

# Case Studies

## **ABCAM plc**

Global Life Science E-Commerce Company

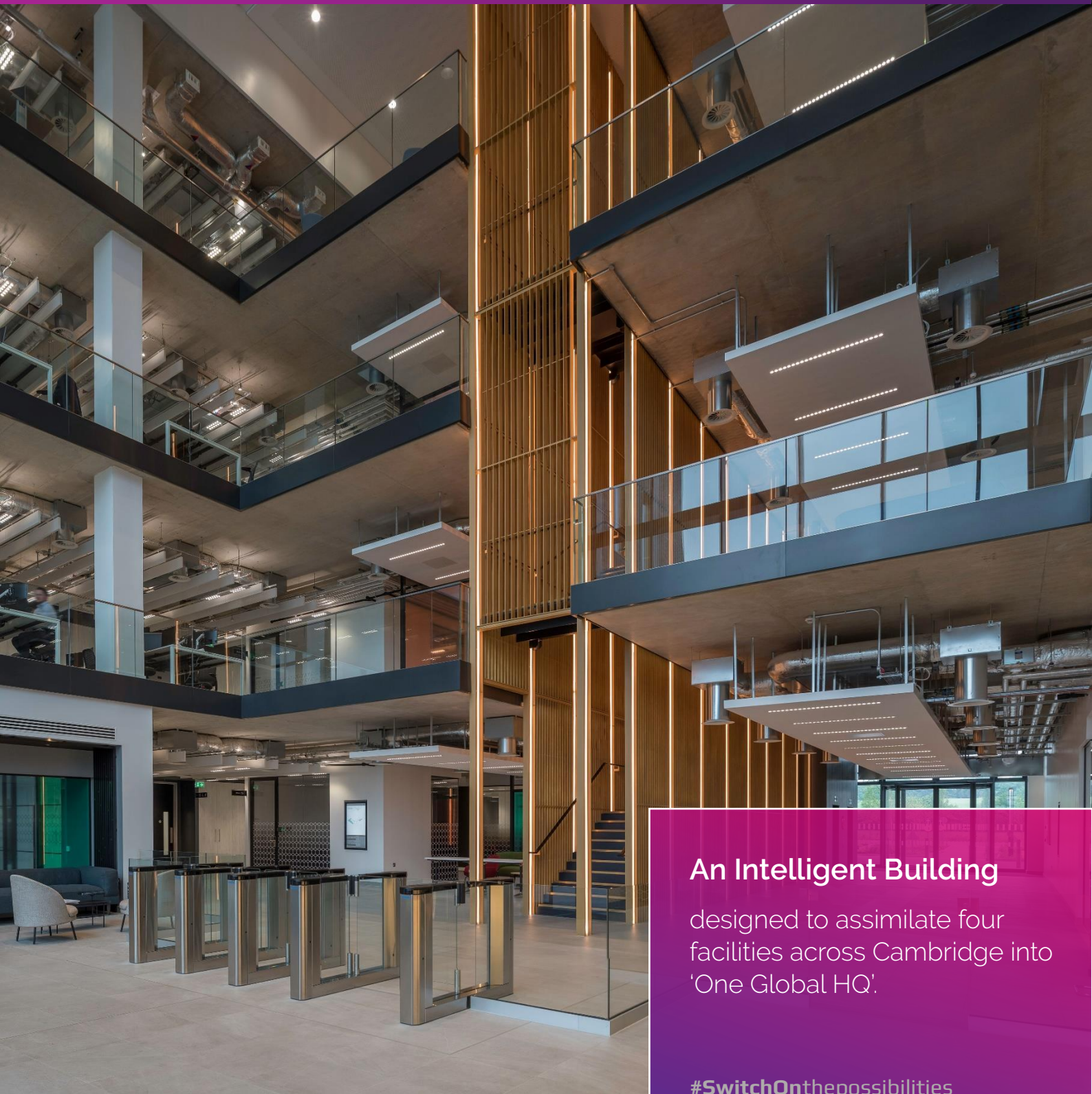
Cambridge Biomedical Campus  
Cambridge, UK



**Inavation Awards**  
PROJECT WINNER 2020

**abcam**

# Introduction



## An Intelligent Building

designed to assimilate four facilities across Cambridge into 'One Global HQ'.

