

GVAV Case Study

University of Cambridge

Cavendish Laboratory
Department of Physics:
Ray Dolby Centre



UNIVERSITY OF
CAMBRIDGE

Cavendish Laboratory
Department of Physics

The Ray Dolby Centre is the University of Cambridge's flagship building and new home of the world-renowned Cavendish Laboratory, Department of Physics. Situated on the West Cambridge site, the £300m new-build facility forms the cornerstone of a wider ambition to transform the area into a global science and innovation hub.

Named after the audio pioneer and Cambridge alumni Ray Dolby, this landmark inter-disciplinary facility brings together world-leading researchers, academics and students under one roof, supporting the next generation of pioneering research in physics. David Hunt, Project Manager at the University's Department of Physics explains "The Cavendish Laboratory has been home to several groundbreaking discoveries including the electron, the neutron and the structure of DNA. The new building provides a state of the art home for physics, improves the science and takes us to a new level of understanding and research."

With proven UK-wide experience in delivering large scale AV infrastructure within the higher education sector, **GVAV** were proud to be selected to design, supply and install the audio visual systems throughout the building after a competitive tender process, continuing a long and successful relationship with the University.

Watch the video case study:



AV installed

- Samsung displays, LED and interactive displays
- Crestron NVX and control
- Q-SYS DSP, PTZ, speakers & amps
- TOP-TEC lecterns
- Panasonic projectors
- Epson projectors
- WolfVision Visualisers
- Shure microphones
- Epiphan Pearl-2 recorder
- BirdDog box cameras

Room types installed

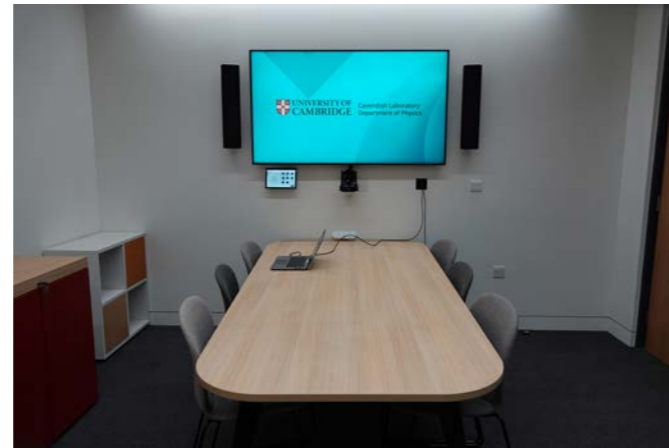
- Lecture theatres
- Seminar rooms
- Teaching labs
- Meeting rooms
- Boardroom
- Collaboration spaces
- Public areas and digital signage



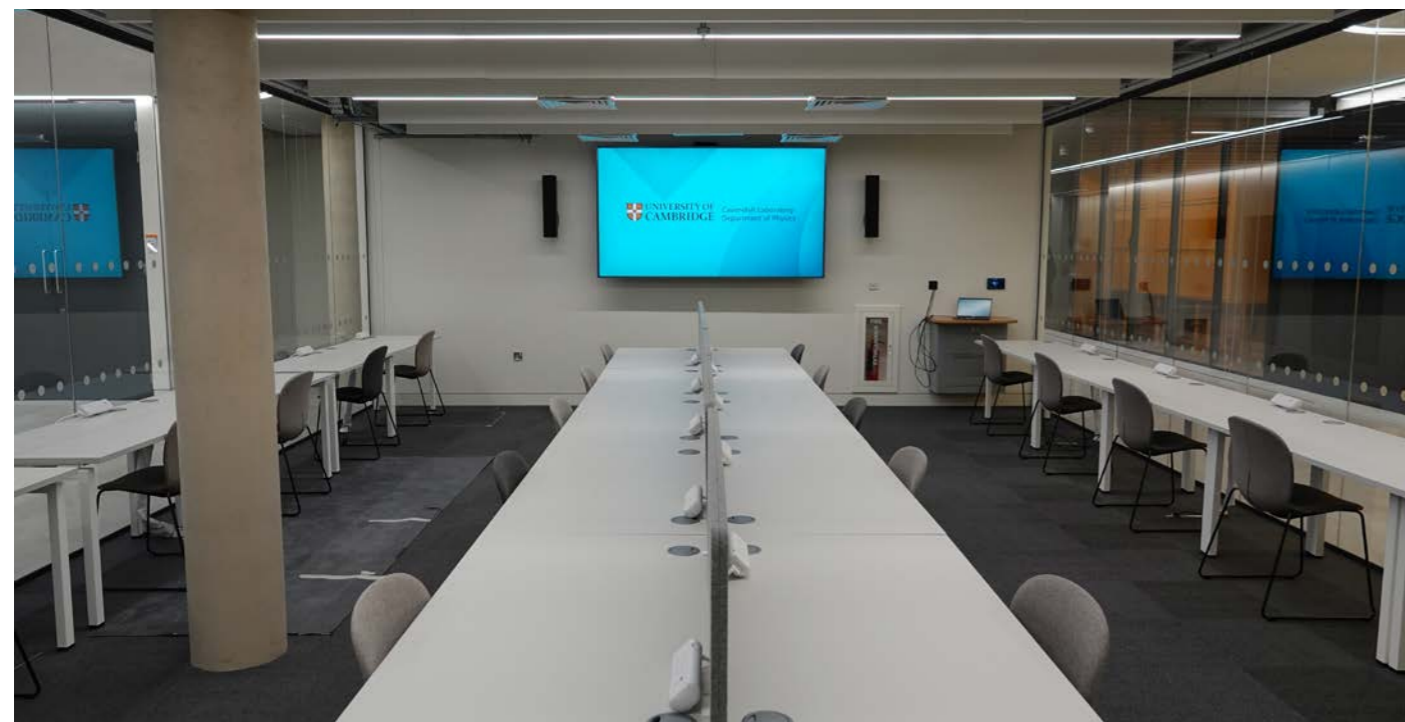
The significant investment in the Ray Dolby Centre reflects the University of Cambridge's continued long-term institutional commitment to pioneering research and teaching. The building's AV design was expected to uphold the same standard, with the new systems needing to be powerful and future-ready, while retaining a familiar and consistent user experience in line with University of Cambridge standards. Sukh Basi is **GVAV**'s Group Sales Director "We identified the Ray Dolby Centre as a must win project because of the prestige and heritage of the Cavendish Laboratory. As we tendered and competed for the business we immediately started the undertaking with suppliers and vendors to ensure that the best designs and the best products were being identified and chosen for the deployment of this project."

