of technologies and brands available through its reseller and integrator partners, Midwich is well placed to answer universities' AV needs.

Higher Education is spending on traditional AV technologies such as digital signage, displays and projection, says Goodwin,

with laser projection proving popular for lecture theatres because of its long (20,000-hour) lifespan and minimal maintenance requirement, but the big drive is to transform the teaching and learning experience with collaborative and interactive technologies.

The Smart Board 6000 and 7000 series are proving ideal for this space, says Goodwin. The Smart touch systems provide interactive collaborative teaching and learning. Students and staff

**"Universities are planning for a future they cannot yet know. AV-over-IP gives them that scalability and flexibility."**  
**Steve Goodwin**

can share content, annotate content and use the whiteboarding tools over a wireless connection from their personal devices. It doesn't matter what type of device, Goodwin adds; Smart fully support the BYOD environment.

There is a range of sizes of touchscreens, with built-in speakers offering 4K for exceptional clarity of image or 1080p where full HD is sufficient to suit different sizes of room and spend.

The Smart Kapp digital whiteboard is also a good product for HE, adds Goodwin. It allows you to collaborate in a simple but powerful way. You write and draw on the board like you would a regular dry-erase board and share content with

any connected Bluetooth-enabled mobile device.

Audio is also an area of increasing interest, Goodwin says. "We have a range of audio solutions, including the Olympus digital voice recorders with products such as LS-P1 – a great personal tool for student initiated lecture and seminar capture, and full-room solutions for university initiated lecture capture with its Hi-Res Audio Quality.

Students increasingly want to be able to access lectures and other content from any location and at any time – to aid their understanding and help them revise, for instance.



**Students are able to capture their own lectures, seminars and other audio content with tools such as the Olympus LS-P1**



**Content can easily be shared from students' own devices with the Smart Board 6000 and 7000 series to provide an engaging and collaborative learning experience**



**Good audio is vital to understanding so Midwich recommends professional-quality loudspeakers such as the Acoustic Energy Soundbar**

“Good sound is essential to understanding and we are seeing high-quality professional loudspeakers and sound bars such as those from Acoustic Energy going into Higher Education for use in lecture theatres, to ensure clarity of sound.

Audio systems are in almost constant use, so they need the reliability and robustness of professional audio as well as the quality, he adds.

**Adding value**

Midwich not only has a very broad range of products and technologies in its portfolio, Goodwin explains. It also has a team of account managers with specialist product knowledge in each of the technology areas.

“It means we can provide integrators and resellers with specialised expertise in new or unfamiliar technologies – this is where we can add real value,

providing that expertise when it is needed.”

Midwich has a lot of new customers from IT, says Goodwin. “They are getting opportunities they don’t necessarily know how to fulfil, so we work with them to provide the AV expertise they need, while AV resellers often look for assistance on professional audio.”

AV-over-IP is another technology that is relatively new for many resellers. Midwich can help customers in this area, Goodwin adds, because the company crosses over AV and IT technologies.

“Universities are asking: ‘How can we get knowledge to where it needs to be?’ In AV terms, this translates as how to get the signal where it needs to be,” says Goodwin. “We believe AV-over-IP is the answer – it opens AV up into an enterprise solution and we are seeing a lot of demand for this.”

Atlona’s Omnistream AV-over-IP family answers this need, he adds. It enables 4K video, audio and control to be distributed over standard networks, providing the performance and the dependability of traditional AV distribution with scalability and cost efficiency.

Implementing AV-over-IP means universities don’t need to run special cabling and can plug any device into the network to capture or consume content. Take lecture capture, for instance, which is on most universities’ wish lists. With AV-over-IP, it is relatively easy to record or live stream from any teaching space so students can participate in lectures from anywhere on campus or watch on demand.

**Meeting challenges**

The pure size of university estates is a major challenge, Goodwin explains: with several hundred

rooms they cannot upgrade everything at once. They must plan ahead, often six or more years in advance.

Universities are planning for a future they cannot yet know, he adds. AV over IP gives them that scalability and flexibility.

It’s a strong message to take to universities and colleges and Midwich is working to educate the market. “We talk directly to users to help them understand what is available and to create demand for our brands and new technologies, but we sell exclusively through partners,” Goodwin explains.

“Higher Education prefers to buy through purchasing consortia, and many of our integrator partners are part of these frameworks – and long-term and trusted partners to universities and colleges.

“We work with them to build the solutions their higher education customers need.” ■

# A vision of active learning

Universities are transforming their students' educational experience – and it takes new solutions to answer their next-generation technology needs, as Sony's Damien Weissenburger explains to *Lindsey Reynolds*.



Damien Weissenburger: "We have to cover a large spectrum of profiles"

Universities are leading a new wave of collaborative learning to transform their students' educational experience, says Damien Weissenburger, business group head of corporate and education solutions at Sony Europe.

They want learning to be engaging and collaborative so students are prepared for their future, and they are willing to invest significantly in an infrastructure to enable this.

One such university is the University of Wales Trinity Saint David (UWTSD), the oldest Royal Chartered university in Wales, with campuses across South Wales and London.

UWTSD wanted to provide students with new ways to learn that were more engaging and improved attainment. Unable to find a technology platform that

answered their needs back in 2015, UWTSD turned to Sony.

Sony has worked with UWTSD to develop the Vision Exchange platform, which is being piloted by the Faculty of Education & Communities and the Faculty of Architecture, Computing & Engineering, before being deployed into UWTSD's new Swansea SA1 Waterfront Development in 2018.

Vision Exchange enables up to 60 students to work collaboratively in small groups. Participants connect their own devices (regardless of OS) wirelessly to the

**"The interface is crucial. It's vital we make the technology invisible to users."**

**Damien Weissenburger**

platform with an app. The lecturer is able to share topics and tasks from their device while content from personal devices can be shared on the main display and the devices mirrored.

Students from other locations can join the session, sharing content as if they were in the room.

Lecturers are able to provide help with hints, should a group get stuck in their discussions. Sessions can also be stored and recalled in future.

The project has been exciting and challenging for Sony. "It's vital we make the technology invisible to users," says Weissenburger. "The interface is crucial. At every step we have made it as intuitive as possible. Speed also matters. We will have to cover a large spectrum of profiles and people and we keep pushing to hide the technology."

UWTSD is not alone in its desire to transform learning. In a recent

survey undertaken for Sony in the HE space, half of all respondents said they needed to upgrade their ICT to create teaching and learning environments at the forefront of technology and prepare students for the jobs of tomorrow.

To this end, Vision Exchange is being opened up to Sony's channel partners so they can take Vision Exchange to their higher education customers.

Another challenge for universities is how to create and share rich content university-wide, says Weissenburger. A recent partnership with UbiCast provides an elegant solution for lecture capture, web casting and other rich content provision.

UbiCast is an easy-to-use, scalable solution for creating and sharing rich content – live streamed and on demand, Weissenburger explains, providing tools for every phase of the process. ■



# The integrators' partner for AV-over-IP

Universities are very receptive to AV-over-IP but integrators don't always have the necessary expertise in-house – and that's where POLAR comes in, says Stuart Leader, as *Lindsey Reynolds* reports.

Stuart Leader is head of the integrated solutions team at POLAR, a distributor of audio and video solutions, formerly known as POLARaudio.

“We are well known as a distributor of intelligent audio solutions and have worked with media networking for many years. In recent times we have become increasingly involved with video, particularly AV-over-IP,” says Leader, “so it made sense to update our brand.”

POLAR sells exclusively through its trade partners but also engages directly with consultants and end-users, including those in higher education, both pre- and post-sales.

Leader explains: “AV-over-IP technology encompasses a challenging combination of IT, network and AV issues. Our team has a great deal of expertise and works with stakeholders to understand their problems and devise design solutions that can usefully form part of a tender document. By partnering with integrators, we are able to provide expertise in audio and AV-over-IP that isn't always present in-house, assisting with design, set-up and commissioning of solutions.

“AV-over-IP is an effective tool for universities and they are receptive to it because it's flexible, scal-



Stuart Leader: “It's a single software platform for video and audio”

able and cost-effective. It allows all AV signals to be transported over a university's standard IP network, although we can also use parallel networks to separate traffic if required.”

## AV-over-IP in universities

A fine example of such a partnership is the University of Hertfordshire, which recently brought all its science facilities under one roof in a new £50 million block, comprising teaching labs and research facilities.

POLAR teamed up with integrator Reflex to tender and assist in the planning and design of a video system to meet the university's exacting needs – to be able to distribute any video source to any screen within the building. This could be within one teaching lab, from one lab to another or to displays outside the immediate teaching environment. POLAR recommended the flexible and scalable Wyrestorm AV-over-IP solution that could be easily added to or restructured.

**“Universities are very receptive to AV-over-IP because it is flexible, scalable and cost-effective.”**  
Stuart Leader

Wyrestorm was also the technology of choice when POLAR worked with Reflex on a huge installation at London Metropolitan University's Superlab. Catering for 280 end-points, this was the world's largest installation of Wyrestorm to date.

POLAR also offers Tesira from Biamp, its audio and video platform for networked media, based on AVB (audio video bridging).

“TesiraLUX can encode and decode up to 4K,” says Leader. “The LUX and Tesira system is the only solution available that offers a single design software platform for both video and audio projects with flexible options for controlling video stream bandwidths. Uniquely, it offers time-sensitive networking, so video and audio arrive synchronised, eliminating lip-sync issues associated with delivering video and audio on separate distribution platforms. Tesira is an elegant, streamlined solution that offers cost-savings, is future-proofed and scalable.” ■

# PROCUREMENT





# The buying game

Some higher education institutions are blazing a trail in AV technology; others have some catching up to do. So how should a university planning a significant investment make sure it spends its budget wisely? *George Cole* investigates.

» Procurement can be a challenging process for an HE institution. How do you find the supplier (or suppliers) that can deliver the right solution, at the right time, with the right service at the right price? To help them in this process, many HE institutions use regional buying consortia, such as North Eastern Universities Purchasing Consortium (NEUPC) and London Universities Purchasing Consortium (LUPC). These organisations produce and manage a variety of framework agreements designed to deliver best value for the HE sector.

The consortia say they offer many benefits for HE institutions, including savings in both time and money. LUPC, for example, says its members saved £33.8m in total in 2015-16. Other possible benefits include shared risk, security of supply, and better access to goods and services. But how effective are they in delivering the needs of HE institutions?

**“With the best will in the world, if every integrator is coming to you at the same time, for the same product it is difficult to meet demand.”**  
**Craig Stonall, Extron**

“Not all universities use regional buying groups,” says Toni Barnett, managing director of CDEC. “However, they can be effective in that they offer a consistent route to market and can drive competition, while increasing transparency across the sector.”

Tim James, IT/AV manager at Cardiff University, sees some advantages in using purchasing consortia, but notes: “It ensures that companies on these local agreements are sound and financially viable. Sometimes, however,

companies fight to get names on contracts knowing full well that they are not seeking business from this area – it just looks good to be on the contract.”