#SwitchOnthepossibilities

# “The main thing is collaboration...”

at the heart of what will be the largest life sciences research hub in the whole of Europe, with AstraZeneca, Papworth and others.”

- **Jonathan Milner**, Abcam founder, angel investor, philanthropist

**Inavation Awards**  
**PROJECT WINNER 2020**

## Designed around creating collaboration spaces.

Four sites across Cambridge were now under one roof to work together. Therefore, the new HQ has a plethora of one-to-one rooms, informal spaces, hot desk areas and soundproofed meeting rooms that allow easy connection to colleagues and clients around the world. Most meeting spaces are named after key people in the history of Abcam and Cambridge Science community – there's Milner, Cleevely, Milstein, Köhler...

## Building Intelligence.

An intuitive experience. We have transformed open areas and office floors into destinations where staff and visitors can interact intuitively. For example, interactive wayfinding stations, and distributed Digital Signage + IPTV.

Smart technology integrates AV and the Building Management System. Unified touch control panels are the single point of control across all meeting rooms; for:

- ❖ Presentation display and sound systems
- ❖ All systems based on Crestron & QSC AVoIP
- ❖ Wired and wireless content to screens
- ❖ Interactive Wayfinding with Bespoke CMS
- ❖ Lighting
- ❖ Hardware and Software Video Conferencing
- ❖ Integrated room booking which is linked to MS Exchange and lighting PIR sensors to enable rooms to be released in the event of a 'no show'
- ❖ Blinds
- ❖ Audio Conferencing via Cisco Call Manager
- ❖ Digital Signage with Centralised CMS
- ❖ IPTV, Management & Video Capture
- ❖ Proactive Remote Monitoring Tools
- ❖ Room temperature

## In the Spotlight

- ✓ **At time of award, the project featured one of the largest Crestron NVX deployments in the UK.**

Abcam management are also provided with AV resource management tools to track and improve sustainability. This automation system ties into a backend platform with energy statistics, keeping records on usage of equipment in each room. This helps encourage energy efficiency initiatives and enhance employee wellbeing.

- ✓ **Entire infrastructure built on AVoIP via Crestron NVX and QSC QSys**

Intelligent design and integration allow greater flexibility, lower costs, and time to spare using the latest Crestron and QSC deployments.

- ✓ **Intelligent Building Management - AV fully integrated into Abcam's IT and BMS network** In-room Crestron touchpanels in meeting spaces provide environmental control, including temperature and lighting control providing a target temperature and actual temperature for intuitive user interaction



## Standardised Meeting Rooms

37 meeting rooms meet the requirements of informal, face-to-face interactions between small and mid-sized groups– 2PAX, 3 PAX, 4PAX and 8PAX. These are glass-walled rooms on each floor, each with:

- ✓ Working desk and meeting table
- ✓ NEC HD displays and speakers for presentation
- ✓ Future Automation AM display wall mount
- ✓ NEC custom built OPS Slot PC
- ✓ QSC 6.5 Inch Two-Way Low-Profile Ceiling Speakers
- ✓ Shure MXA310B table microphones and Crestron amplification
- ✓ QSC I/O Bridge for camera and audio routing via AVoIP
- ✓ Variety of input options – retractable HDMI/USB/LAN with power
- ✓ Crestron AVoIP DigitalMedia NVX Encoder/Decoder
- ✓ Wireless content to screen solution with Crestron Airmedia
- ✓ Glass-mounted Crestron 7" room booking screen with status illumination
- ✓ Wall-mounted Crestron 7" touch panel with room environmental controls (temperature and lighting), AV presentation, volume control, soft-VC switching between OPS PC / table retractor for guest laptop, request for help, and room booking extension
- ✓ Integration with lighting PIR to release room in the event of no-show

Assessment of meeting room usage combined with insights from user interviews informed this approach – increasing demand for spaces to conduct come-and-go, informal meetings.