This ambitious project was delivered over a two-year period, with **GVAV** working closely with the University from specification through to final commissioning and support. **GVAV** engaged early with the University's internal AV, IT and Estates teams, as well as the main contractor and other trades. This collaborative design process meant that the new systems could

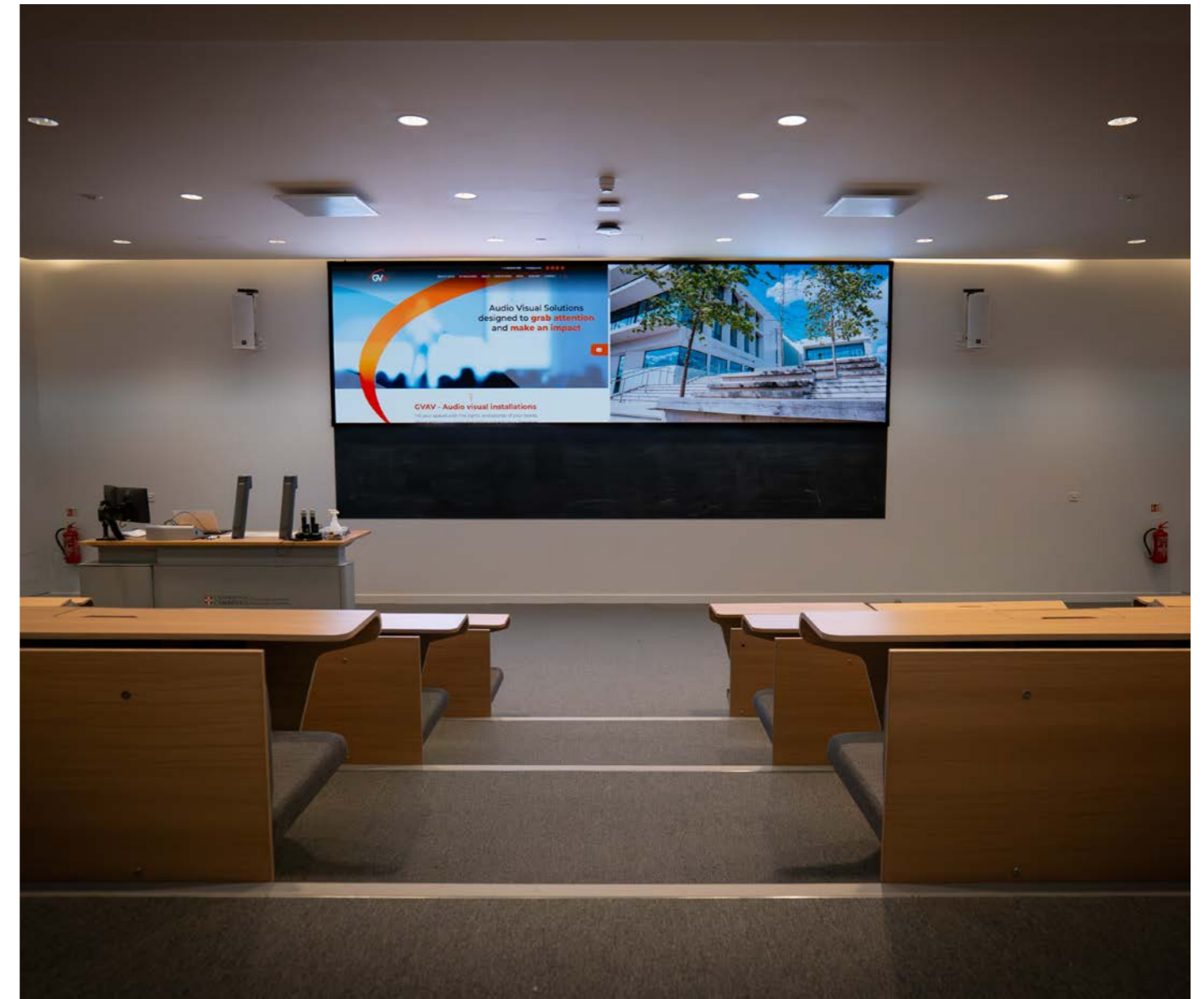
meet the client's exacting technical and pedagogical standards, while architectural considerations could be made early for required power and data provisions.



