

Case Studies

QUADRAM INSTITUTE

"FIRST OF ITS KIND IN EUROPE
..and potentially the world"

Norwich Research Park
Norwich, UK



Introduction



How can...

AV systems support a new approach to collaboration between scientists and clinicians, which is the only one of its kind in the world?

#SwitchOnthepossibilities



“

THIS IS A UNIQUE
ENVIRONMENT.

**YOU WON'T FIND
ANYTHING LIKE THIS
IN THE WORLD.**

”

£81M FACILITY

100+ CLINICIANS

300+ RESEARCHERS

40,000+ ENDOSCOPY PATIENTS.

ALL UNDER ONE ROOF.

Researchers, Patients and Clinicians under one roof

The Quadram Institute (QI) brings together research teams from Quadram Institute, University of East Anglia's Faculty of Science and Norwich Medical School, as well as the Norfolk and Norwich University Hospitals' regional gastrointestinal endoscopy unit.

Capacity to conduct at least 40,000 procedures a year makes it one of the largest in Europe. A clinical research facility will further link health and nutrition science with clinical research under one roof.

"It's basically the bringing together of people who want to study science and clinicians who need to investigate patients."

Dr Simon Rushbrook

Clinical lead for gastroenterology, Norfolk and Norwich University Hospital (NNUH)

Doubled Capacity

The growing demand for specialist endoscopic delivery, training and innovation is now met by the larger base for NNUH's gastroenterology department. QI is equipped with the most advanced AV infrastructure for laboratories, teaching spaces, meeting and collaboration spaces, building-wide digital engagement and more.

"It's very unusual to find a scientific institute and an NHS facility this close together. This is a unique environment, you won't find anything like this in the world."

Work + Learn

AV infrastructure was developed for two-way interaction – live streaming of clinical endoscopic procedures to students / researchers without crowding the endoscopy rooms. Two-way audio and video (four sources - EndoCam, Endoscope Guide, Wide angle view of the endoscopy suite, and Clinician view) allows live interaction between clinicians performing procedures in the endoscopy suites and students in the seminar rooms.

The close links with the food, pharmaceutical and medical industry emphasised the provision of enterprise-quality video conferencing and collaboration facilities.

Meeting the 'Medical-grade'

All specifications had to meet stringent requirements for medical applications. For example, equipment in endoscopy suites directly connected to the endoscopic medical equipment have medical grade power supplies, galvanised isolation and anti-bacterial coating.

ZERO COPPER!

The entire medical infrastructure is fibre optic and AVoIP.

Interconnected Endoscopy Suites

Identical Endoscopic treatment rooms where clinicians perform investigative procedures on patients. Interconnected with the Divisible Seminar Room for live streaming, on or off campus. Uncompressed, zero latency video feeds from these suites can be relayed live over the fibre optic AVoIP infrastructure.

Each Suite is equipped with:

Visual:

- ✓ 1x **Panasonic** Full HD PTZ camera to view the operator of the Endoscope during procedures fed to the seminar room. Controlled locally within the treatment room and remotely from Seminar Room.
- ✓ 1x **Olympus** Endoscopy video and visualisation system with 2x HD-SDI outputs
- ✓ 1x 32" **Iiyama** 4K Confidence Monitor to mirror the output of the main projector or feed out per room.

Audio:

- ✓ 4x **Bose** Flush-mounted ceiling speakers to play audio from talkback microphones and ceiling microphone array in the seminar room.
- ✓ 2x **Crestron** Amplifiers
- ✓ 1x **Crestron** Avia™ 12X8 Digital Signal Processor W/Dante™ USB Audio AEC & Audio-Conferencing Interface.
- ✓ 4x **Shure** wireless head-worn Cardioid microphones and bodypack transceivers worn by the medical staff performing procedures

Control:

- ✓ 1x **Crestron** 10.1" touch panel with table top mount.
- ✓ Control audio outputs and adjusts speaker and microphone volumes.
- ✓ Enable / Disable the video and audio feed to seminar room (also displays feed status).
- ✓ 6x **ZeeVee Zyper 4K** fibre optic receivers and transmitters.
- ✓ 2x **Cisco** 10-Port Gigabit PoE+ Managed Switches with fibre uplinks.

First Ever Endoscopic Installation Entirely on AVoIP

"Snelling Business Systems have rolled out the first endoscopy site in the UK utilising uncompressed 4K video (SDVoE) over a 10GB Ethernet network using fibre interconnectivity. They have accomplished this feat with unmatched skill and nuance.