**The 8PAX rooms**, however, are equipped to provide spaces for inter-department collaboration, brainstorming and conferencing. They include 65" NEC Infinity Boards, OPS Slot PC, QSC PTZ Cameras and network AV Bridge, Shure MXA310 table array microphones.

The camera video is combined with microphone connection for BYOD or resident PC Skype conferencing. For a simple user connection to the room camera and sound for BYOD calls, a single retractable USB connection from the table-top cable cubby is available.

To either drive a Skype call from the OPS slot PC or their own device, a Crestron USB extender attached to rear of the display bracket enables slot PC driven calls to connect with the room microphone and loudspeakers when user mode selection from the unified touch screen controller is made.

**Send Me a 'Snapshot'** – integrated with the room-booking system, invited meeting participants are emailed a snapshot of the whiteboard surface after the meeting concludes. The ceiling-mounted Kaptivo camera with a framed view of the white board surface captures a 'snap-shot' when the user selects the option on the Crestron touchpanel.



## Conference Rooms

Three standardised conference rooms (16PAX) designed for larger groups with more advanced conferencing and collaboration requirements. These rooms have an attached break-out space separated by a divisible wall, and with full AV support.

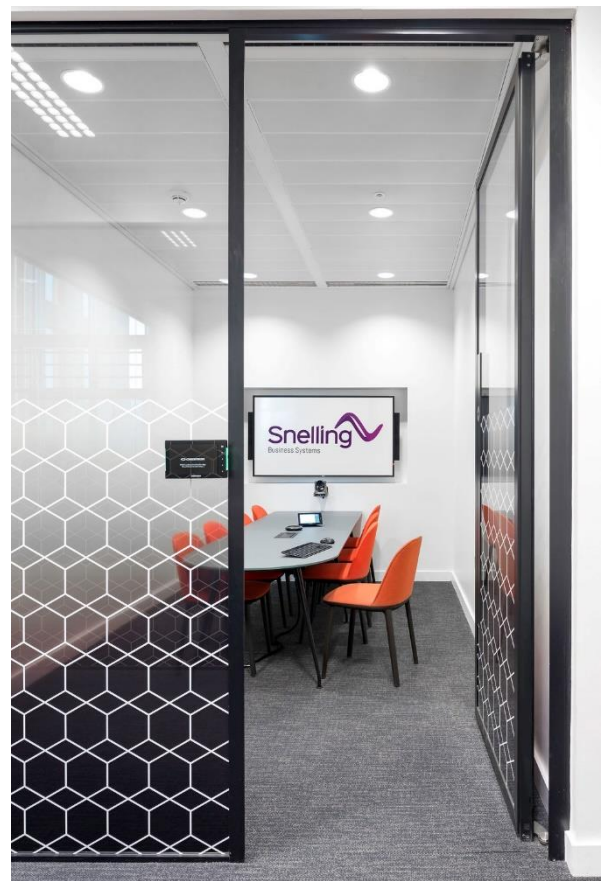
- ✓ 2x 84" NEC Infinity Board supported by 2x NEC 55" FHD displays for breakout
- ✓ NEC custom built OPS Slot PC
- ✓ 2x Bose Panaray MA12-EX speakers supported by 3x QSC 6.5 Inch Two-Way Pendant Speakers in the break-out space
- ✓ QSC PTZ Camera
- ✓ Shure MXA910W Ceiling Array Microphone with speaker-tracking, and 4x QSC I/O8 Flex Audio-to-USB Bridge enable the microphone and cameras to be routed as USB devices
- ✓ Audio and video conferencing controlled via Crestron
- ✓ QSC I/O Bridge for camera and audio routing via AVoIP
- ✓ Variety of input options – retractable HDMI/USB/LAN with power
- ✓ Wireless content to screen solution with Crestron Airmedia
- ✓ Crestron AVoIP DigitalMedia NVX Encoder/Decoder
- ✓ Glass-mounted Crestron 7" room booking screen with status illumination
- ✓ Crestron 10.1" touch panel with room environmental controls AV presentation, soft-VC switching between OPS PC / table retractor for guest laptop, request for help, and room booking extension
- ✓ Integration with lighting PIR to release room in the event of no-show

Users can select the room-mode from the touch panels - **'Room Open' mode** enable the 55" reinforcement displays to provide presentation content to users in the break-out area.