And using a purchasing consortium cannot always guarantee increased competition, as Mark Hayter, category and shared service manager of NEUPC, admits: “The general mini-tender should go to at least eight suppliers across the framework, but the response rates are not brilliant... if we don’t get enough competition at mini-tender stage, we can’t prove that we get best value.”

It’s an issue the purchasing consortia are actively addressing and, despite this challenge, many HE institutions are clearly benefiting from the size and scale of these organisations.

Another issue is how well does the AV industry understand the fast-moving requirements of HE – and does the AV supply chain respond adequately to HE needs? Douglas »

McLeod, learning spaces product engineer at the University of Dundee, says: “I think the AV industry is aware of how AV/IT is being used in HE. We are trying to deliver standards across the university: for example, we use Extron control in our teaching spaces, which allows us to monitor equipment and provide remote support. We typically use Panasonic projectors and we also use Avocor touchscreen displays. Standards are very important to us.”

Glynn Jones, vice-president, EMEA channels and advanced technology group at Polycom, says: “Having developed in the dynamic environment of the corporate world, the AV industry is ideally suited to cater to the requirements of higher education. AV professionals have extensive know-how in the field of business application, where adaptability is paramount in order to succeed in the long run. By applying this knowledge to an educational environment, higher education is able to directly benefit from the AV industry’s history and experience.”

But Barnett says: “I don’t consider universities to have fast-moving requirements – technology such as the whiteboard is still prevalent in these spaces and investing in new technology can be a slow process. The response of the supply chain can be a challenge to HE needs, especially summer works: even though supply chains are aware of peaks, there are still delays, one example being lectern manufacturing.”

**“The main benefit of having a single supplier is that we can engage with them at an early stage and they can help us with the design.”**

**Douglas McLeod,  
University of Dundee**

“I think the key players are well aware of our needs and generally perform well,” James says. “I feel some of the suppliers could gear themselves up better for the busy periods though; supply can be frustratingly slow on occasion and not very agile.”

### Challenges

Buyers and the supply chain face various challenges when it comes to AV contracts. “This includes issues such as managing multiple suppliers on a contract, deviations from contract, lack of flexibility, and some terms coming from main building contractors – such as withholding five per cent for a year,” says Barnett.

James says the challenges include: “The changing needs of the customers and the ability to meet demands with tight budgets. We need contractors to be flexible and willing to go the extra mile. This will help build long-term relationships.”

The tendering process can be challenging for manufacturers and integrators, not least because HE departments often receive their budgets late in the academic year, typically around August. Tenders are usually put out in April or May, with a delivery deadline for late summer. This can create production bottlenecks. Craig Stonall, account manager education UK & Ireland at Extron, says that HE institutions may not realise that: “Even with the best will in the world, if every integrator is coming to you at the same time, for the same product it can be difficult to meet demand. And worldwide demand can vary a lot – a single big order can wipe out your entire stock.”

There are various elements to a successful tender – such as price, discounts, vendor credentials, accreditation and delivery. For James, they are: “The ability to deliver; price; experience and clarity on the proposal.”

However, as Barnett says: “A successful tender isn’t a shopping list. Institutions want to work with an integrator they trust, who has expertise in the sector and who can deliver on what they promise. References and case studies highlighting previous projects can be important, and while price is the key consideration for some, quality is now seen as increasingly important. Basically, institutions want to be able to benefit from the knowledge and expertise of the integrator.”

“The importance of providing high-quality

UNIVERSITY OF DUNDEE



The University of Dundee recently upgraded to teaching rooms around the campus, and the installation of six rooms with AV technology



**CDEC installed new projection equipment and control systems at Bolton University**

learning and teaching spaces for students is reflected in the budget allocated to AV and IT provision within the university,” McLeod says. Recent major projects at the University of Dundee included the main library middle floor refurbishment. Six rooms with AV installations were provided and there were also upgrades to teaching rooms around the campus. “When we have put out tenders in the past, they have been weighted towards quality and suitability of design rather than price,” McLeod adds.

Some institutions set great store by accreditation, but how valuable is it? Barnett says: “Accreditation can offer reassurance and provide quality assurance, but it’s largely a box-ticking exercise. Some certifications are a prerequisite for the job.”

James adds: “It’s a ‘nice to have’ but not essential for me.”

Colin Fahey, AV team leader, University of Newcastle, says: “I can ask if someone is Crestron or Extron-accredited, but that doesn’t mean their programmer does it all day, every day and is very good at it. Just because they have ticked the box and been on a course doesn’t mean they can do the work competently.”

Some universities have moved away from purchasing consortium frameworks and opted to tender for their own smaller frameworks or single-supplier agreements. How does this strategy benefit an institution? “A single-supplier relationship can mean far less administrative work, while a single point of contact can

enable stronger relationships to develop, which in turn enables the supplier to better understand the needs of the university,” says Barnett. “Consistency of equipment, installation and method is also beneficial, while the university can also tap more deeply into the company’s expertise.”

“We are looking at this now,” says James. “It can become tiresome constantly having to get quotes or go out to tender; we want to build ongoing relationships that will also help deliver a consistent service.”

### Preferred AV supplier

The University of Dundee has opted for a single supplier, as McLeod explains: “In Scotland, we have been fortunate with the APUC framework agreement and there are a number of good companies available. However, we have always been quite keen to go to a preferred AV supplier, because it’s quite tedious going through the tendering process.

“The main benefit of having a single supplier is that we can engage with them at an early stage of a project and they can help us with the design. There’s also greater flexibility. Our library refurbishment was delayed, but because our supplier was engaged on a number of projects with us, they could get on with other projects on-site.”

Barnett thinks that a single supplier can bring other benefits: “I believe it drives innovation – you have the chance to actually sit down with the customer, you can bring in expertise where

required, and you are in a better position to change the design. By being able to develop a relationship with the customer, you can offer more advice and it isn’t always about price.”

Some institutions would like to see suppliers suggesting new technologies. “We have introduced a ‘test and trial’ service, but it is falling to us to push vendors for new kit to try; it would be nice if it were the other way around,” says James.

Barnett thinks that a single supplier is more likely to encourage clients to try out new things. “I believe that in a single-supplier agreement, vendors can take more risk, make new suggestions and spend more time getting to know the customer and their specific needs. In this kind of situation, it is easier to suggest new things, change designs and innovate.”

McLeod says this has been the case for his institution: “Streamtec, our supplier, has been keen to help us keep up-to-date with the technology and has suggested new technologies for us to try; I said that we wanted to be at the cutting-edge, rather than simply following what everyone else was doing.”

The procurement process could also be improved by closer relations between manufacturers and institutions. “Without a doubt, manufacturers want closer dialogue with end-users as they want to attempt to resolve the supply chain issues,” says Barnett.

Jones adds: “We are in continuous contact with our customers, as this allows us to develop the best possible solutions for their evolving needs. In order to find the best product for each specification, it is crucial to establish a dialogue with the end-user, especially in educational environments, where spaces need to be suitable for a large number of different and often complex purposes.”

McLeod says that improving the procurement process is largely in the hands of HE institutions. “Getting the right solution is important, but so is ensuring the procurement process is as smooth as possible,” he says, “When we started out on the process of appointing a preferred AV supplier, the IT department collaborated with the university’s procurement office – that was key. They produced the legal documentation and provided us with a framework of technical questions to ask. Prospective suppliers dealt with the procurement office and that acted like a buffer for us. This expertise is available in your university and you should make sure that you engage with it.” ■

# Top-quality audio wherever it's needed

Australian company Audinate has pioneered a standards-based approach to audio networking – one that is finding a natural home in higher education, as *Lindsey Reynolds* reports.

» Dante is Audinate's Audio over IP platform, which sweeps away the 'old' AV way of weaving snakes of cables through buildings to link devices directly with each other; instead enabling any device to be plugged in anywhere on a standard IP network.

Kieran Walsh, director of applications engineering at Audinate, reports that Dante is already widely used in higher education, with two major applications. The first is faculty-specific, such as music-based facilities. The second and larger of the two is for more general use in teaching and meeting rooms, where it is used typically for voice reinforcement, lecture capture and distance learning.

The new Birmingham Conservatoire combines the two, with a Dante network throughout its £57m building linking its five performance spaces, 70 teaching and practice rooms and its Studioplex, home to its multi-function recording and production studios.

## Understanding Dante

So what exactly is Dante? Walsh describes it as a completely IP standards-based approach to delivery of high-quality, highly synchronous audio across standard



Kieran Walsh says Dante is designed to operate on standard networks

IP networks and a complete plug-and-play experience. You take a Dante-enabled device, plug it into the network – it's discovered by other devices and audio can be routed on a simple point-and-click basis.

Its major benefits are that it is

uncompressed and very low latency – as low as 250 microseconds – so there are no differences in synchronisation between different devices on the network.

Since it's rarely possible for universities to upgrade their whole estate at once, scalability is key.

**“We can add as many devices as we want, where we want them. There's no limit – one of the largest deployed Dante networks contains more than 1,000 devices and occupies a geographical span the size of England.”**

**Kieran Walsh**

And as Walsh points out, Dante is completely scalable. There's no limit on the number of channels that can run over a network or a limit on the number of devices: “We can add as many devices as we want, where we want them. There's no limit – one of the largest deployed Dante networks contains more than 1,000 devices and occupies a geographical span the size of England.”

As well as giving universities the flexibility and scalability they need, Dante gives them familiar technology they understand and can manage in-house, Walsh explains.

“Audio over IP is not yet well understood in the AV world, which often finds it scary. It isn't at all scary to IT managers,” says Walsh. This is how computer data is handled. “While they might expect it to be voodoo, they usually get it straight away – often all they need is to have a one-page document on our website that explains it in the language of IT, although you do not need to be an IT expert to configure and manage Dante.”

More than 350 brands license Dante, offering 1,000 Dante-enabled products from amps to DSPs and from recorders and players to encoders and decoders, making Dante a de facto audio networking standard and end-to-end solution. ■

# Taking collaboration to a whole new level

Shaun Marklew of distributor Sahara AV talks to *Lindsey Reynolds* about the quantum shift to collaboration in higher education and the innovations that will continue to drive it forward.



Higher education institutions continue to invest significantly in their AV systems.

While what they are buying is not changing dramatically, says Shaun Marklew, sales and marketing director at specialist AV distributor Sahara AV, there are distinct trends to be seen.

Sahara AV's portfolio includes a broad array of audio visual products – from global brands names to specialists with excellence in their niche. They supply the displays, audio systems, interactive touch panels, digital signage, connectivity, mounting and other products required by their channel partners to build solutions.

“We have always responded to the needs of our resellers and their end-user customers,” says Marklew, “and have sought out new and innovative AV products and technologies that answers those needs for the past 40 years.”

Sahara AV has also led innovation, with exclusive distribution of the AV Award 2017 winning Clevertouch interactive touch technology for collaboration in learning and meeting spaces, for which Sahara is sole distributor.

## Quantum shift

There's no doubt that universities are deploying more collaboration,



**Shaun Marklew: “This will open up new and exciting possibilities”**

Marklew explains. There has been a quantum shift. Students going into university have grown up with interactive technology and they expect to see the latest collaboration technology in universities.