The requirements for the new building demanded a high-performing AV environment that is resilient, scalable and supportable in the long term. The scope covered more than 30 spaces, ranging from seminar rooms, teaching labs and meeting rooms to a boardroom, public areas and collaboration spaces. All systems were designed around user simplicity, with high-performance hardware underpinning the department's world-class scientific work, while giving both teaching staff and researchers the confidence to focus on content rather than the technology.



Images courtesy of Cavendish Laboratory

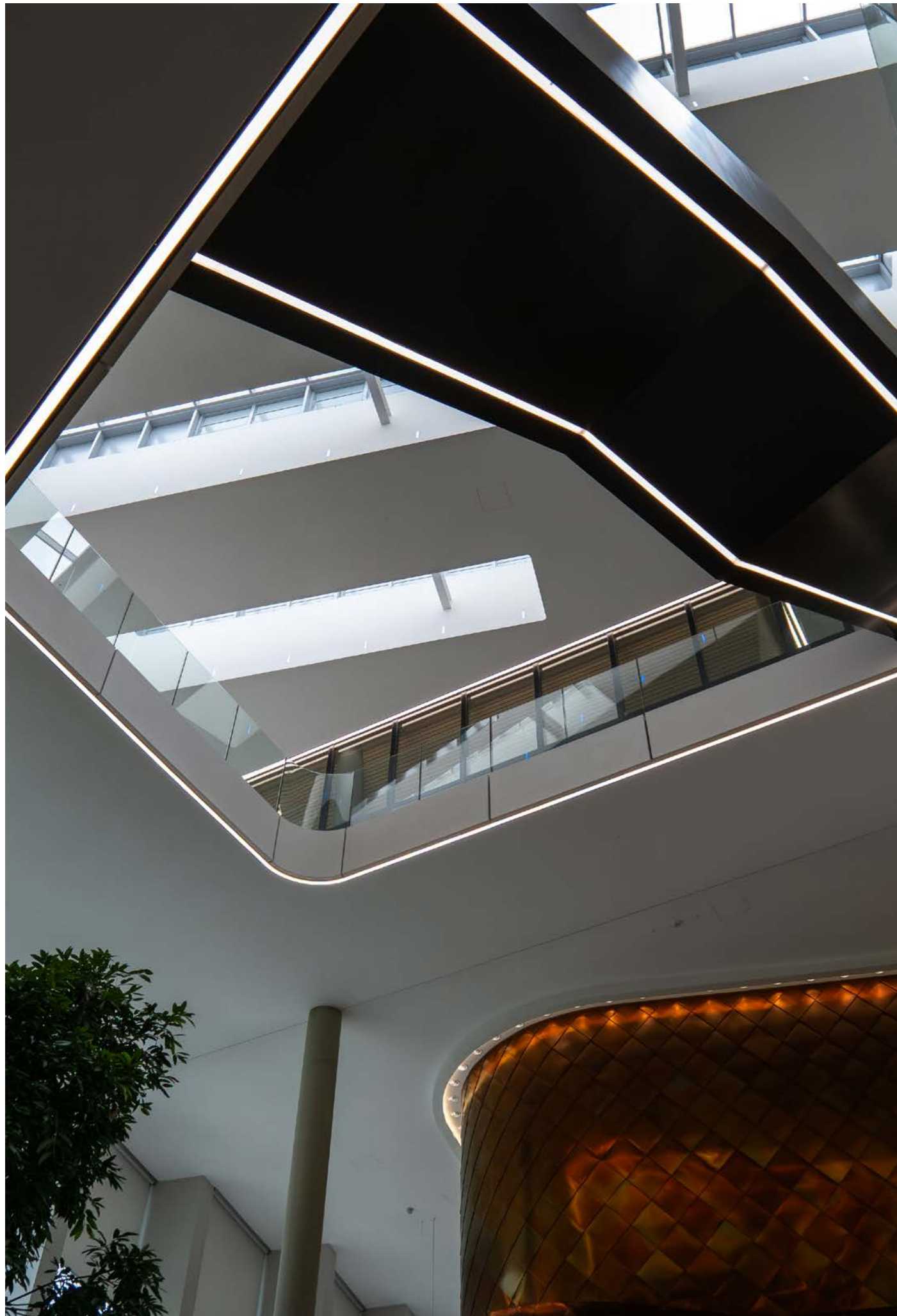


Chris Brock, AV & Digital Content Specialist at the Cavendish Laboratory explains what was required when designing the AV spec "It was about looking at what future lecturers would want to use for teaching, and what kind of spaces would need AV for events. We approached different internal departments to get input - one of which was the University central IT/AV team. They helped us with centralising the AV so it matched a lot of the AV in the University."

The building's AV architecture is built around a fully converged AV-over-IP (AVoIP) network delivering video, audio, and control traffic over the University of Cambridge's central IT infrastructure rather than a standalone AV backbone. Crestron NVX forms the foundation of

the video transport system, enabling low-latency 4K content distribution to any display in any space without the need for separate matrix switchers or dedicated cabling routes. Audio processing and distribution are handled by Q-SYS DSPs, while all control of the AV is carried out using Crestron control panels which integrate into this AV architecture.