In **'Room Closed' mode**, reinforcement displays switch to digital signage and audio switched off.

The system allows two user sources independently routed to each of the main displays.

Reinforcement displays directly reflect content source available on the Main left and right displays respectively.





21

20

19

18



CRESTRON  
DM-X10-DIR-160

MONIT 1 2 3 4

SERVICE

1920 1000 1000 1000

19

18

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21

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17

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11



E SERIES  
CRESTRON

COMPUTER

PWR NET MSG HW/R SW/R

ADVANCED CONTROL PROCESSOR

CP3

14

13

12

11

10

9

8

7



E SERIES  
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ADVANCED CONTROL PROCESSOR

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QSC  
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CXD  
430  
NETWORK  
AMPLIFIER

A B OUTPUT C D

MUTE MUTE MUTE MUTE

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FAULT

STATUS

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## GAMES ROOM

This space is used by staff and visitors for entertainment - such as Foosball, pool, table tennis as well as gaming consoles and laptop inputs configured for use with the AV setup of the room.

- ✓ 2x 84" NEC FHD displays operable in three modes - digital signage, TV mode (Exterity R9300 digital signage/IPTV player), presentation and gaming mode.
- ✓ QSC I/O8 Flex to channel and amplify gaming audio from the console to the room speakers.
- ✓ 4x Bose Panaray MA12-EX speakers
- ✓ 2x Crestron 7" touch panels to select user/content modes.



## LABORATORY MEETING ROOM – 4PAX and 10PAX

The Laboratory block of the new building provides two meeting for small and large group meetings and video conferencing requirements.

- ✓ Working desk and meeting table
- ✓ 65" NEC HD displays and wall-mounted speakers for presentation
- ✓ Future Automation AM display wall mount and OPS Slot PC.
- ✓ Shure MXA310B table microphones and Crestron AMP Amplifier
- ✓ Variety of input options – retractable HDMI/USB/LAN with power
- ✓ Crestron AVoIP DigitalMedia NVX Encoder/Decoder
- ✓ Wireless content to screen solution with Crestron Airmedia
- ✓ QSC PTZ camera and AV Bridge for video conferencing
- ✓ Glass-mounted Crestron 7" room booking screen with status illumination
- ✓ Wall-mounted Crestron 7" touch panel with room environmental controls  
AV presentation, soft-VC switching between OPS PC / table retractor for guest laptop, request for help, and room booking extension
- ✓ Integration with lighting PIR to release room in the event of no-show

## LOGISTICS OFFICE

Wall-mounted distributed displays for key performance indicators (KPIs) relevant to the ABCAM Logistics operations within the Laboratory block.

- ✓ 1x 65" NEC FHD display adjacent to the work desks
- ✓ 1x Exterity AvediaPlayer r9300 receiver and Exterity ArtioSign signage client.

Authenticated staff users from the Logistics department are provided assigned message template administration rights, with content authoring support from ABCAM IT.

Similar 42" displays are also located around the building with designated KPI related content for each department. Digital signage and IPTV for these displays are centrally controlled via the Exterity web interface

## MOBILE PRESENTATION SYSTEM

For greater flexibility in space utilisation and impromptu get-togethers, the mobile system can be wheeled into any location.

- ✓ 1x 84" NEC 4K display mounted on the Chief X-Large Fusion Manual Height Adjustable Mobile AV Cart and height adjustable accessory shelf.
- ✓ 1x NEC Speaker set
- ✓ 1x Logitech 4K Ultra HD webcam
- ✓ NEC OPS with wireless keyboard and mouse
- ✓ 1x Exterity AvediaPlayer r9300 receiver and Exterity ArtioSign signage client.

## INTERACTIVE WAYFINDING

Wayfinding stations at multiple locations around the building provide high-resolution graphic floor maps for visitors and staff to navigate their way around the building.

The interface allows the user to find facilities on any floor, such as selecting 'WC' to highlight the location of the nearest toilets, or 'meeting rooms' to clearly indicate with location drop symbols the names/numbers of the meeting rooms on the floor.