**“Collaboration is set to become deeper, with the ability for groups to collaborate on the same document.”**  
**Shaun Marklew**

The size of touchscreen has also increased markedly, says Marklew, with 75in to 86in the norm, driven by use in large spaces such as lecture theatres. Typically, a touchscreen is mounted beside a very large projection screen and is used by the lecturer to annotate and control content displayed on the big screen, and for digital whiteboarding.

Higher education also wants tools that enable students and academics to share content from their own devices to the main display in the teaching space. A university is a bring-your-own-device environ-

ment and all types of devices need to be supported, regardless of their operating system.

Clevertouch is open-platform and is now completely cross-platform, connecting to any device, Windows, Mac iOS, Android or Linux, Marklew explains. The CleverShare content-sharing tool comes as standard, so there are no hidden costs. Mobile device management enables screens to be controlled centrally and diagnostics run while over-the-air updates mean they never miss an upgrade, ensuring the latest tools are always available and working.

## What's next?

Collaboration is set to become deeper, Marklew claims, with the ability for groups to collaborate on the same document. “I don't mean sharing your desktop,” he adds. “I mean lots of people working on the same file, whether it's a spreadsheet, an image or multi-page document.

“We can deliver this now with DisplayNote Mosaic, launched at our autumn partner event (which was also open to their HE customers), and it will soon be available with Clevertouch.

“This will give us truly creative collaboration and open up new and exciting possibilities for teaching and learning.” ■

# Affordable 4K laser projection that the universities need

Casio has entered the installation market with the brand's first 4K lamp-free projector. John Dykes tells *Lindsey Reynolds* how it answers the needs of higher education.

» The launch of the XJ-L8300HN this year, explains John Dykes, business development executive at Casio, marked the brand's entrance into the professional installation projection market.

The projector manufacturer pioneered lamp-free projection in 2010 with its hybrid Laser and LED technology and has built an enviable 73% share in solid-state illumination.

The Large Venue XJ-L8300HN marks its first move into Ultra HD projection. It is the brightest of the range, at 5,000 lumens, and the first to include lens shift.

Demand for lamp-free has shifted to large venues where diverse organisations including universities can enjoy significant benefits, says Dykes, so it was logical that Casio should answer this need with a large venue model.

Laser projection shares benefits with Casio's Laser and LED hybrid light source: a long product lifetime of 20,000 hours providing around seven years of use; and no lamps or other replaceable parts, making it maintenance-free.

No maintenance or consumables and resulting room downtime significantly reduce the cost of ownership for a university, freeing up time for other essentials, Dykes explains. There's clearly a strong



John Dykes: "Every detail is shown clearly and tiny text is easy to read"

business case for lamp-free projection, particularly when you multiply that up over a large estate, but what about 4K?

"I like to call this 'Everyman's 4K,'" says Dykes. "When I talk to higher education establishments,

**"I like to call this 'Everyman's 4K'. Higher education often expects it will be expensive but we have brought in quality 4K at an accessible price point so customers can ensure they future-proof."**

**John Dykes**

they often expect it will be expensive, but we have brought in quality 4K at a new accessible price point that enables customers to spec 4K and ensure they future-proof when they refit or spec for new spaces."

The XJ-L8300HN is designed for teaching spaces with 50 to 200 seats, says Dykes, likely to be larger seminar rooms and small to medium-sized lecture theatres, where low maintenance is essential.

Dykes explains that native 4K resolution gives you four times the pixel count, ensuring what's displayed is clearly visible through the room: "You get much crisper edges, every small detail shown clearly and even tiny text is easy to read without zoom."

Ultra HD doesn't just make images look good, he adds. It turns

projection into a tool for critical viewing that enables discussion. In fine arts, for instance, students will be able to see the finest brushstrokes or the surface texture details of a sculpture that reveal much about the way it has been created.

"This projector also has excellent colour reproduction, displaying bright and vivid colours, but not overpowering as 4K can be sometimes," Dykes adds. This, combined with the built-in upscaler, ensures that all content, including non-4K, is displayed at the best-possible resolution, and enables universities to make the most of legacy content.

## Web portal

"We encourage universities to judge for themselves," says Dykes. "A demo can be booked through our web portal (projectors.casio.co.uk/demosignup) and we will contact them, typically within 1-2 working days. We encourage the in-house technical teams to invite teaching staff and, if they have an established relationship with an integrator, involve their supplier, so we can also show them how easy it is to install."

Installation during major refurbishments can be very pressurised because of time constraints, so speed of installation is critical. To help installers meet





**Ultra Short Throw projection solved visibility problems caused by undersized flat panels for University of Manchester's multi-purpose study rooms**

these demands, Casio has included a centrally positioned lens and a lens shift.

"There's a generous amount of shift in both the vertical and horizontal planes so the image can quickly be centred, without the need for keystone correction. What's the point of having a beautiful 4K image and then distorting it with keystone anyway?" asks Dykes.

### **Versatility**

The projector can be stacked for use in multiple units and it can be used in any orientation – projecting on to the floor, ceiling or on to a curved surface, for instance. Combined with a brightness of 5,000 lumens, this versatility also makes it a contender for spaces beyond the lecture theatre within universities.

"We already have lamp-free projectors for education," says

Dykes, "with the budget-friendly Core, Advanced Series, with increased connectivity, the highly portable Green Slims and the Ultra Short Throw (UST) range."

The University of Manchester, for example, has installed Casio USTs into 24 multi-purpose teaching spaces, shared by two departments – the Faculty of Life Sciences and the Faculty of Medical and Human Sciences.

The study rooms have to fulfil a variety of uses from tutorials to group collaborative working and presentations; image size is critical despite the modest size of the spaces.

The previous 42in flatscreen displays had proved too small for students and staff to see information clearly in the long rectangular rooms. Replacing the display with Casio USTs solved the problem, increasing the image area by a factor of four, projecting an 80in

image from a distance of just 27cm.

The university had already installed Casio's Green Slims in a refurbishment project. Impressed by the quality and reduced cost of ownership of Casio's lamp-free projection, it was keen to include Casio in the study rooms.

A recent Casio study, conducted with 100 higher education IT leaders, revealed ease-of-use is the most important factor across HE when evaluating models, says Dykes. While price is very

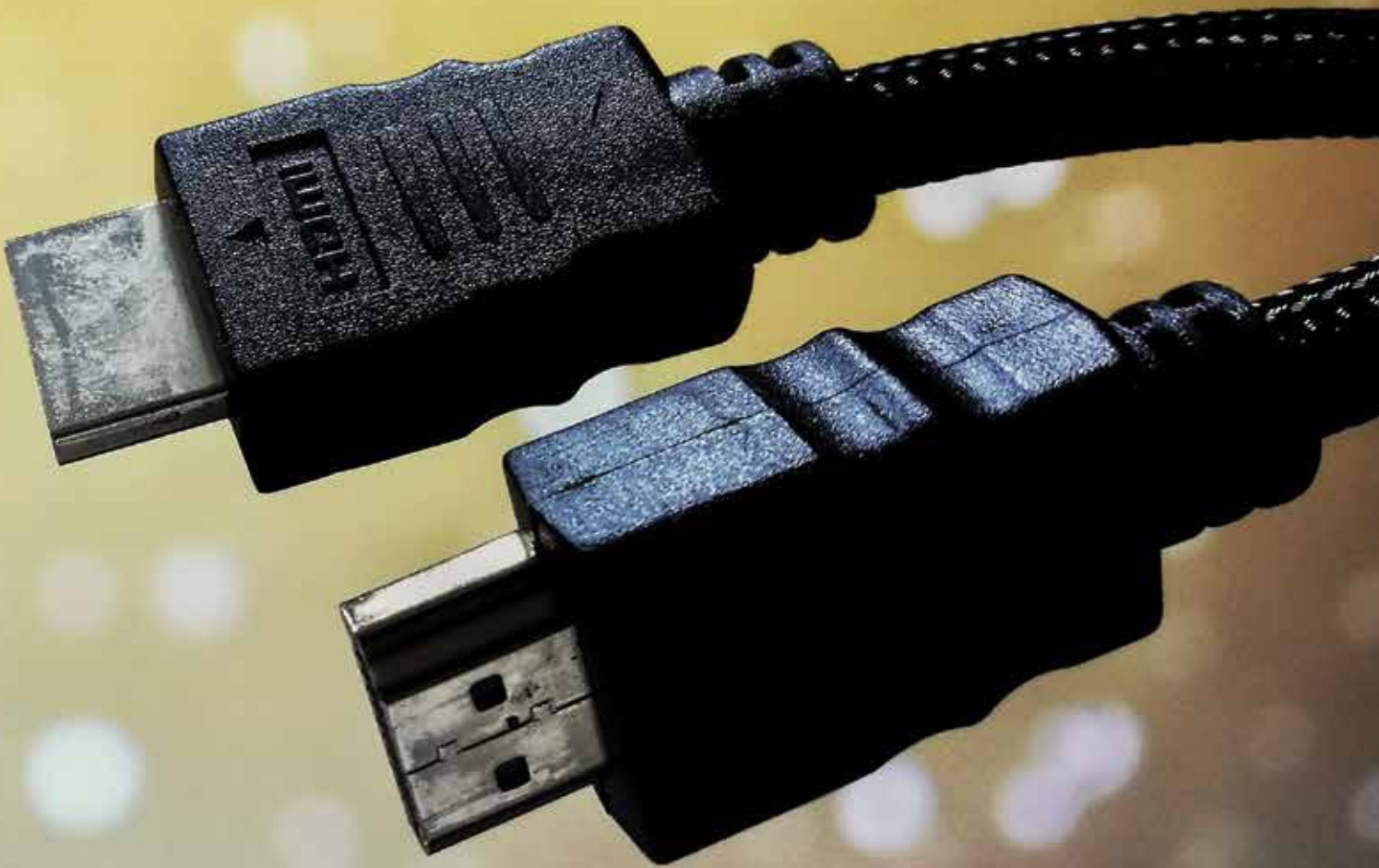
important to almost half of respondents, low maintenance, lower TCO and sustainability are considered to be more important factors.

The study also reported 71% as likely to consider 4K lamp-free projection in the next 24-months. It's seen as contributing to a rich, collaborative learning experience for students, with higher levels of engagement and retention, so it's no surprise 80% see 4K as the projector standard for the foreseeable future. ■



**The 4K laser XJ-L8300HN joins Casio's fully lamp-free projector line-up**

# PROJECT DELIVERY





# Perfect timing

Universities are under pressure to deliver top-quality courses and that means they are keen to invest in new AV systems. But they all want them installed at the same time, which can be a logistics nightmare for contractors, says *Paul Bray*.

**»»** If you see a team of AV engineers looking hot and bothered next summer, then either they've been sunbathing too long or else they work in higher education.

"The biggest issue we face when installing and rolling out AV systems is availability of the teaching and learning spaces we're upgrading," says Adam Harvey, solution architect for AV and digital media at the University of Hertfordshire. "We mainly target vacation periods, mostly over the summer break – and with summer schools, conferences and other maintenance activities all taking place during this time, the pressure is on to keep to schedule. We also now tend to refurbish the rooms at the same time, which adds projects to deliver new furniture, lighting, carpets, Wi-Fi, check-in readers and decoration as well as AV."