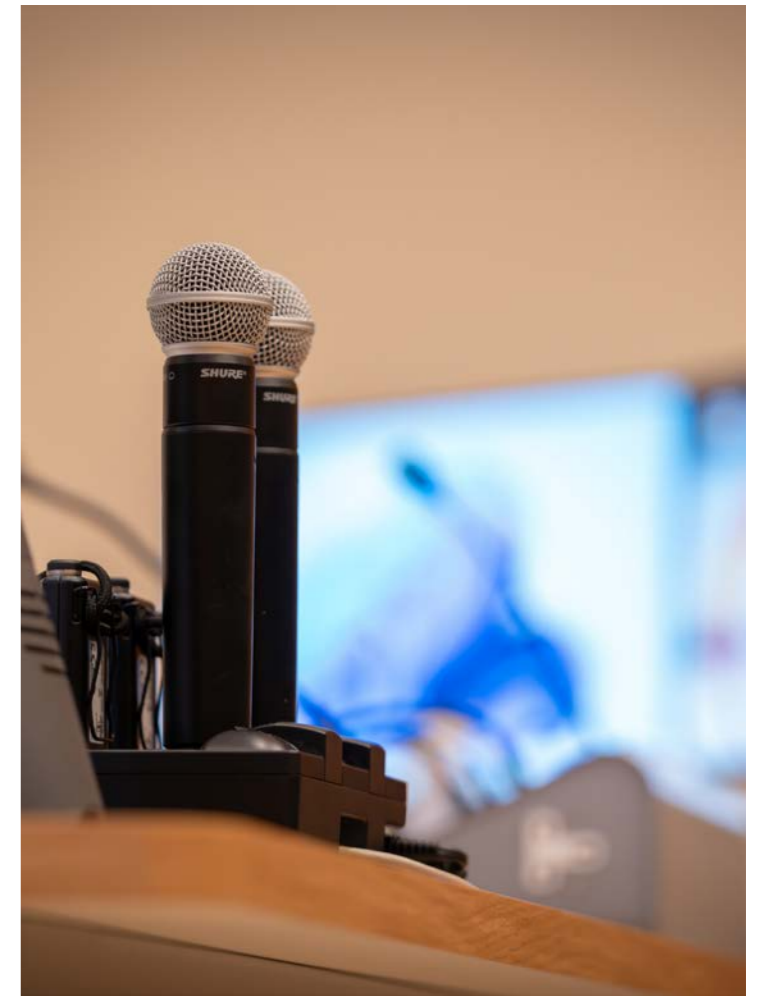
This converged approach allows every meeting room, teaching lab, lecture theatre and public space to share the same high-performance backbone to simplify system management and provide full scalability for future upgrades. The design also accounted for futureproofing with spare capacity built into racks, remote monitoring capabilities enabled, and centralised management across the network.



The building's status as a world-class hub for cutting-edge research and teaching is matched by premium technology implemented in several key spaces. In LT1, one of the smaller of the building's three lecture theatres, dual 130-inch Samsung LED video walls have been installed in favour of projection. With a full width blackboard mounted below for traditional written teaching presentation, this 1.5mm pixel pitch LED configuration allows clear, vibrant and unobstructed viewing of digital content for all participants in the space.

LT1 is also equipped with a comprehensive set of tools to aid presenters, including wired input options and dual WolfVision visualisers integrated into a TOP-TEC variable height Gemini4 lectern. For lecture capture, a Q-SYS auto-framing PTZ camera with 12x optical zoom works alongside fixed BirdDog box cameras to capture all presentation content for hybrid and Panopto - including from the theatre's blackboards. Shure MXA ceiling array microphones and wireless MXW mics have been chosen to capture clear, balanced audio pickup spanning the entire room. Audio and video coverage has been modelled to AVIXA standards, guaranteeing every seat in the theatre benefits from optimal sightlines and intelligible sound. An Epiphan Pearl-2 recording unit ties directly into the University's lecture capture system for automatic integration without additional user input.

Two more lecture theatres make up the portfolio of auditoriums in the new building. SM1 is a smaller capacity lecture theatre, featuring the same Samsung LED wall technology and familiar tech as LT1 including dual WolfVision visualisers, comprehensive lecture capture and Shure microphones.





Meanwhile in LT2, the larger lecture theatre, the main display is a triple Panasonic projection system. The **GVAV** technical team worked alongside the University's in house AV team on the programming and commissioning of this space to ensure the best system performance was realised and the user experience and lecture capture capability was standardised with the building's other lecture theatres.

Particular attention was paid to lecture capture when designing AV systems for the new building. **GVAV's** Technical Project Manager for this project was Mike Rosevear "Core to the unified user experience are the University Information Services (UIS) standards around lecture capture, so every room has every source captured. Across all these spaces, lecture capture was designed into the core of the spaces with multiple cameras covering every source. There is also full audience coverage with microphones, from standard lecture theatres through to hybrid meeting rooms."



All AV has been designed to align with University of Cambridge standards, with a familiar control UI design implemented on Crestron touch panels, lecture capture integrated directly into Panopto, and Microsoft Teams Rooms (MTR) implemented for hybrid teaching and meeting across more than 20 rooms, including a dedicated boardroom.