When a room or facility is selected, a travel line is traced for the user to navigate from their current location.

The NEC MultiSync P484 SST With an OPS Slot PC were deployed at designated locations. The Snelling programming team collaborated with the specialist instruction design agency, PopComms and the Abcam communications and branding teams.

Ultimate responsibility for programming, user experience design and functional user interface programming was managed by Snelling Business Systems.



## CAFÉ & COFFEE BAR

The Cafeteria provides extensive catering, informal meeting and entertainment facilities - background music playback, local voice announcement facility (non-emergency), distributed digital signage and IPTV displays. This area can be used for entertainment TV viewing and informal large staff gatherings.

- ✓ 5x NEC 48" Full HD displays, 2x NEC 65" Full HD displays and 1x NEC 98" Full HD display.
- ✓ 4x Bose Panaray MA12-EX speakers and 10x 6.5" two-way pendant speakers.
- ✓ QSC I/O8 Flex to channel and amplify background music and video content to the room speakers.
- ✓ Q-Sys 16-Button Wall Mounted Page Station with gooseneck microphone for announcements.
- ✓ 8x Exterity AvediaPlayer IPTV receivers with Exterity ArtioSign signage clients
- ✓ 3x Crestron 7" touch panels, and source/volume control panels
  - Mode (input source) switching for digital signage, IPTV mode or presentation mode
  - Audio selection in digital signage mode for background music on/off (adopts cafeteria level setting and no frontal audio)
  - Audio selection in IPTV mode for TV or cafeteria background music.
  - Extended TV channel list selection – up to 8x channels
  - Local zone volume level control
  - Mic on/off and constrained level control

Staff have access to switch between digital signage mode for Cafeteria non-menu displays and IPTV mode with up to 3x channel select (i.e. news, sport, entertainment), selection of sound source as playlist / local input / TV, and zone volume control.



## BUILDING-WIDE IPTV

The Exterity IPTV system distributes television signals to specified rooms/areas in the building including meeting rooms, public and recreation areas.

Digital signal feeds from roof-level satellite /aerials are relayed to a break-out splice box within the core AV rack of the 'Main Equipment Room', where it is split to provide coaxial input to card based encoders.

The IPTV/digital signage server unit distributes TV channels and digital signage content across the LAN to concealed receiver boxes behind displays or via software decoders as specified around the building.



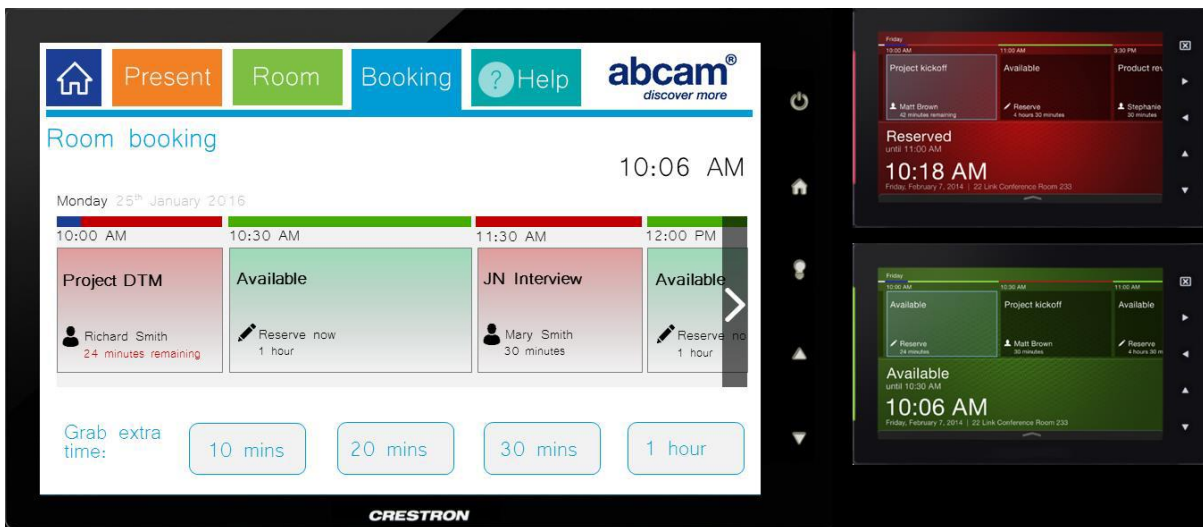
## ROOM BOOKING SYSTEM

Meeting rooms can be reserved by users with assigned permissions from desktop calendar or a mobile device - integrated with ABCAM's Microsoft 365 Exchange calendar. Room resources which are intelligently managed and prepared for meetings via Crestron Fusion Management and Scheduling software.