During new-builds and major refurbishments AV and IT are usually installed last, so

**"We have massively changed the way we manage project delivery, with much more time invested in planning, testing and quality checks."**

**Adam Harvey,  
University of Hertfordshire**

any slippage earlier in the project shortens their time window, as the first day of term presents an immovable deadline.

"It's not uncommon to be asked to deliver a scheduled two-week installation in just a few days – and for us to turn up while decorators are merrily splashing paint around – yet still be expected to fit expensive equipment to the room with the responsibility of damage on our shoulders," complains Peter Sutton, managing

director of integrator Pure Audio Visual. The only solution is meticulous planning and razor-sharp project management.

"Long-term planning is the key," says Mike Allinson, learning and teaching space consultant at West Bank Consultancy and former learning and teaching support manager at University College London. "You need to make sure up to 12 months in advance that you know what's needed and free up the space, with contingency time at the end of the build/refurbishment for testing and snagging."

"Over the past three years we have massively changed the way we manage project delivery, with much more time invested in planning, witness testing and quality checks," says Harvey. "We need to spend more time making sure the infrastructure is in place and site cabling is correct so we can roll in the completed and fully tested racks in a just-in-time approach to ensure we can deliver large numbers in short install" **»»**

tvONE



A tvONE CORIOmaster video wall being installed in a technical school



UNIVERSITY OF DERBY

Learning zone: a group study space at the University of Derby

windows. We also forecast projects with key manufacturers to ensure product is available and on occasion pre-order items that have long lead times.”

The sheer scale of some HE projects means pre-ordering can be vital. “It takes only three or four institutions to order the same product in volume to create a stock shortage in the channel,” warns Phil Waterhouse, education business development manager at Crestron.

AV and IT are merging in many institutions, so AV upgrades will also affect the IT infrastructure. “We’re not only changing the room but also the way the equipment exists on the network, so it’s much more important to have all this information and planning up front,” says Harvey.

Institutions need to talk to their integrators early, too. “By closely working with an integrator, tasks, roles and responsibilities are clearly defined and all parties know what’s expected and when,” says Sutton.

“Where possible we work in partnership with clients to pre-schedule design and engineering resources at the earliest stage of a new proposal, up to 12 months ahead. At Staffordshire University, for example, a project involving a large campus move was examined for scheduling and feasibility in late 2015. During early client meetings we were able to pre-book 500 engineering man-days for 2016, ensuring proactive management of project milestones.”

The fly in the ointment of early planning is that perennial bugbear of HE, late allocation of budgets, which can adversely affect tendering, scheduling and delivery. One solution, suggests

Sutton, would be for clients to go to tender and appoint an integrator prior to budget approval. “If budgets are not approved or scaled back, the client can still work with the integrator on the revised schedule.”

### Site surveys

Tight tendering is critical, believes Brian Davies, development director at integrator GV Multimedia. “Make sure the tender contains all the facts, include the plans of the building and existing installations, and allow time for integrators to do proper site surveys, including access to areas such as plant rooms and above ceilings if important. Failure to issue a fully detailed tender makes responding to and judging responses very difficult. Going for the lowest bid that turns out to be the lowest because the integrator hasn’t factored in all the issues is the quickest way to blow both the budget and the timeline out of the water.”

Davies also recommends tendering AV projects separately rather than as part of a larger build or refurbishment contract. “Direct interface between the institution and the AV integrator ensures maximum flexibility and the ability to address project challenges quickly and pragmatically.”

Failure to communicate can be costly. “A recent project saw two reinforced beams added to the ceiling of a new lecture theatre late in the project without notification,” Davies recalls. “This resulted in the custom projection screen not fitting and the customised lectern being too high and cutting off the bottom of the screen. Needless to say, the room was finished several

weeks late and with significantly reduced image size and other compromises.”

Before installation, requirements and specifications should be evaluated on a room-by-room basis, argues Carl Sheen, head of training and development at educational IT provider Genee World. “Any mistakes or missed information discovered when installers are on site will lead to large delays and potentially additional costs. It’s just as important to communicate any challenges surrounding getting the new equipment to the rooms, such as staircases and lifts.”

And while we’re talking about communication, don’t forget the most obvious stakeholders: the end-users.

“Often the professors that use the system aren’t given the opportunity to input into its design or function, which can lead to a disconnect between what’s needed and what’s delivered,” says Andy Fliss, vice-president of sales and marketing at tvONE. “The ideal is to create a multi-disciplinary team to comment on the specification.”

With most institutions aiming for the same summer window – and, thanks to common purchasing consortium frameworks, often with same integrators – pressure on skills and manpower can be intense. Many integrators will have a series of summer projects tightly scheduled at different institutions, so slippage at one may create a domino effect.

One way to employ sufficient manpower is to ensure that some of them are occupied in other sectors for the rest of the year. “I think if your business model becomes too HE-centric you risk the integrity of the company,” says

PURE AV



Integrator Pure AV installed this videowall for Loughborough University



Pure AV fits lecterns for the University of Central Lancashire

Sutton. “We mitigate that by building a mix of customers in varied vertical markets, although HE still represents about 60% of our business.”

When integrators run out of in-house staff they may subcontract some of the work. “There are only so many good-quality AV engineers out there, so it’s important to have T&Cs in any tender document to ensure that integrators have proper procedures to assess and manage their subcontractors,” says Harvey.

### Less-hectic times

A more radical solution is to abandon the summer window in favour of less-hectic times of year. “Leeds Beckett University recently implemented a 35-room installation over a 35-week period,” says Waterhouse. “This could only have been achieved with a forward-thinking university, which agreed on having a spare teaching space to decant each room to for a week at a time. It also meant the installer wasn’t looking for any engineers other than those it employs, as the installations were being undertaken at what is normally a quiet period.”

Alternatively institutions can choose, like the Romans, to divide and rule. “Most rooms are now a standard design,” says Allinson, “so institutions can have a blueprint for the room and then divide the work between multiple integrators working to the same brief, right down to the prescriptive way the touch panels are programmed. This enables large-scale projects to be delivered on time.”

“Limiting design complexities and creating standard room designs also helps with troubleshooting and maintenance,” says Brandon Rob-

erts, regional manager for northeast America at Biamp. “Furthermore, faulty equipment can be swapped with hardware from a similar room, or spares can be kept for backups.”

With standardisation, integrators can almost take a production-line approach. Pure AV delivered 163 identical lecterns to the University of Central Lancashire over a 50-day period this summer. “Each unit was brought in, populated, wired, tested and fully commissioned before leaving our premises,” says Sutton. “They were produced in three batches and delivered in successive drops, and the university was able to wheel them into each

**“Our technology-enhanced learning team offers drop-in training sessions to familiarise staff with classroom technologies.”**

**Jon Walmsley,  
University of Derby**

room, link them to the network and have a working system within minutes.”

“We are making strides to ensure greater standardisation across the bulk of our learning spaces,” says Jon Walmsley, senior media adviser at the University of Derby. “Academic staff have very little time at the beginning of a teaching session to familiarise themselves with new technology, so we need to provide spaces where they feel at home with the AV set-up.

“User training is also very important in ensuring staff get the most out of our AV systems. Our technology-enhanced learning team offers drop-in training sessions at the beginning of each academic year to familiarise academic staff with classroom technologies and offers further bespoke training throughout the year.”

Students also may require training. “UCL, for instance, operates a system of training students on the teaching equipment and then having them attend every lecture at the start of the new academic year to help familiarise them with the new installation,” says Allinson.

What bothers some academics is the trend towards providing more multi-purpose teaching and learning spaces where AV supports a whole range of activities.

“Lecturers often express concern that classroom AV facilities are getting more and more complex, with reducing room availability and staff time for them to learn how to use the new features,” says Ben Sams, programme leader for BSc broadcast engineering and live event technology at the University of Derby. “Support departments need to be expanded with online resources to help teaching staff understand how best to use the new features.”

“The change to blended and collaborative learning means different technology from conventional teaching rooms, and the challenge is to make sure that while the technology is different, user interfaces are familiar,” adds Sutton. “Loughborough University is a good example of where a standard user interface is helping to ease adoption of new teaching spaces by providing a common user experience.” ■

# Quality matters

Video collaboration needs to be run over professional-quality video and audio, wherever it takes place, according to Joan Vandermate of Logitech. *Lindsey Reynolds* reports.

» Higher Education moved early and aggressively into video conferencing when the technology first emerged, observes Joan Vandermate, global head of marketing of video collaboration at Logitech.

The sector remains one of the most aggressive adopters, using the technology for video communication, collaboration and distance learning.

Student expectation drives adoption in higher education, she explains. Students tend to communicate using Facetime or Hangouts rather than making voice calls. Using video for collaboration one-on-one or in groups is a natural step.

Vandermate says students also expect to find the same high-quality video they get on their smartphones when they collaborate with video on their own devices and in learning spaces.

They are not only communicating with video out of preference, however, but also from necessity.

Vandermate explains it's common for a university, especially those in urban areas, where space is at a premium, to have a distributed campus with multiple buildings spread out over a city or county. As universities extend their brands geographically – for instance, into the lucrative Asian market – the campus may

span countries and continents. Video provides the means for students and academics to communicate and collaborate regardless of location.

## Plug and play

Logitech brings its expertise in true plug-and-play, ease-of-use consumer electronics into products for higher education with accessible, professional-quality video and audio for conferencing and collaboration.

There is a difference between the two, says Vandermate. “We think of video conferencing as being centred on some kind of room system, while video collaboration takes place on the desktop and personal mobile devices. We have video products for both applications in HE, as well as products from our wider portfolio, such as Spotlight, our presentation remote.”

Spotlight, the preferred presentation remote of TED (whose TED Talks have become a worldwide viral video phenom-

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**“Student expectation drives video collaboration adoption in higher education.”**  
**Joan Vandermate**

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**Joan Vandermate: bringing distributed campuses together with video**

enon), is ideal for anyone who presents or lectures before a large screen. Point the remote anywhere on the displayed image from up to 30 metres away, and you are able to highlight and zoom in on any area of the image, play or pause videos and control volume.

## Bumping up the quality

“Typically we rely on the webcam built into our PC or Mac,” Vandermate explains. “These are usually basic in terms of quality and control, even in high-specification computers. It requires you to be seated directly before the camera and no further than one metre away. You will most likely be unable to adjust the light, colour or field of view.

There's no need to appear as a dark blob against the bright light

from a window, suffer from lack of image clarity and detail, or – when there's two or three of you – bunch up to see and be seen. Add one of Logitech's range of plug-and-play webcams, says Vandermate, and you have professional-quality video and useful controls.

Prices range from £50 at the entry level up to £199 for BRIO, the top-of-the-line model which gives you 4K quality at 30 frames per second (fps) or 1080p at 30fps or 60fps.

BRIO's wide field of view (FOV) eradicates the unseemly huddle problem for two or three users. You can focus on any detail with 5x zoom, while RightLight 3 with HDR adjusts automatically to the ambient lighting.