Hunt explains that collaboration was a key driver in the planning of the new building's layout "The Ray Dolby Centre premises has no dead ends – all corridors are open-ended, it's kind of a big figure of 8. We tried to create spaces where we can introduce furniture, including AV that will allow more spontaneous collaboration between researchers."

Each of the Ray Dolby Centre's meeting spaces are fitted with Samsung displays ranging from 55" to a 98" screen in the boardroom. The larger meeting rooms and boardroom are supported by Q-SYS audio processing, ceiling-mounted Shure microphone arrays, and Q-SYS PTZ cameras for high-quality, reliable hybrid meetings.

The unified approach to hybrid spaces means that staff, students and visiting researchers can join an impromptu session or present content spontaneously with minimal setup, using a familiar University interface whichever space they are in. The entire meeting room ecosystem is tied into the building's AVoIP and control network, with Crestron NVX handling video distribution.



Image courtesy of Cavendish Laboratory



Hybrid considerations have also been made in the building's seminar and teaching spaces. These have been designed to bridge traditional in-person teaching with modern hybrid learning methods. Each teaching room features high-quality Samsung displays, and the standardised high-quality capture workflow using Q-SYS and BirdDog cameras, Shure ceiling microphones and Q-SYS audio processing. This seamless lecture capture workflow means academic staff can walk into any seminar space and start teaching, with their own content on-demand, without additional setup.

As well as traditional seminar spaces, specialist teaching labs required more subtle AV integration, especially where sensitive experimental equipment was in use. These high-sensitivity research environments presented unique challenges that required bespoke AV

design, configured to support hands-on, practical learning.

One of the rooms, TR2, comprises three interconnected teaching labs including a curtain-divided dark room used for light-sensitive experiments. Used for student projects and live demonstrations, these spaces can be managed collectively via a technician's control page and are each supported by AV infrastructure including Epson WUXGA projection, Shure MXW microphones, Q-SYS pendant speakers, WolfVision visualisers and Crestron touch panels. Hunt explains that collaboration was at the forefront of the design process throughout *"Labs have glass in them where possible so you can see the research and the equipment. We wanted to continue that in the spaces around the labs as well – with a lot of booths and smaller areas where we try to promote spontaneous collaboration between researchers and students."*

AV has also been used to support a cohesive, user-friendly environment for staff, students and visitors to navigate the facility. Rosevear explains *"Digital signage displays have been provided for key notification purposes, health and safety notices and wayfinding. This includes the Samsung QM series for passive displays as well as the Samsung Flip for interactive kiosks."*

The most impactful signage display is a 164" LED wall visible from the entrance foyer. With a 2.0mm pixel pitch and 1,000-nit capability, the display delivers vibrant, high-impact digital content and messaging, even against the bright ambient lighting of the space. Mounted either side are Q-SYS column speakers, allowing the University to display video

content and presentations on this large display with high-quality audio.

Samsung Flip interactive displays have also been positioned strategically around the building for wayfinding to ensure ease of navigation around the facility.



Another shared space that has been integrated with AV is the café. Serving as a hub for informal meetings, social interaction and impromptu cross-departmental communication, the café has also been designed to encourage collaboration. Two 50" Samsung QM displays provide clear digital signage or

live presentation content, while audio is delivered through a distributed system of 12 Q-SYS pendant speakers and dedicated amplification for even sound coverage. Content is managed via NVX decoders, with a Crestron touch panel allowing quick control of content.



Image courtesy of Cavendish Laboratory

The AV systems in the Ray Dolby Centre have been thoughtfully designed to support the facility's global leading output and help take it to the next level. Since handover, feedback from the University has been extremely positive – Brock explains that the AV is already having a productive effect on those interacting with the department "With the AV systems now fully operational, both staff and students are engaging with the technology during classes and departmental events, and the response has been overwhelmingly positive."

End users have reported confidence in the systems, with a marked reduction in support requests during live teaching.

The AV 'just works' in such a way that academics can walk into a space, connect and present using a familiar interface without additional training.

Brock goes on to praise **GVAV's** efforts on this long-running project, saying "The Department is grateful to **GVAV** for their dedication and hard work. Their efforts have played a significant role in shaping an exceptional learning and event environment. **GVAV's** work has brought the Ray Dolby Centre to life, combining high-impact visuals and user-friendly technology to enhance teaching, presentations, and events in a truly meaningful way."



From a strategic standpoint, the Ray Dolby Centre now serves as a benchmark for AV standards across the wider University estate. However this is not just a building with impressive AV, it is an environment where technology supports the department's long-term missions to enable discovery and create spaces where the next generation of scientific breakthroughs can happen.

The success of this ambitious project has further strengthened **GVAV's** long-standing partnership with the University and is a stand-out example of how leveraging a wealth of technical expertise, close collaboration and a commitment to industry standards can deliver a premium, standardised user experience built on trusted global technologies.

The new Ray Dolby Centre is designed to leave a lasting legacy on visitors, staff and students as a world-leading research facility with an ambition to build on the Department's reputation at the frontier of experimental physics and inspire the next generation of Nobel Prize winners.