Room booking panels at the side of each meeting room's door allow users to make selections or check availability. All meeting rooms are equipped with PIR sensors, which provide feedback into the AV, management & scheduling systems about current and actual room usage status. Each sensor is connected to the Building Management System (BMS).

**'No Show' functionality** – the system can reinstate room availability in the event the room has not received an occupation control trigger from the room PIR sensor or resultant activation of the default room lighting scene of the PIR.

**'Grab extra time'** enables users to extend their booking which they may expect to overrun, if available. Booking information is accessible to users from the in-room Crestron touch panel, which provides the 'Grab extra time' option. If extra time is unavailable for the current room, the user is provided options for nearby rooms on the same floor.



## **BUILDING CONTROL INTERFACE**

In-room Crestron touchpanels in meeting spaces provide environmental control, including temperature and lighting control providing a target temperature and actual temperature for intuitive user interaction.

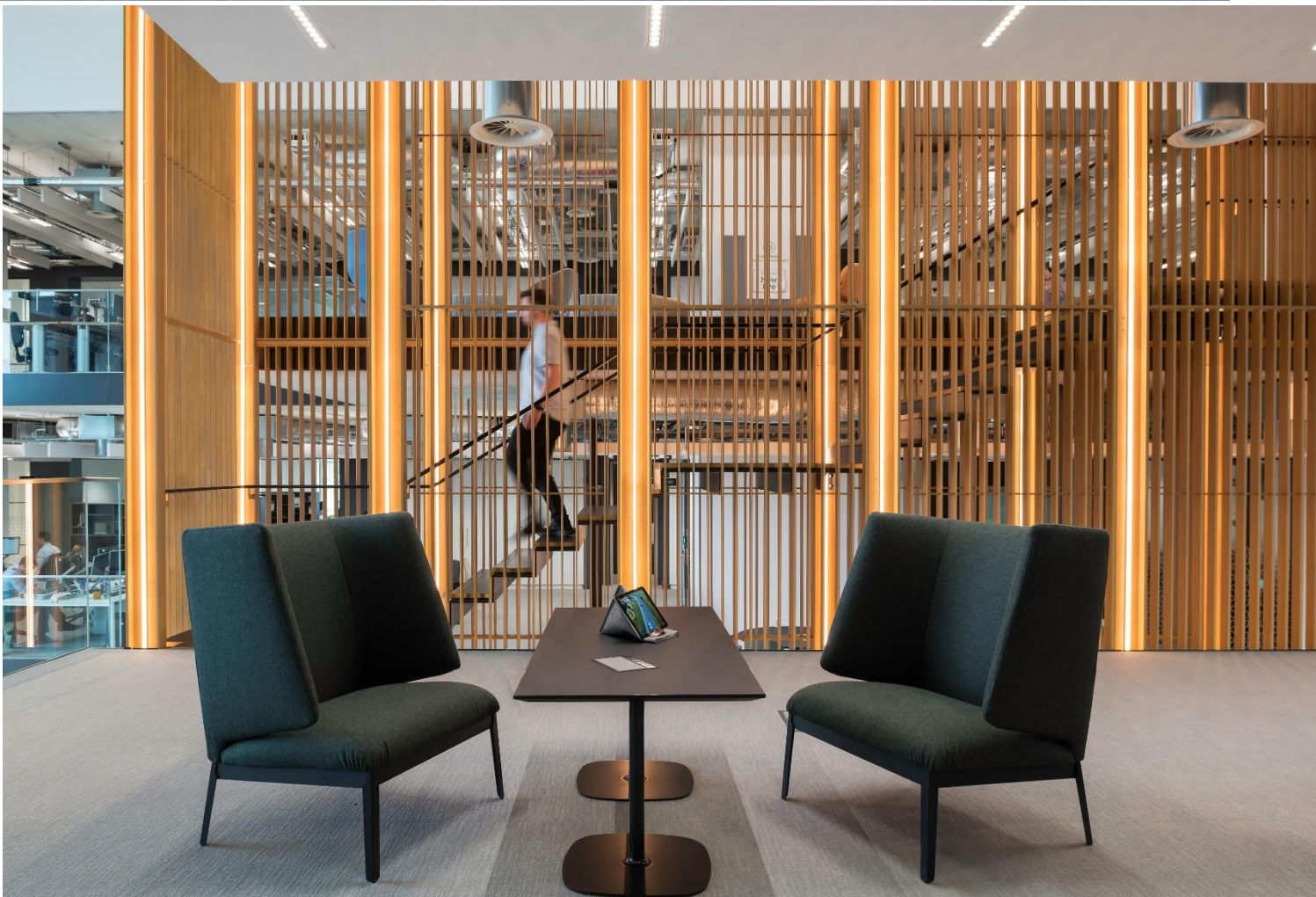
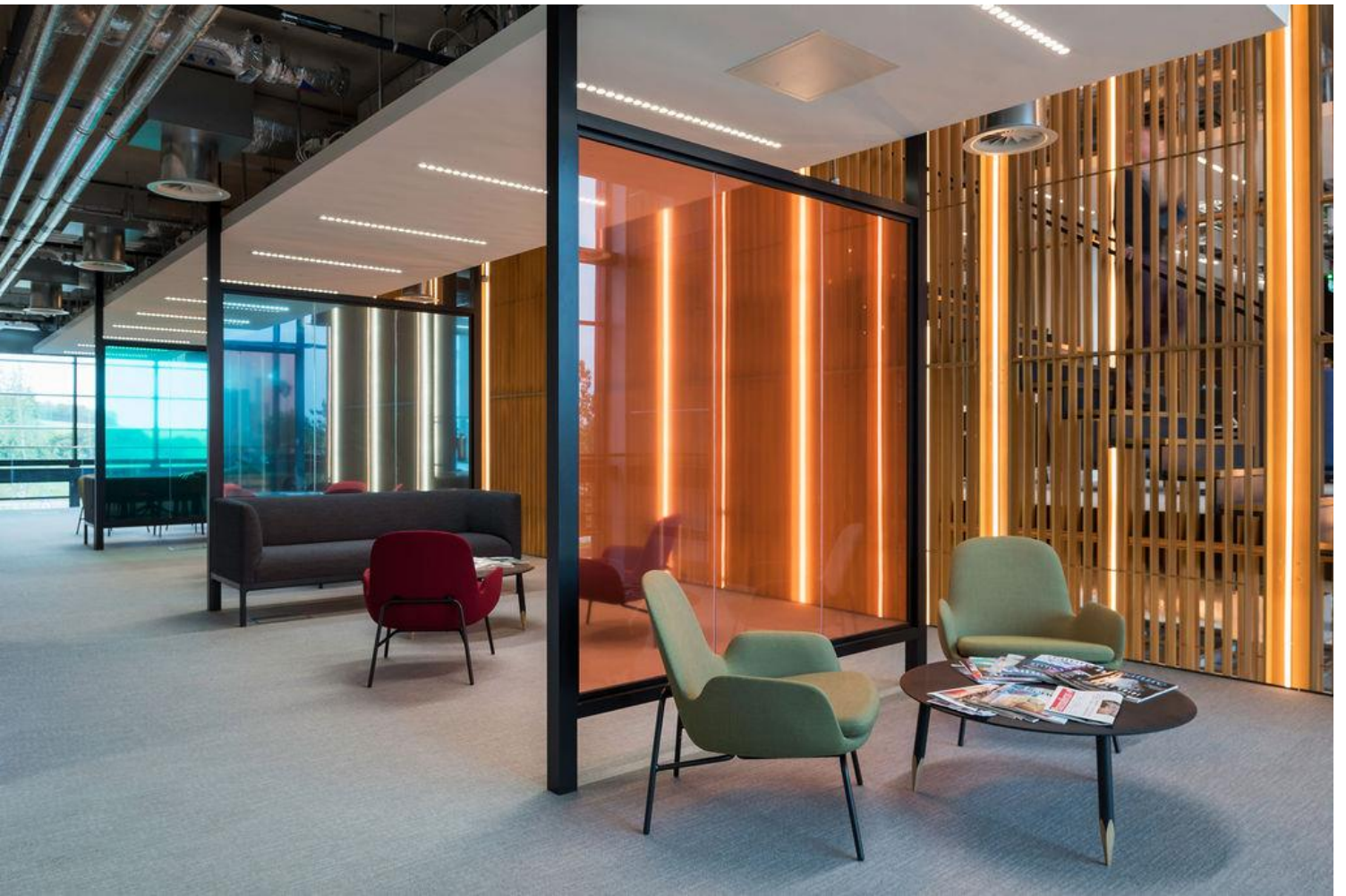
For lighting, simple up/down dimming control and room scene presets are provided for up to 6x scenes such as presentation, full, high, medium, low, off.