When you need professional-quality video and audio for group



**MeetUp adds professional-quality video and audio conferencing to small teaching or study rooms suitable for up to eight participants**

work, the ConferenceCam range caters for most room sizes. Vandermate highlights MeetUp for groups of up to eight participants in smaller rooms and huddle spaces – an affordable option at £999.

There's no need to crowd around a laptop with MeetUp. Everyone in the group is clearly visible, courtesy of its 120° FOV. Pan, tilt and zoom let users quickly refocus, while 4K optics and a Logitech lens ensure sharp detail.

Audio is vital to understanding, Vandermate explains. You can concentrate on listening or understanding – not both. Like all

the ConferenceCams, MeetUp has advanced audio built in – three beamform microphones and a custom-tuned speaker ensure everyone can hear and be heard.

### **Proof of concept**

One HE institution benefiting from Logitech video collaboration is the European School of Management and Technology (ESMT), a business school in Berlin with a global outlook.

The business school takes care to make its courses international: its MBA programme is taught by lecturers from 20 countries, for instance. It also has the challenge

of integrating its two campuses in Berlin and Cologne and relied on phone conferencing for remote communication.

ESMT invested in Logitech video conferencing to give it high-quality video and audio but in a flexible IT and communications landscape, both for faculty and external partners meetings and for teaching.

It has enabled a huge reduction in inter-campus travel for meetings, which are now easily arranged at short notice, and has enriched its engagement with external partners.

It is also proving an effective

means of conveying knowledge to students. ESMT now has access to high-calibre lecturers with tight schedules, who would otherwise be unavailable, and helps ensure students graduate with the digital skills their future careers will demand. ■

**Highlight any detail on a large screen and zoom in to enlarge with Spotlight, Logitech's presentation remote**



# Only the best will do in virtual reality

Johan Besnainou of specialist VR and simulation integrator Antycip Simulation tells *Lindsey Reynolds* about the company's role in research and education in the VR CAVE sector.



Johan Besnainou: "Universities want the best they can get"

» The VR CAVE (Cave Automatic Virtual Environment) is a powerful tool for research and education and fast becoming a must-have for universities the world over.

These are true multi-disciplinary facilities used university-wide to research theoretical and real-world problems, visualise complex data, explore the applications of the technology and produce skills needed by industry.

They enable you to walk through a virtual jet engine or a yet-to-be-constructed building to spot potential design flaws, and they are transforming the way students learn – doing for medical training what flight simulation did for aviation, for example.

Behind many of Europe's cutting-edge VR CAVEs is Antycip Simulation, a specialist integrator of professional-grade simulation

and VR solutions and Europe's leading supplier of COTS (commercial off the shelf) simulation software, projection and display solutions and related engineering services.

Antycip Simulation provides very large systems incorporating projection on to glass screens with tracking solutions. Regional director for France and Spain, Johan Besnainou explains: "These could be a large canvas with one wall of 4m to 12m or two to five side installations. How many depends

**"We provide a turnkey service. Once a university comes to us, we manage the whole process for them."**  
**Johan Besnainou**

on the specific installation but will always include the ground with one to three faces plus the top.

"We also do moveable doors to give them flexibility on the number of faces. One of our HE customers, for example, has a 4m x 4m cube, but when you open the door it creates an 8m screen."

The market is growing every year. Besnainou explains: "The first boom came with the movie *Avatar*; the second with the head-mounted display. Now it's 4K. Today's benchmark technology is 4K laser at 120Hz."

"A university's goal is to have a fantastic tool for research projects at the highest quality," he adds. "They want the best they can get and we can do things today that wouldn't have been possible when we started out. It was impossible to visualise 4K 15 years ago, but today it is here and everyone wants it."

VR is increasingly accessible, with an entry point of €50,000 for a basic system. A typical set-up is €300,000-€400,000, while some projects can top €1m – for these, European funding is usually a must.

These projects are not paid for with a university's own money, Besnainou explain. They are funded by research grants, Government and partnerships with industry across all verticals. The quality of the solution is important – with the nuclear industry, for example, the highest quality is mandatory. Making this happen requires experts and that's where Antycip Simulation comes in.

"We provide that expert turnkey service," explains Besnainou. "Once a university comes to us, we manage the whole process for them. We do everything – the integration, installation, software and ongoing maintenance." ■



# A catalyst for deeper learning experiences

Meyer Sound's Constellation acoustic system brings flexibility and a collaborative learning experience to medium-sized and large teaching spaces. Project director John Pellowe explains how to *Lindsey Reynolds*.

Clear, intelligible audio is critical to learning. Straining to hear damages our ability to absorb and process information, explains John Pellowe, project director for Constellation Systems at Meyer Sound, yet many teaching spaces suffer from poor acoustic environments.

Larger rooms such as lecture theatres and auditoria are a particular challenge. Typically, the problem is addressed with PA systems, says Pellowe, but in larger rooms this solution risks creating a disconnect between student and lecturer and fails to support the type of collaborative learning experience students expect.

Constellation voice lift suits medium to large rooms ranging from 50 to 600 seats and a maximum volume of 3,500cu m (with a physical reverberation time of 0.5 seconds or less). Loudspeakers and microphones are distributed throughout the room to ensure consistently clear and natural sound in every seat.

Constellation, hosted on the Meyer Sound D-Mitri digital platform, can change the acoustic

to suit the need: for instance, a lecture followed by a Q&A session in the morning, then a group discussion in the afternoon and a live musical performance in the evening can take place in a single space. All it takes is a single tap on the system controller to optimise the acoustic for the application.

## One-touch magic

Presentation mode carries the lecturer's voice through the room without podium or headset mic, while Q&A mode ensures lecturers and students hear each other without passing around mics, providing conversational quality regardless of a student's location.

A group discussion mode allows students in small groups to hear each other clearly while masking distracting sounds from groups further away. Constellation reduces the background sound clarity, increasing privacy and group concentration.

Performance mode is suited to live music and theatre. Regardless of the size of the space, Meyer Sound also provides a range of reverberation presets suitable for cinema, drama, acoustic jazz, chamber music and pop.



John Pellowe: "Constellation can change the acoustic to suit the need"

Some very sophisticated digital technology is at work in Constellation, but it's all under the hood, making it incredibly easy to use, says Pellowe. Lecturers are not always tech-savvy so a Crestron

or similar device provides a user-friendly interface.

Institutions throughout the world benefit from Constellation voice lift systems. In Europe, recent installations include Uppsala University, Sweden, and the Panum Institute's state-of-the-art Maersk Tower at the University of Copenhagen – the largest education installation to date. Constellation is installed in three auditoria in Maersk, the largest of which has 550 seats.

Having started life as a proof of concept, Constellation voice lift has become an established part of Meyer Sound's business. Constellation enables universities to answer two of their critical needs – flexibility in teaching spaces and deeper and more collaborative learning experiences for the students of today and tomorrow. ■

**“Constellation enables universities to answer two of their critical needs – flexibility in teaching spaces and deeper and more collaborative learning experiences for the students of today and tomorrow.”**

**John Pellowe**

FIT FOR  
PURPOSE





# Help them learn, help them earn

The higher education sector knows graduates need a good grasp of interactive AV systems to make their way in the world of work. In fact, as *Paul Bray* finds out, universities are often ahead of the commercial sector.



As AV technology becomes one of the essential oils that keep the wheels of business turning, “AV literacy” is starting to rank alongside IT literacy, numeracy and other core skills that young people need – and expect – to acquire during their education.

“Our graduates are the potential leaders and innovators of the future and it’s key that their experience at university prepares them to enter the world of work enabled with skills and knowledge to add value to their employers,” says Simon Birkett, digital campus manager at Staffordshire University. “So it’s essential that universities use and promote a range of AV technologies, such as the ability to share content, work remotely, work in virtual teams and collaborate with ease.”

Institutions that don’t are failing both their students and society as a whole, believes Carl Sheen, head of training and development at

**“Having access to the right facilities can be a deciding factor in whether a student chooses a particular university.”**

**Mike Allinson, West Bank**

educational IT provider Genee World. “Students have a clear expectation that the skills and experiences they gain in HE will adequately prepare them for their careers, and this extends to the AV equipment they will use. Employers and society will increasingly expect graduates to have the skills to seamlessly integrate AV into their jobs, and HE institutions would be negatively affecting their students’ prospects if they didn’t take every step to prepare them for this technological future.”

Now that many universities rely heavily on student tuition fees, failure to tool up may hit them in their pockets. “Having access to the right facilities, such as AV tools and presentation equipment, can be a deciding factor in whether a student chooses a particular university,” says Mike Allinson, learning and teaching space consultant at West Bank Consultancy and former learning and teaching support manager at University College London.

Of course, no one is suggesting that universities ring up firms in the City or Cambridge Science Park and say, “Excuse me, but what AV products to you use?” As Jeff Hastings, CEO of digital signage specialist BrightSign, points out, they would get too many different answers. “I see no equivalent of the Windows/Microsoft Office environment emerging in AV – a set of tools that’s almost universally used in work, education and personally. The diversity of AV solutions is a function »

of the creativity in this still very young industry.”

It’s about skills rather than knowledge of specific technology, says Jim Reinhart, CEO of turnkey audio visual systems supplier Tekvox. “As a recruiter of new college graduates, I care about their ability to work collaboratively and create and deliver an effective presentation, but I don’t particularly care what systems they’ve used.”

So is universities’ AV “fit for purpose” and actually affording students the same kind of AV experience they will encounter at work? Broadly, yes, say the experts.

“Obviously most of our AV is based in teaching rooms and lecture theatres but there has been a move to more collaboration and huddle spaces which do mirror corporate locations,” says Adam Harvey, solution architect for AV and digital media at the University of Hertfordshire. “We also have a large number of meeting rooms, some of which are high-end, corporate-style as the university is a business as well as a place of learning.”

Some institutions have AV systems and infrastructure that would be the envy of many large firms.

“Norway’s largest university, the Norwegian University of Technology and Science (NTNU), has Europe’s largest AV-over-IP network,” says Rob Muddiman, EMEA sales director at video and signal distribution technology specialist ZeeVee.

“This has created a fully interconnected AV suite of lecture rooms and teaching laboratories that can share high-quality content in real time to three different campuses more than 245 miles apart. It’s familiarising students with

**“Increasingly we find that schools are usually several steps ahead of HE institutions in integration of AV technology.”**

**Carl Sheen, Genee World**

technology and methods of communication that they will undoubtedly use in their future careers.”

HE and commerce often share very similar requirements. “NTNU’s AVoIP network allows for students in three different locations to take part in a lecture,” says Muddiman. “We also had a large manufacturing client that created an AVoIP solution to allow staff from its many locations to watch live, real-time streaming of town hall meetings. That’s pretty much achieving the same thing.”

**Competitive environment**

In fact, HE institutions often have better AV than businesses. “Schools and HE institutions operate in a competitive environment and AV is a differentiator,” says Andy Fliss, vice-president of sales and marketing at tvONE.

“Well-equipped classrooms with good interactive AV attract students. While the largest corporations have AV systems that match those found in HE, the majority of commercial deployments are not leading edge and many young people will be disappointed when they start work and find that, in AV terms, they have gone backwards.”

Often employers are simply less ambitious.