The client brief specified there could be no compromise on uncompressed, real-time video without quality loss during a medical procedure – mission critical performance!

Leveraging ZeeVee's SDVoE ZyPer4K product line, Snelling Business Systems implemented near zero-latency (100 microseconds) and pixel-perfect uncompressed 4K 60 444 quality across the building.

Snelling Business Systems are the first certified AV over IP Specialist in the UK as part of ZeeVee's new Signal Partner Program, which gave them access to training and resources crucial to facilitate this milestone implementation in the UK medical arena".

Charlie Sullivan
UK & Ireland Business Development Manager
ZeeVee, Inc.



2-Way Divisible Seminar Room

Two side-by-side rooms with a divisible wall can also be used as a single room for larger audiences. The seminar rooms are interconnected with the Endoscopy Suites and the AV system is designed to receive video feeds of live endoscopic procedures and enable two-way audio interaction.

Visual: Independent dual projection systems, makes it possible to display separate, or duplicate video content in each space.

- ✓ 2x 5000 ANSI **Epson** Projectors with 4K enhancement and 109" Da-Lite projection screens.
- ✓ 2x **Panasonic** Full HD Robotic PTZ Camera for lecture capture and streaming.
- ✓ 2x **Iiyama** 4K Confidence and/or Preview Monitors

Audio: user can select speakers to receive audio from the selected Endoscopy suite for two-way communication in interactive teaching sessions

- ✓ 2x **Shure** Ceiling Array Microphones (with Shure *Intellimix* DSP) to pick up audience questions, during use in mode 4 or 6, fed back to a selected Endoscope treatment room.
- ✓ Each input has a dedicated processing channel for EQ, automatic management of audio levels, and echo cancellation.
- ✓ 4x **Bose** Flush-mounted ceiling speakers to play audio feeds from endoscopy suites.
- ✓ 2x **Crestron** Dual-Channel Modular Power Amplifiers.
- ✓ 1x **Crestron** Avia™ 12X8 Digital Signal Processor W/Dante™ USB Audio AEC & Audio-Conferencing Interface.
- ✓ 4x **Shure** wireless head-worn Cardioid microphones and bodypack transceivers worn by the medical staff performing procedures

Inputs:

- ✓ 2x **Cabletime Mediastar** decoders and IPTV receivers 4K Digitalmedia 8G+ transmitter and control interface, with HDMI, RS-232 and IR control ports.
- ✓ 2x **Barco** ClickShare wireless presentation systems.
- ✓ 4x Wall Plate 4K digital inputs.
- ✓ 1x PC with Unified Communications.
- ✓ Technician I/Os via custom patch panel

Switching, Distribution & Control: The whole system is configured for control on 3 touch screens installed in room A and B with one-touch mode selection (for example, room A offers to start in modes 1, 3, or 5).

- ✓ 2x **Crestron** 10" wall-mounted touch panels programmed separately for each divisible room.
- ✓ 1x **Crestron** 15" master touch control panel with advanced functionality
- ✓ 1x **Crestron** AV3 Control Processor
- ✓ **ZeeVee Zyper 4K** uncompressed 4K over IP encoders, decoders and management.
- ✓ 1x **Netgear SDVoE** fibre and copper network switch.

3-Way Divisible Lecture Space

Capacity: up to 100 participants

Three side-by-side rooms with dual folding walls, which act as three standalone rooms, combined spaces, or one large lecture hall.

Visual: Independent projection systems, makes it possible to display content in each space.

- ✓ 2x 6000 ANSI **Epson** Projectors with 4K enhancement and 130" **Da-Lite** projection screens.
- ✓ 1x 5000 ANSI **Epson** Projector with 4K enhancement and 94" **Da-Lite** projection screen.
- ✓ **Panasonic** Full HD Robotic PTZ Camera for lecture capture and streaming.

Audio:

- ✓ **Shure MX Wireless** digital encrypted wireless handheld and boundary microphones, networked charging station, and with the ability to dynamically assign a microphone(s) to spaces as required.
- ✓ **Crestron** Avia 12x8 Digital Signal Processor with Dante audio networking
- ✓ 6x **Bose** Panaray Modular Line arrays and **Bose** PowerMatch amplifier system.