The building control processor within the equipment racks natively address the Building Management System (BMS) with BacNetIP protocol commands, to effect the above functionality by simple preset recall over IP.

## **MANAGED SUPPORT SERVICES | 3-year contractual agreement**

The Snelling Support Plus plan is customised to meet Abcam's individual requirements, which include proactive remote monitoring and helpdesk support, dedicated account management, periodic preventative maintenance visits, reporting and room-wise trends analysis, as well as under 4-hours on-site response.







**"I will take a minute and personally thank the Snelling Business Systems team for playing the critical part in completing one of Cambridge's most advanced facilities. The building draws our three facilities across Cambridge into one building, which is an integrated HQ office and research facility with major dependencies in the Cambridge Biomedical Campus.**

Upon tendering our cutting-edge project, we could only identify a handful of AV integrators that could deliver our intelligent building vision. From the outset, Snelling Business Systems stood out from the competition and have proved their worth.

Abcam operates a very high degree of internal meetings (between offices worldwide), these are carried out with Skype for Business. In our old buildings we had 14 AV enabled meeting rooms which were always fully utilised. The new HQ has delivered 43 AV meeting rooms all integrated into our Active Directory with each room also having an external booking Crestron screen to allow staff to see at a glance if the room is free or booked.

The AV solution delivered three large 'board room' type rooms holding 30 with the option to break out to outside to room and to other locations throughout the building. This ability has given Abcam the opportunity to deliver our leadership (CEO) messages ourselves without the need to employ external companies. Other aspects of the project have also been received very well:

1. Wayfinding – these are located outside of each lift as well as key locations across the floors (i.e. reception)
2. Exterity Perimeter information screens – each business location has a number of wall screens associated with them for either local department information or used to deliver a global company message.

The project solution involved the delivery of 'cutting edge' if not in some cases 'bleeding edge' technology, which have been received very well by employees.

With the construction of a new building things can go wrong and be delayed very quickly, often without any notice, always Snelling Business Systems worked with us to deliver the flexibility required. These fast track projects carry the potential for large reward but has an equal measure of risk.

As you would expect from a building of this size, we faced many construction challenges, but Snelling Business Systems remained unfazed, focused and committed throughout the installation phase.

During the commissioning phase of the project Snelling Business Systems worked closely with Abcam IT to ensure that any reported faults were dealt with quickly with minimal downtime to the AV room, this can only be achieved with a trusted partnership. We were very impressed by the external factors that we rarely see a company embrace let alone lead as Snelling Business Systems did with their technical know-how, stakeholder management, sustainability and end-to-end project delivery.

I have no hesitation in stating this has been the most inspirational development project we have undertaken with AV and look forward to growing the relationship and technology delivery to our other offices, it was a real pleasure to work with such a diligent professional team of individuals.

**Ian Smith**  
IT Projects Manager  
Abcam

USER  
TESTIMONIAL