“Educational establishments, including HE, are regularly looking for new and different ways to integrate AV technology in order to develop their teaching, whereas workplaces seem content to use AV to continue their existing ways of working,” says Sheen.

“Universities are often pioneering new technologies before businesses,” agrees Brady Bruce, chief marketing officer at InFocus. “Portland State University, for example, used InFocus Mondopads to create a Decision Theater, which supports presentations, small collaborative group work and video conferencing. It’s a formula that’s coming into businesses more.”

Surprisingly, perhaps, the most innovative applications of AV are often not in HE or business but in schools. “Increasingly we find that schools are usually several steps ahead of HE institutions in their integration of AV technology,” says Sheen. “HE should definitely be paying attention to the innovative ways in which schools are using AV.”

Some institutions already are. “We keep a close eye on school tech and work with integrators that do lots of work in primary and secondary education so we can get an insight that way,” says Harvey. “Lots of unis also run PGCE (postgraduate teacher training) courses so we have education clusters built – ie, simulation school classrooms to help our students get that school environment experience and use all the same tech.”

Different educational needs may simply require different technologies, of course. “For example, a university may use more video conferencing to bring in professors and researchers from another campus, whereas a



**Collaborative learning: the University of Derby**



**The “Digital Kiln” – Staffordshire University’s new multifunctional learning space**

UNIVERSITY OF DERBY

PURE AV



school might use an interactive touch screen to interact with learning apps,” says Bruce.

But there are definite areas where HE lags behind schools – including what is, in a classroom, arguably the most obvious one.

“The vast majority of schools have installed interactive whiteboards and committed good amounts of training and resources to facilitate their use,” says Ben Sams, programme leader for BSc broadcast engineering and live event technology at the University of Derby. “Universities have been very slow on the uptake of IWBs, and the newer interactive projectors are often installed but batteries in the pens run out and they’re poorly centrally supported. Students are surprised to see university lecturers using whiteboards and disappointed that whiteboard annotations can’t be recorded.”

We asked the contributors to this article whether they saw much active co-operation on AV between schools, HE and business. Apart from specific areas of collaboration, such as virtual reality or video gaming, the answer was generally no.

### Clear advantages

“I can’t think of any examples where schools and HE or HE and employers have communicated on their use of AV technology,” says Sheen. “There would be clear advantages to all parties for these discussions to take place, and a great opportunity for the sharing of knowledge, expertise and experiences. This would also be one way to help homogenise the technological journey that students find themselves on.”

“It would be good for universities to engage with schools much more and see how they are using AV technology to teach, and then reflect

on their own teaching methods,” agrees Allinson. “And the corporate world and universities should work more closely together so they can better understand the skills graduates need when they leave university.”

“Employers generally underestimate the scale of HE’s investment in AV, and small to medium-sized companies in particular are probably not making full use of solutions that might streamline the working environment,” says Hastings. “Graduates can play a key role in making employers aware when they are missing out.”

What could employers learn? Try this, for example:

“The University of Derby has been fairly quick to install and develop student content sharing within classrooms, and smaller, pod-type AV systems to help groups of students work together outside class,” says Sams.

“Graduates have often said they really like the ability to share something from their laptop/mobile device on the central screens of the classroom or learning pod, and they then express surprise that – apart from forward-thinking companies such as Google – business AV systems seem to be far more traditional, often supporting a chair/manager-led meeting approach that can hinder fast, collaborative teamwork. If I were a corporate manager, I would be looking towards integrating cloud-based sharing services within my AV systems with multipoint sharing systems, so that the best off-the-cuff ideas can be visualised.”

We started this article by asking whether HE is delivering the AV that students and their future employers want, but perhaps the real



UNIVERSITY OF HERTFORDSHIRE

**NEC screens at the University of Hertfordshire**

question is whether employers themselves are delivering the AV that graduate recruits expect.

“The increase in collaborative and active learning spaces in many universities is setting the expectation that these tools will be available to graduates as they enter industry,” says Peter Sutton, managing director of Pure Audio Visual. “We have seen increased demand for Skype for Business and flexible workspaces among our corporate partners.”

“Students expect instant access to online resources via a range of personal devices,” says Jon Garaway, education account manager at NEC Display Solutions. “This expectation will transfer with them as they start work, and they may be disappointed. Employers seeking to attract the cream of the graduates may need to up their game in what they can offer.”

“It’s interesting to see that employers such as call centres are stepping up their game in AV in part to attract employees,” says Fliss. “If an AV investment can increase staff retention from six to nine months, for example, then that alone can deliver an ROI that justifies it.”

Overall, it seems, HE can be proud of its achievement in implementing AV and finding innovative ways of using it.

“HE institutions are at the leading edge of AV implementation,” Fliss insists. “We often use AV managers from HE as references for product ideas and in focus groups. There’s a widespread reverence in the industry for the expertise that resides in that sector, and AV managers in the HE world have a refreshingly open mind that’s receptive to new ideas and to stretching the boundaries of what’s possible.”

Perhaps we shouldn’t be surprised. After all, open minds, new ideas and stretching boundaries are what higher education is all about. ■



ZEEVEE - NORWAY

**Many suppliers say that higher education institutions often have better AV than businesses**

# Going live on the network

Video is an essential tool for communication and learning and universities need systems that make it easy to run and operate, as Will Waters explains to *Lindsey Reynolds*.

» “We make tools that give storytellers a voice through video”, says Will Waters, Senior Director of IP Workflow Strategy at NewTek, a manufacturer of professional video products.

Waters says one of NewTek’s most popular products in higher education is TriCaster®, an all-in-one production studio that is simple to install and operate. It’s very compact and lets you do everything from camera switching to graphics, special effects and virtual sets in one device.

## Wider audience

TriCaster makes it easy for universities to capture live events with multiple cameras and stream them across the campus and beyond, to a wider audience – parents, alumni, prospective students and local communities.

Students have high expectations in terms of quality, Waters explains. You don’t have to be a professional to know if you like what you see. TriCaster enables

universities to make their live content compelling with quality video.

Video on the network is a given, Waters says. “It is a method of communication for distribution. The challenge is how to make it easy to generate content – universities need to think about that.”

To help them meet the challenge, NewTek has devised NDI®, (Network Device Interface) an open protocol that lets compatible devices share video across an IP network.

A typical campus has a network that touches every room and every space, Waters explains. “You can take an NDI camera and place it anywhere on the network, just by plugging it in – it makes it very easy to use more sources for live production.”

With NDI, a network is able to accommodate multiple high-quality and low-latency video streams simultaneously. Although the system is agnostic to how it is delivered, this can be automated to eliminate some of the human cost. Managing equipment also takes



Will Waters: “The institution’s network is its infrastructure for video”

## “Universities without a network video plan aren’t serving their students well.”

Will Waters

less time and effort with NDI®.

Universities without a network video plan aren’t serving their students well, claims Waters. “We see two rather polarised approaches right now. The traditional mode of thinking says build what they know. While there can be some benefit to familiarity, it tends to mean the infrastructure

keeps things separate.”

In contrast, there are technology managers who see their facilities as malleable, he continues. They tend to think flexible not dedicated use, and focus more on the future: how can they make the facility useable for different things?

Focusing on flexibility is definitely the way forward, Waters explains. “The HE institution’s network is its infrastructure for video. It is the only thing that links all its spaces and doesn’t care what’s moving over it – data, RFID, audio, video. Using the network for transport gives them flexibility they need.” ■

# Flexible technology for working together

The latest solutions from CTOUCH provide true walk-up-and-use collaboration for higher and further education, says Martin Price of Exertis Medium. *Lindsey Reynolds* reports.

One of the strongest trends in higher education is the drive to equip teaching spaces with the latest in collaborative technology, observes Martin Price, interactive sales manager for CTOUCH at specialist AV distributor Exertis Medium.

Buyers want walk-up-and-use solutions that are easy to use for staff and students alike. Every student has their own device today – as do staff – so it’s crucial everyone can connect and share content from their laptop, tablet or phone, whether it is running Windows, iOS or Android.

## New solutions

November 2017 sees two collaboration solutions launched by touch specialist CTOUCH – the Leddura 2Share and Leddura 2Meet, which, Price suggests, fit the bill perfectly for higher and further education.

Both products provide an Ultra HD (4K) resolution multi-touch flat-panel display with wireless content sharing between personal devices and the main display, regardless of platform.

Anyone in the room can share content, annotations or digital whiteboarding files, on all connected device screens. Leddura 2Meet also provides web-conferencing with integrated Skype for



**Martin Price: “The participant at either end of the call may take control”**

Business. A student or lecturer can join the web-conference from another building, campus or country, for easy distance learning and easy collaboration. Calls

to consumer Skype and H323 devices and phone numbers are also supported.

## A natural experience

“Technology shouldn’t dictate how we collaborate,” explains Price. “CTOUCH makes the collaborative experience very flexible and natural. For instance, CTOUCH has simplified and improved the Skype for Business interface, which can be confusing and limited at times.

“You can now do things not possible in Skype – the participant at either end of the call may take control and anything written or

drawn can be seen on all participants’ device screens.”

Price goes on: “Any wirelessly connected device screen can also be shared during a Skype call, such as an Apple laptop or Android tablet – in fact, any tablet or phone.

Both solutions also enable users to interact with the screen with a pen or finger touch. Users simply walk up and use whichever feels most natural to them; they don’t have to choose in advance.

Other impressive features include the ability to book meeting rooms in Outlook straight from the initial interface. The sound from the built-in 80W JBL speakers is mind-blowing and fills the room, negating the need for additional speakers. To top it off, an onsite swap-out warranty is standard,” Price adds.

Leddura2Share and Leddura-2Meet are available from Exertis Medium, the exclusive distributor of CTOUCH in the UK and Ireland from November.

Higher education users can see them in action at any of the regional offices, at launch events and multiple education trade shows held throughout the country over the course of the next 12 months, or request an on-site demonstration through Exertis Medium directly by emailing [ctouch@exertis.co.uk](mailto:ctouch@exertis.co.uk). ■

**“Technology shouldn’t dictate how we collaborate, so CTOUCH has made the collaborative experience as flexible and natural as possible.”**  
**Martin Price**

# Interaction in real time

Collaboration like you've never seen before. MultiTaction's Pete Malcolm tells *Lindsey Reynolds* about the company's scalable iWall technology – including the world's biggest interactive surface.

» Giant curved interactive touch walls, displaying real-time information from multiple sources and generated by multiple users – simultaneously. And when you put lots of walls into different places – anywhere in the world – it is still displayed in real time, on all screens. That's what MultiTaction delivers, according to the company's CEO, Pete Malcolm.

MultiTaction systems are being used in several vertical markets, but in many ways higher education is its natural home, Malcolm explains, since the core of MultiTaction technology was developed at the University of Helsinki, Finland, by the company's founder.

## Core proposition

At the core of the MultiTaction proposition are its MT cell (a 55in Ultra HD interactive flat panel), a range of software applications and a number of patents.

The cell detects the touch of any object, or combination of objects, at any one time – fingers, hands, pens or a card – and with the addition of a 2D code, specified actions can be triggered.