Inputs:

- ✓ 3x **Crestron** input plates, 4K Digitalmedia 8G+ transmitter and control interface, with HDMI, RS-232 and IR control ports.
- ✓ 3x **Barco** ClickShare wireless presentation systems.
- ✓ 3x **Cabletime MediaStar** Digital Media Decoder and IP Television Receivers.
- ✓ Technician I/Os via custom patch panel

Switching, Distribution & Control:

- ✓ 4x **Crestron** 10.1" wall-mounted touch panels.
- ✓ 1x **Crestron** CP3 Control Processor, and 16X16 Digitalmedia™ Switcher.
- ✓ 3x **Crestron** 4K DigitalMedia 8G+® Receiver & Room Controller
- ✓ 1x **Cisco** 300 Series 26 port smart switch
- ✓ **Extron** event recording and live streaming

Meeting Rooms

Follow a standardised equipment list and scaled according to room layout and size; each meeting room features:

- ✓ 1x **NEC** Full HD 70" display with (NEC) wall mounted side-speakers for video conferencing.
- ✓ 1x **Lifesize** video and audio conferencing via soft codec and VoIP.
- ✓ 1x **Barco ClickShare** CSE-200
- ✓ 1x **Cabletime MediaStar** Digital Media Decoder and IP Television Receiver
- ✓ TeamMate collaborative furniture for specialist medical applications.



Public Areas

- ✓ **NEC** 55" - 80" Full HD displays
- ✓ **ONELAN** Digital Signage & IPTV Licensed Players
- ✓ **Cabletime** IPTV and Streaming Media Players

IPTV & Digital Signage Management

- ✓ **Cabletime Mediastar** LAN-Caster Gateway for Digital Terrestrial/CATV Re-Broadcast over IP
- ✓ **Onelan** Content Management System.

Bespoke Programming and Customisation

The principle for user control interface in all meeting rooms and divisible spaces is based on a single wall mounted touch screen controller (Crestron), to carry out all necessary in-room AV, HVAC, access control and lighting control.

The GUI for control panels was designed, prototyped and programmed, in-house to the specifications and brand guidelines of the Quadram Institute. Interface layouts, colour schema, visual grammar, navigation was developed in collaboration with the consultant and stakeholders.

Snelling Support ⁺

Managed support contract with proactive support, reporting and a preventative maintenance built into a customised contract.



There was no doubt the integration of technology would be critical to achieve our vision of a world-class, forward thinking institute. Snelling Business Systems have proven their merit as a technology partner who helped us realise our vision with zero compromise.

I can confidently state that Snelling Business Systems have delivered future-ready infrastructure... Their approach, meticulous planning and organisation, as well as a highly personalised service meant that AV system design and specification were aligned with the outcomes we had in mind. Not only were they able to provide us with what we requested but also find innovative ways to increase the capabilities in ways which we weren't aware were possible.

David Mann, Project Director
Quadram institute



ABOUT US

In plain speak, we are a global supplier of integrated audio-visual systems, environments and communications technology; we design, integrate, install and maintain robust AV systems and environments.

But that is not 'how' we do it, at least not as simply just that.

Our roots go back to 1954 when Roy Snelling started his business out of a redundant Victorian laundry in rural Norfolk, selling Television and Radio sets in the earliest days of broadcasting.

Roy Snelling witnessed a major transformation as more and more TV and Radio sets found a place in homes- there was a whole new way for people to interact, engage and consume information. More importantly, it was engagement and interaction of the audience at a 'sensory level'; the same purpose for which many AV systems and environments today are designed and built for.

Over the years our experience led us to ask ourselves the obvious question.

"How can we use the potential in AV systems and environments for sensory engagement, to unlock possibilities for businesses to interact with and engage their audiences"?

As we continued to grow and evolve, we nurtured what we learnt along the way in our internal culture and design/engineering philosophy. Therefore, you'll find our design/engineering teams thinking 'how AV integration can change specialist healthcare space to minimise operating costs and rationalise space utilisation'?

At the same time, how do we continue to uphold the Snelling Philosophy? Audio Visual Excellence. Operational Simplicity.

We deliver all aspects of audio visual integration from design to the supply, installation and on-going maintenance - all backed by a service ethic, which continues to carry the Snelling signature of quality. Based in London and Norwich, we have maintained our portfolio of major clients and diverse international projects across Higher Education, Corporate, Public Sector and niche projects.



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