"We're delighted with how the project turned out and with GVAV's integral contribution to its success. Mike, Rory and the site team demonstrated a very flexible and experienced approach, to help integrate the AV systems with the furniture supplier and coordinate works with the Department's AV, IT and Estates teams.

From the outset, GVAV showed a strong focus on quality. They collaborated with us to create a system that not only met technical standards but also had a striking visual impact - particularly through the impressive video walls that delivered the 'wow' factor we were aiming for. Equally important was usability, and GVAV ensured that the system was straightforward and intuitive for both staff and students to operate."

Chris Brock
AV and Digital Content Specialist at the Department Of Physics, University Of Cambridge



Image courtesy of Cavendish Laboratory

Check out our other recent case studies from across the UK...



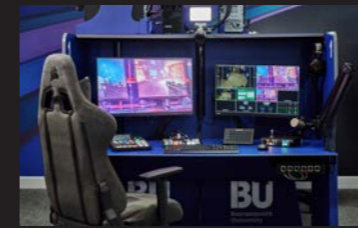
Birmingham: Multistory

A new amenity-rich community hub in Birmingham features multi-zoned Q-SYS system to support collaboration, hybrid meetings and events.



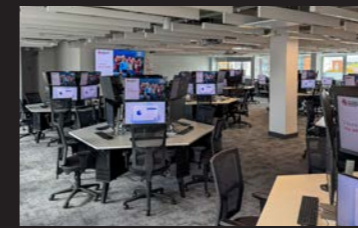
Leeds Trinity University: City Campus

A new city centre campus features high-spec AV across 60+ spaces including lecture theatres, meeting rooms, collaborative teaching areas, computer labs and social zones.



Bournemouth University: Esports

Featuring TOP-TEC gaming desks and professional-grade Blackmagic Design streaming and cameras at each desk, the new suite delivers a high quality learning environment for students.



De Montfort University: Gateway House

New high-spec collaborative spaces have been built around TeamMate AV furniture for IT, group learning and hybrid meetings.



Greater Manchester Combined Authority: Fire Service HQ

A new training and meeting facility has been installed, featuring a 9-screen Samsung video wall, Logitech MeetUp and Extron Audio.

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Why GVAV?

Rack build

At GVAV, we don't just excel at systems design...

Our highly skilled engineers build AV racks in-house to the highest quality and specification. With regional build centres located across the UK, you can rest assured we'll build your equipment rack locally - reducing time and travel.

With dedicated rack wiremen and our extensive portfolio of AV products, our AV racks are consistent with the highest standard and ready to fit.

Predominantly built at one of our controlled facilities and designed to exact specifications, AV racks comply with industry standards. Arriving on site, fully assembled and tested, we provide installation, integration, commissioning and handover services as part of our comprehensive service. And, with large stocks of rack equipment, materials and integration hardware in stock, we can also accommodate last minute changes with ease.

Whether your project is small or large, GV rack build is here to get the job done fast.



Systems Integration

Acknowledged in the industry for providing top quality integrated solutions. We develop systems that are easy to use and offer a great user experience.

Working efficiently on site alongside third parties and contractors, we seamlessly integrate cutting edge technologies into legacy systems.

And, with our commitment to uncompromising Project Management, we've got the experience needed to smoothly integrate into any construction or refurbishment scheme, no matter the size.

With technical teams continuously receiving the latest training and development, we ensure they have the most up-to-date skills and product knowledge.

With **GVAV** you can be confident in gaining a beautifully designed and robust AV solution.