We register touch optically, with cameras behind the glass, and can detect unlimited touch points from any object, says Malcolm. So while one person annotates a video, another zooms into an image with their hands while someone else writes on the wall with a pen.

MT cells stack into any size of videowall – the iWall. Malcolm



**Pete Malcolm: “The technology has endless exciting possibilities”**

says there's no limit to the number. The largest to date includes 55 MT cells. Kids played the cult game Candy Crush on the massive wall for a US TV show, using harnesses to reach the entire interactive

**“We can also export to other devices so students can view what's happening on the iWall on a website or even their own device.”**

**Pete Malcolm**

surface – it is the world's biggest and scooped a Guinness World Record for MultiTaction.

The iWall can also be curved. Indeed, it needs to be curved if what's displayed is to be seen clearly by everyone in a large space, such as a lecture theatre, Malcolm explains. The curved iWalls are typically six to 12 panels, but for a big space you might have 22 to ensure everyone can see.

The addition of MT Canvas software enables any number of users in one space to collaborate on the iWall, interacting with live data from multiple sources.

Content can be pulled from a central server or from a remote PC, laptop, tablet or smart device – any PC-based equipment or specialist applications can be opened using MT Canvas. Academic staff can prepare lessons, displaying content in any of a set of pre-configured canvases, or use page markers to navigate content in a planned sequence.

MT Canvas Connect takes that concept global, enabling iWalls in different locations to display the exact same data at the exact same time.

It's real-time and completely synchronous, says Malcolm. When someone writes on the iWall in one location, it appears at the exact time on the other side of the world.

“It doesn't take massive amounts of bandwidth either, because we're not sending all the data, we're sending only the touch locations,” he adds.

“We can also export to other devices – a projector, for instance, or to a webcast – so students can view what's happening on the iWall on a website or even their own personal device. The other end can output specific areas of the display – all controlled by the lecturer.”

## HE applications

MultiTaction technology is already used in more than 50 universities around the world, including the US Universities of Columbia and Toledo, at MIT and Wellesley College, and at the Queensland University of Technology in





**MultiTaction systems are being used in several vertical markets, but in many ways higher education is its natural home**

Australia and Technische Universität Dresden in Europe.

It gives universities true, real-time collaboration on a new scale for both education and research, where the ability to view, evaluate, manipulate and share information live via the walls has intriguing possibilities.

The University of Nebraska has a curved iWall running MT Canvas in its Medical Centre (UNMC) enabling students to learn and explore in an immersive environment and visualise and interact with data in new ways.

MultiTaction technology, including MT Canvas Connect,

will also be installed in UNMC's new state-of-the-art building, due to open in 2018, which will house the Interprofessional Experiential Center for Enduring Learning (iEXCEL).

The centre will transform healthcare education in the same way flight simulation revolutionised aviation. Students will use advanced visualisation and simulation technology to learn and practise before encountering real patients. A second iWall in the Scottsbluff satellite campus will allow students to collaborate in real time with students at iEXCEL.

MultiTaction's technology is

not restricted to medical applications. Universities can utilise the systems to enhance their prestige, enhance fundraising and excite millennials with the latest technologies to assist student recruitment.

### Social platform

In a lobby or common room space it can be a social platform. The MultiTaction touch table in the Admissions Office Welcome Center at Trinity University, for example, enables prospective students to explore courses and facilities with a range of pre-printed cards with a code that

activates content when placed on the table.

The University of Illinois uses it to research touch technology's influence on group interactions and learning in the school classroom, while at University of Oregon's Ford Alumni Center in Eugene it serves as a contact and messaging tool, connecting current and past students of the university.

In the classroom it provides an enriched curriculum and in the lecture theatre an engaging presentation system. Indeed, the technology has endless exciting possibilities, says Malcolm, to engage and inspire. ■



INTO THE  
FUTURE



# Vision of the future

AV technology is now well-established in HE settings, but today's state-of-the-art kit could be dating fast by the time new students graduate. What trends should specialists be looking out for? *Andrew Williams* investigates.

AV staff and technicians at universities and higher education colleges up and down the country are beginning to settle down to another term. However, in addition to carrying out the day-to-day tasks associated with their role – such as setting up standard teaching installations in lecture theatres and seminar rooms, or arranging international video conference calls for management and academic teams – AV staff are now also increasingly expected to keep pace with a host of cutting-edge technological changes and product developments. These developments are undeniably many and varied, but Michael Sadler, media services infrastructure co-ordinator at City, University of London, believes that the single biggest technological change likely to affect the higher education sector in the near future is going to be the convergence of traditional information technology (IT) with AV

**“The single biggest technological change likely to affect HE in the near future is going to be the convergence of traditional IT with AV systems.”**  
**Michael Sadler, London Uni**

systems. In his view, this is particularly true when it comes to networking capabilities, as increasing numbers of products are released with some form of network connectivity – largely to “allow greater configuration, monitoring and control or to leverage new collaborative features”.

“These all present integration challenges for both installers and in-house IT and AV teams,” he says.

“I can also see a move away from ‘traditional’ installations featuring visible racks of equipment in a room. This ties in to the AoIP trend for centralised AV sharing rack space in server or communications rooms, and which supports ubiquitous and pervasive AV,” he adds.

Elsewhere, Jonathan Owen, lead technical specialist at the University of Warwick, singles out cloud-based video conferencing platforms as a key emerging technology in HE settings in the coming years – particularly those platforms that incorporate unified communications functionality and support for off-the-peg systems such as Skype for Business and Microsoft Teams.

“Network security will have a bigger influence over AV product selection and purchasing decisions,” he says.

“Several IT companies are also launching products in the AV market – (including) »

BUCKS NEW UNIVERSITY



Setting up a multi-camera broadcast before adding virtual studio backgrounds

Microsoft Surface and Google Jamboard, but what's next? And how will it change the AV market?" he adds.

### Bring Your Own Device

Meanwhile, Lee Harrison, senior AV technician at Newcastle University, believes that 4K resolution will be the next likely technology development to affect AV in higher education. Over the past few years, he reveals, the team at Newcastle has been busy installing NEC UHD screens in a number of centrally timetabled seminar rooms. Earlier this year, he says, they also refurbished some of the anatomy teaching laboratories at the medical school with 4K Extron switching and NEC UHD screens.

"We will definitely be considering 4K projection in venues where it is appropriate," he says.

Harrison is also keen to point out that BYOD technology is another very important development emerging in the campus environment – and one that the team at Newcastle is actively engaged in rolling out "as part of any AV upgrades in teaching spaces".

"We have currently enabled 60 spaces on campus – both centrally timetabled and faculty supported – with Mersive SolsticePods and have received positive feedback from users," he adds.

In contrast, Stephen Partridge, head of media production and performance at Buckinghamshire (Bucks) New University, argues that the most conspicuous AV technology challenge for universities and HE colleges over the next few years is likely to concern "student access to new and emerging facilities". Although he admits that, up until about five years ago, many

universities were in a stronger position to make appropriate investments in facilities, he says that the HE sector now faces significant financial challenges that are "particularly prevalent within the sorts of universities that specialise in creative industries-oriented courses". In his view, this lack of investment could even be detrimental to students' long-term employment prospects.

"Graduates who will have had limited access to new and emerging technologies will lack currency and will therefore be of less use to employers," he says.

### Learning in tandem?

Putting financial concerns to one side, Partridge also believes that the development of expertise in emerging areas such as virtual reality (VR) and augmented reality (AR) are becoming increasingly important, particularly as academic teams and AV staff endeavour to predict the nature of the future job market for new students.

"It has always been difficult to predict the sorts of skills and knowledge that employers will require of graduates three years from now, but the pace of technological development over recent years seems to have exacerbated this," he says.

**"Network security will have a bigger influence over AV product selection and purchasing decisions."**  
**Jonathan Owen, Warwick Uni**



Buckinghamshire New University facilities

Moreover, although he confirms that the general view among his colleagues on campus is that areas such as VR and AR will continue to be relevant skills for all AV staff, he is also keen to stress that, based on consumer engagement and developer activity over the past two to three years, his team are "all aware of similar technology-based trends that have faded in the past". For exactly this reason, he reveals that he and his team continually focus on managing the change process and encourage existing students to emulate their approach by taking every opportunity to 'habitually' upskill and self-teach. As well as representing major objectives for staff, he argues that such persistent approaches to learning and skills development are also 'key facets of employability in the current workplace'.

"The ability to learn technologically challenging systems, processes and equipment quickly is increasingly key for staff, as well as for any graduate, and universities have a duty to acknowledge and respond to this challenge," he says.

Elsewhere, Harrison also thinks that it is crucially important for all AV technicians to retain "an open mind to be able to keep pace with changing technologies in order to support teaching and learning to the fullest".

"Good IT skills are essential as a lot of AV equipment relies so heavily on network connectivity. It is important to retain good relationships with manufacturers – particularly since bespoke software and training is often required to configure AV equipment, so having that support and those good relationships is most appreciated," he says.

Although he admits that – as of yet – there are no AoIP installations on the Newcastle

University campus, Harrison imagines that this is sure to change in future.

Partridge also lists AoIP systems as technologically challenging for AV staff – and highlights the fact that Bucks New University has a long-standing relationship with industry partners such as audio company Sennheiser and Focusrite, the latter being “particularly relevant to this context”.

“At Bucks New University, our students have been engaged with product beta testing initiatives for many years, and have benefited greatly from early exposure to product lines, such as RedNet. Such initiatives can be difficult to sustain, but we are grateful that despite inevitable short-term commercial pressures, our partners remain able to retain a view towards longer-term business objectives that serve our students so meaningfully,” he adds.

### ‘Upskilling’

Sadler agrees that all HE staff, including AV technicians, network technicians and AV managers, need ‘specific upskilling’. As far as AV staff are concerned, he predicts that those people currently used to working in a more

traditional – or ‘analogue’ – AV world, will need to develop a much greater understanding of how networking technologies function – as well their basic configuration.

He also strongly urges HE network teams to nurture a deeper understanding of bandwidth and Quality of Service (QoS) technology requirements to ensure that the AV systems they work with regularly don’t negatively impact network performance.

“AoIP presents similar challenges and we are finding that more and more staff need to be trained on the specific protocols that support these technologies, such as Dante,” he says.

“In addition to HE staff, those technicians working for integrators also need to ensure that their skills remain up to date in order to understand the specific requirements of the system they are installing,” he adds.

When it comes to skills development, Owen highlights the fact that, although the convergence of AV and IT systems is now commonplace in the AV industry, some teams across university campuses are still struggling to adjust. In this light, he stresses that the design, implementation and support of AV systems can

no longer be done in isolation’. In common with several other commentators, he also points out that the vast majority of AV equipment is now underpinned by IT systems – meaning that a good user experience “can only be guaranteed if AV and IT teams work together closely.”

“HE-based support teams need to acquire additional knowledge about IT networks and security and the selection of AV products can no longer be based on functionality alone. We are operating in an extremely fast-moving environment – and therefore it is essential to build and maintain relationships with colleagues in other areas of IT, largely because, even with additional training for AV professionals, it is likely that we will have to draw on the expertise of our IT colleagues to achieve great results,” he says.

“Developing effective relationships with IT colleagues and consultants also helps ensure that the AV specialists have a voice within their organisation – and demonstrating our understanding of the challenges we face with technologies such as AoIP helps reinforce the value of the unique role AV professionals play in higher education,” he adds. ■

BUCKS NEW UNIVERSITY



Running line checks prior to a multi-camera broadcast

# The new public face of flat panel displays

One of the world's largest makers of flat screens now markets products under its own brand, providing higher education with cost-effective displays without compromising on quality or features. Vestel's Mark Dew explains the company's strategy to *Lindsey Reynolds*.

**>>** You may not be familiar with the Vestel brand, but you may well already have one of its flat panel displays on your walls, says Mark Dew, head of visual solutions sales in the UK.

Vestel is one of the world's largest manufacturers of large-format flat panel displays, making displays and touchscreens for many familiar brands as their OEM partner. Its factories in Turkey produce consumer TVs and professional displays, and lots of them: Dew says they have the capacity to manufacture a whopping one million units a month.

Dew joined Vestel this year to spearhead UK expansion of its own-branded display business in business-to-business markets, including Vestel's heartland of education.

"We have a strong presence in education internationally," says Dew. "And we fulfilled the world's largest education tender for interactive displays – the Fatih Project – which saw us manufacture and supply close to 500,000 touch screens for more than 40,000 schools in Turkey."

Higher education is investing significantly in display technology, Dew observes, putting videowalls in lobbies and into lecture theatres,



**Mark Dew: "We have a strong presence in education internationally"**

expanding digital signage campus-wide and installing touchscreens into all teaching spaces to enable active learning – a formidable task for institutions with large estates.

Recent market intelligence shows the strongest growth in interactive flat panels in the more cost-effective segment, explains Dew. "Because we are the manufacturer, we can produce displays that are cost-effective but without compromise on quality and features, which have strong appeal to those buying at scale."

HE buyers also want to stand-

ardise where possible for easier, more efficient roll-out and ongoing maintenance. At the same time they need to ensure they can both integrate legacy systems and be future-proof.

"Our software-agnostic, integration-friendly range meets those needs," says Dew. "We have 43in to 86in at 400 and 700 nits brightness, comprehensive wireless and wired connectivity, control via Cat6 or traditional RS232, system-on-chip and APIs for software integration, OPS (Open Pluggable Standard) compatibility

**"Because we own the factories, we can also customise products to suit a project and in fast time-frames."**

**Mark Dew**

and hidden, lockable USB for easy maintenance.

"Because we own the factories, we can also customise products to suit a project and in fast time-frames."

It's a strong message for HE and integrators that supply them – one Dew is busy pushing home. He has just appointed a specialist education distributor, Crystallised, and is building relationships with system integrators.

There's a new website ([www.vestelvisualsolutions.com](http://www.vestelvisualsolutions.com)) to help buyers navigate the range and opportunities to get hands-on with established kit and new models at both BETT and ISE in 2018.

"We'll have larger sizes and 2,500-nit high-bright screens at the shows and will be teaming up with partners such as Microsoft to show the latest touch technology and what can be done with the products." ■

# It's a question of good relationships

The secret of Universal AV's success in the higher education sector is that it works closely with all its customers. Mark Atkinson explains the company's approach to *Lindsey Reynolds*.

» Mark Atkinson is the sales manager at Universal AV, an AV integrator focused on the North of England with offices across the region. Atkinson says the company has built its business on sound principles – a skilled, experienced team and good relationships.

“We provide local support to a broad base of higher education customers, including the universities of Leeds, Bolton, Durham and Newcastle, with some relationships spanning our 26-year history,” Atkinson explains.

“We have a skilled and experienced team in project management, engineering and sales. We take a consultative approach – indeed, pre-sales consultancy is a growing area for us. Our customers know we understand what they need, how they work – their infrastructures – and how they buy. (Universal AV is on both the NWUPC and the NEUPC frameworks.)

“It's a very competitive market now for universities. They need the right technology to build their reputations and attract students. They are investing in new facilities, new builds and refurbishment and come to us for innovative and reliable AV systems. Part of our job is to make them look good.”

Collaborative learning is now



**Mark Atkinson: “AV-over-IP enables you to manage different locations”**

seen as key to a universities' ability to attract students, says Atkinson, but they also face the challenge of lack of physical space. Universal AV creates flexible rooms where the technology and furniture provides a collaborative learning environment that can

be used in a variety of configurations.

Lecture capture is another key technology, as at Leeds University, where Universal AV installed a system to record 50,000 hours a year from more than 250 teaching spaces. It gives students access

to those recordings through the University VLE, and has opened up new teaching techniques.

“We are also using AV-over-IP much more,” says Atkinson. “It enables universities to manage estates covering different locations – even different countries – with centralised room management and university-wide content delivery.”

## Level of trust

“We have won lots of awards and nominations for our work,” says Atkinson, “but what matters most to us is having good relationships with our customers. We have built a deep level of trust and they know we will deliver for them.”

One such customer is the University of Leeds. Jon Stothard, the university's Medical Teaching Centre manager, explains his experience of working with Universal: “When I use Universal, I can relax. I know the solution provided will work; the quote will have been comprehensive, with no forgotten elements that alter the price or cause delays.

“Installation dates will be flexible to suit me, and the work will be excellent, meaning the snagging will be quick and painless. It's the workplace equivalent of putting on a pair of comfy slippers. Universal work hard to ensure I remain relaxed throughout the project.” ■

**“It's a very competitive market now for universities. They need the right technology to build their reputations and attract students.”**

**Mark Atkinson**

# Flexible solutions for flexible futures

Carl Sheen of Genee World describes the essential ingredients of an interactive collaborative teaching space for tech-savvy students to *Lindsey Reynolds*.



Carl Sheen: “The role of technology is to enable, not dictate”

Higher education is in the midst of a significant wave of investment, with institutions equipping teaching spaces with technology that enables interactive collaborative learning.

“This is a major trend but it’s still relatively early days – many institutions are yet to upgrade,” says Carl Sheen, head of training and development for Genee World, an education-focused manufacturer and distributor of interactive classroom solutions.

## See, hear and share

So what should they consider as essentials for their interactive collaborative learning spaces?

Sheen explains: “The display is the first decision. We recommend a 4K interactive touch display that is bright and with clear detail so every student can see what’s displayed – even the finest details or smallest text.

“Size of room dictates screen

size – the larger the room, the larger the display. Repeater screens also work well in larger spaces. Our G-Touch interactive displays all include HDMI outputs to enable this.

“Increasingly students or lecturers want to participate from remote locations. Our X Series is ideal because we have incorporated cameras and 360° omni-directional mics for use with any video conferencing software platform. All displays also have front-facing 15W speakers in the bezel to direct sound forward so everyone hears clearly.

To share content with students’ personal devices you need a wireless presentation system. No other area of education is more BYOD-focused, so it’s vital all platforms are supported.

Genee also has cloud-based ProjectFlow software to integrate multiple devices. Displayed content is sent to all connected devices so students can make and

save notes. Quizzes and polls can also be added to keep students engaged.

HE institutions should also consider a visualiser. It’s an immediate, dynamic and spontaneous way to share documents or objects – show an experiment, share students’ work or zoom in on minute detail.

We have models for all types and sizes of room. The Elite IIs,

for instance, have LCD preview screens so the lecturer in a large space can see what’s displayed behind them on the big screen, while the backlit 8100s enable OHP transparencies to be shown.”

## Flexible futures

“The role of technology is to enable not dictate, now and in future,” says Sheen. “There will be different approaches and even the same room may be used in different ways, so it’s vital HE institutions choose solutions that are flexible and multi-faceted.

“As solutions developers, we design for flexibility. We need to. We know these interactive, collaborative systems will be in place for many years. Our displays have a 50,000-hour useable lifetime – that’s 20 years of normal usage. Selecting open and flexible technology that will be as relevant in the future as it is today is the best advice we can give any HE buyer.” ■

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**“There will be different approaches and even the same room may be used in different ways so it’s vital HE institutions choose solutions that are flexible and multi-faceted.”**  
**Carl Sheen**

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# Digital media – a question of agility

An agile core platform for content delivery opens up exciting new possibilities in the competitive HE sector, as Tripleplay's Tim Hoddy explains to *Lindsey Reynolds*.

» Digital media content is in a good place in the higher education sector, explains Tim Hoddy, European sales manager at Tripleplay, whose digital signage and IPTV platform is used by universities worldwide.

The HE demographic consumes video constantly. With YouTube, Instagram, FaceTime and Google Hangouts, alongside video-based digital signage, users are surrounded by video and digital content.

HE is embracing digital content, but there are challenges. Consumption is on students' terms and video content must look good on all devices while the institution must be able to control and monitor content viewing.

**“Consolidating digital signage, IPTV, eLearning and messaging on to a single digital media platform makes sense and gives universities opportunities to migrate and upscale over time.”**  
**Tim Hoddy**

“It's not just who sees it that's critical but who can't,” comments Hoddy. “For example, recorded medical operations or sensitive student information must be kept secure, and you should prevent downloaded video from being shared internationally, which might breach copyright laws.”

“Faculties also need to monitor usage – what is viewed, when and how. Our built-in reporting tool allows greater transparency, enabling student activity to be tracked, simply and easily.”

## Scalable AV/IT solution

Hoddy suggests that consolidating digital signage, IPTV, eLearning and messaging on a single platform such as Tripleplay, makes sense. With Tripleplay they can migrate and upscale over time. Sheffield Hallam, for instance, first delivered live TV around campus then added delivery of on-demand video to any device.

Tripleplay also integrates with other systems, such as timetabling or a VLE. For example, Queen Margaret University, Edinburgh, has embedded its Blackboard VLE into the Tripleplay solution.

From a technical point of view there are challenges to be met – streaming video to browsers and thin clients in particular.

Hoddy explains: “Most popular web browsers no longer support



**Tim Hoddy: “Universities need to stand out in a competitive market”**

NPAPI plug-ins, this means that any streaming platform using Flash and VLC, for example, will now be obsolete.

“We also see widespread replacement of desktops by thin clients in learning centres and libraries because they are low power, more environmentally friendly, protect data and can be more easily centrally managed; furthermore, streaming of quality video to these devices is very difficult.

“We have always bridged AV and IT and can anticipate these AV/IT convergence issues quickly and effectively. Our Media Video Player (MVP) addresses all the

above, for example, and Tripleplay is one of a handful of companies that can offer both.

“Flexibility is also essential in a digital media platform so we have built dynamic elements into Tripleplay. QuickDrop, for instance, enables content to be changed on any screen in three clicks, while our Mobile Media Application enables chat between users and content-sharing on mobile devices.

“Universities need to stand out in an increasingly competitive market and having the right technology across campus can ultimately influence where students choose to study.” ■



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AV in Higher Education – the seventh in the series – examines how HE plans for, implements, uses and manages AV technologies. There’s no doubt that the HE sector is in the middle of an intense period of investment. It’s a competitive market for universities in particular. The facilities they provide are highly visible, so it’s vital they keep up with technology – it’s what the students want to see.