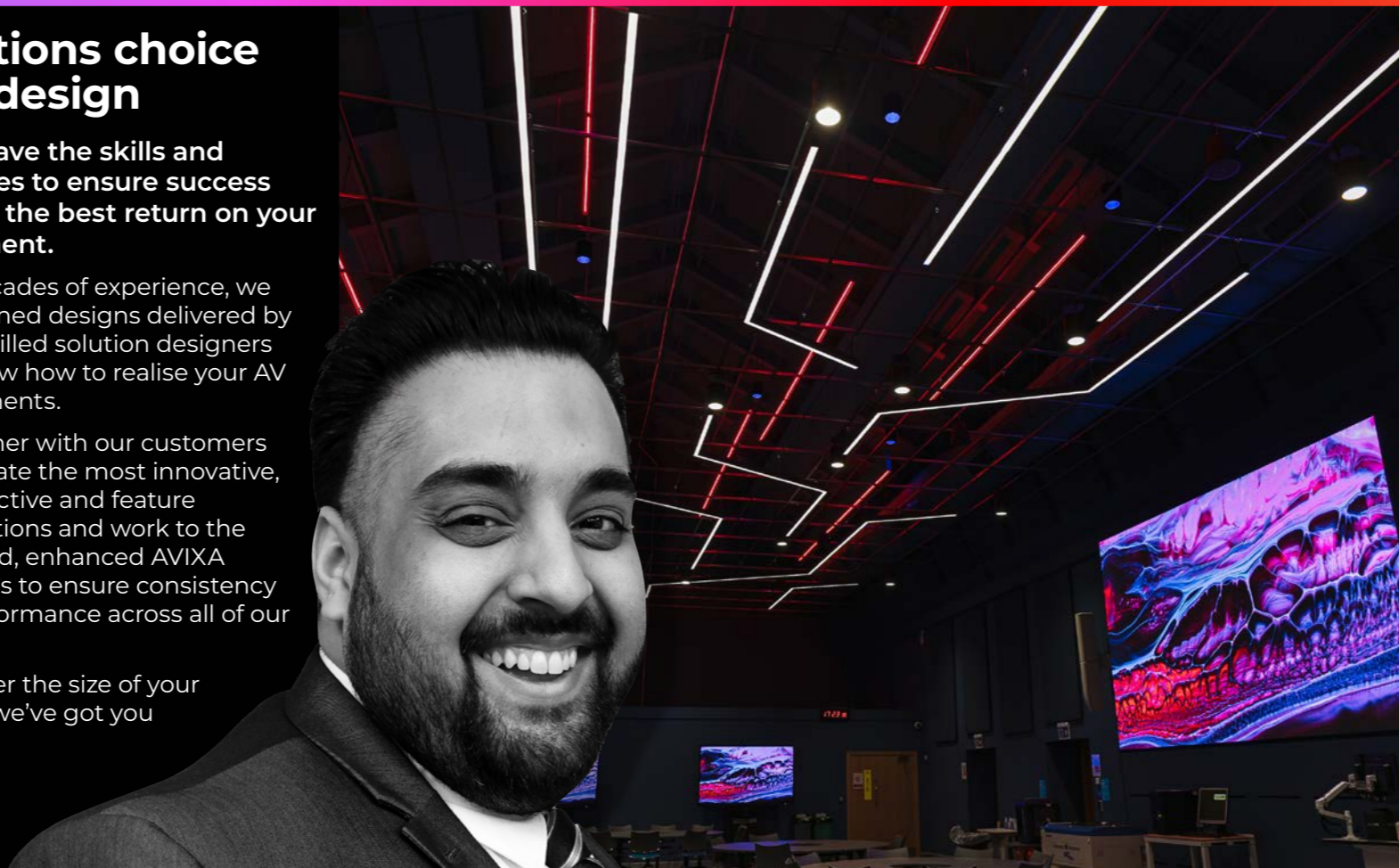
Solutions choice and design

GVAV have the skills and resources to ensure success and get the best return on your investment.

With decades of experience, we offer refined designs delivered by highly skilled solution designers who know how to realise your AV requirements.

We partner with our customers to generate the most innovative, cost effective and feature rich solutions and work to the respected, enhanced AVIXA standards to ensure consistency and performance across all of our projects.

No matter the size of your project, we've got you covered.



Project management

We understand the importance of excellent project management, and our experienced team of trained, accredited professionals do too.

As a company we invest heavily in our national PM teams supporting training to accredited standards particularly PRINCE2 and CTS.

Flexible project reporting ensures transparency for customers who can view their project progress throughout the process, and our system helps deliver agile, timely visibility to key stakeholders. Ensuring projects stay on time and in budget.

We will provide additional project managers giving appropriate support depending on the project size. PMs will focus on contractual, multi-trade, SHESQ and onboarding elements of the broader project with tangible benefits to our clients.

This capability is hugely beneficial when the work forms part of an overarching construction project or multiple jobs require management. We will integrate tightly with the principal contractor project team.



Training

We recognise the difficulties organisations face in implementing new technologies, promoting user adoption and building operational confidence amongst end users.

They are the fundamental elements that help guarantee you're getting the most out of your system.

No matter the level of in-house technical knowledge, adopting new products and work methods can be complex. But, taking on these challenges allows you to augment your business practices, provide your customers with better service, and compete more effectively.

Technology changes fast, and AV is constantly evolving, making it a truly exciting field. However, we understand this is a daunting prospect if you don't deal with AV all the time. We can provide the reassurance you need through training.

Training is an essential element of any well designed AV solution and represents a powerful tool for promoting user adoption. It maximises the benefits of the technology by enabling it to reach its full potential.

Technical support

GVAV knows how vital good technical support is to our customers and understands their wide range of support needs. We will match support levels to your specific requirements considering user experience and system complexity.

Our support services include access to **GVCORE**, our support and service desk solution for incident logging, management and resolution, accessible by phone, email or secure login

Customer satisfaction is of paramount priority, and we take pride in the quality and professionalism of our support services. You will receive expert advice on usage, helping you get the best out of your equipment and keeping it working in peak condition.



Maintenance

With our nationwide network of branches, we offer local expertise, which means you get the support you need!

Offering a wide range of maintenance services supported by our skilled engineers, we will manage your request every step in a friendly, helpful and efficient manner from your very first call.

Our maintenance packages offer excellent value, protects your AV system, reduces downtime, and ensures that it will run smoothly for years to come providing a great return on your investment.



Control systems

Since its inception, has been at the forefront of bespoke integrated AV systems for business and education. Our mission, to deliver designs that offer excellence to our customers technically and in user experience.

Whether using Crestron, AMX, Extron, or one of our other excellent manufacturers, the foundation is simple, logical, elegant, well-programmed interfaces that make our solutions work for you.

Our highly qualified experts have designed, programmed and supplied a wealth of projects from individual meeting rooms, classrooms and lecture theatres to expansive building wide installations.

We incorporate estate-wide management that handles lighting, audio and building control, and we support environmental room monitoring and asset booking.

Our team carries certifications from all major system manufacturers so that you can expect an efficient and timely control solution. Whether for a new system or to update your existing one. Our interfaces are intuitive and reliable.



GVAV - a family business

The secret to our success is the people behind the business, with every member of our team passionate and dedicated to developing innovative AV solutions for our customers. With a heritage dating back to 1976, **GVAV** embraces a family ethos that has run through the business since the beginning.

Now with more than 150 people and with over 45 years in the industry delivering a broad spectrum of projects, there's nobody better to trust with your audio visual project.

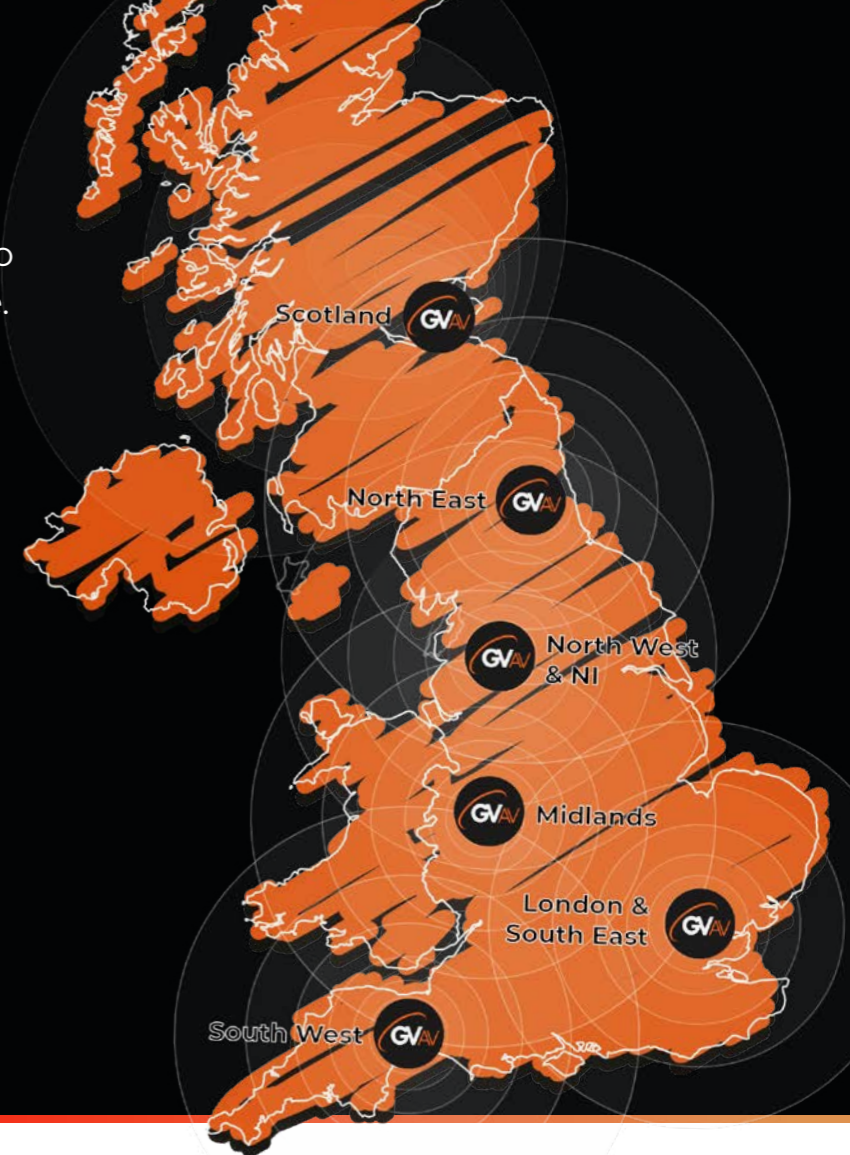


Ready to deliver the systems you need

Our six dedicated local hubs across the UK offer a full range of services to make your AV ambitions come to life. From consultation, planning, design, training and maintenance, we have the experience to deliver.

With recent moves to enhanced branch facilities in London, Exeter and Dundee, we're in the best position to offer a bespoke local service to customers across the UK.

Whether you're looking for a full AV solution, a refit of an existing space, or just want to upgrade some old kit, contact your local **GVAV** Account Manager.



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Delivering the next generation of collaborative spaces

GVAV's nationwide team are ready and waiting to support this new world. We deliver outstanding AV solutions that allow you to work more closely than ever, no matter how far apart. Collaboration has genuinely become a superpower for success.

Speak to your local branch today and find out how our dedicated team can help you revolutionise your space!



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Six local branches across the UK

GVAV has installed thousands of projects nationwide. With local branches covering the entire country and a central hub of systems and resources, we are ready for any project, no matter the size or complexity.

At GV, we have the skills, local resources and experience to take your needs from a concept to a fully integrated and supported Audio Visual solution.

On hand to help

GVAV provides sales, service and support, accessible via mobile, web or email. Our customers can contact us whenever and wherever they need to, and we take customer satisfaction very seriously, so training, support and effective project management are critical to all we do.

Maintenance and support

Our nationwide network of branches means local, experienced engineering resources for our customers. From essential preventative maintenance to site-resident engineers, extended hours and short term events or full operational support, whatever you need, **GVAV** can help.

Our project, technical, and programming teams ensure your AV projects deliver on every level.

We pride ourselves on offering the best quality goods and services, and our customers know they always get great value for money.

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