Deploying ClickShare in your enterprise

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Table of content

1.	Introduction	4
2.	The ClickShare Experience	5
2.1	Different elements and components of the ClickShare Experience	5
The	ClickShare Base Unit	5
The	ClickShare App	6
The	ClickShare Button	6
Clic	kShare eXperience Management System (XMS)	6
2.2	Walk in, connect, collaborate and conference: the ClickShare Experience explained	7
3.	Set-up and configuration	8
3.1	The Base Unit	8
3.2	The Button	8
3.3	The ClickShare App	9
Dep	loying the ClickShare App	9
End	-user installation	9
4.	Managing the Experience with XMS	9
4.1	XMS Virtual Edge or Cloud: on-premise versus cloud	10
Usiı	ng XMS you get to	10
4.2	Deployment	10
XMS	5 Cloud	10
XMS	6 Virtual Edge	11
5.	Ecosystem	12
5.1	The ClickShare ecosystem explained	12
5.2	Peripherals	12
Aud	lio-Video Peripherals	12
Dis	plays	14
5.3	Integrations	14
5.4	API	15
API	for CS-100(Huddle), CSE-200, CSE-200+, CSE-800	15
API	for CX-20. CX-30 and CX-50	15
6.	Security	17

Barco | Whitepaper

9.	Educate users, tips and tricks	20	
8.	Privacy	20	
Desi	Design for recycling		
Packaging		19	
Material use		19	
Energy efficiency		19	
7.	Sustainability	19	
XMS		18	
Clic	ClickShare Apps:		
Base	e Unit & Buttons:	17	



1. Introduction

With ClickShare, the wireless presentation and conferencing room system for hybrid meetings, we turn any space into a hybrid meeting space and provide a frictionless experience for all participants. From simple screen sharing to running the meeting from a laptop, all it takes is one click. Everyone's part of the conversation, everybody feels welcomed and valued.

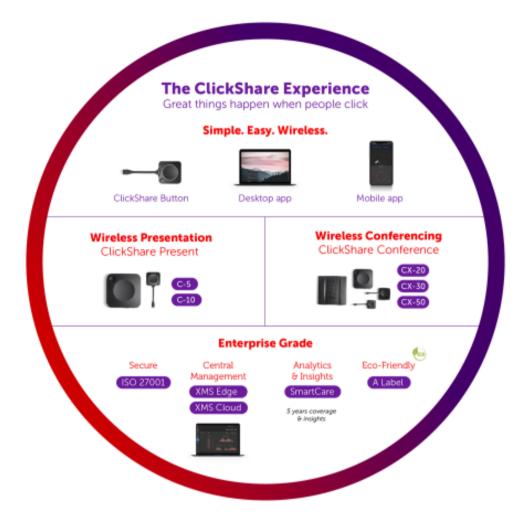
ClickShare Present is a seamless extension to wirelessly share content in your existing meeting room setups, while ClickShare Conference allows you to wirelessly connect to any camera, speaker and microphone while bridging to remote participants through the video service platform of choice. Button or App, plug & play or integrated in your workflows, ClickShare empowers hybrid meetings through the same, simple, intuitive experience.

The goal of this guide is to help you with the rollout and integration of the ClickShare experience in your organization. You will find best practices for setup and know where to find more detailed info if needed

Together we can offer any user, employee or guest the best experience in any type of ClickShare-enabled meeting room, from a small, in-person, ideation room to a large meeting room for remote collaboration.

2. The ClickShare Experience

2.1 Different elements and components of the ClickShare Experience



The ClickShare Base Unit

The Base Unit is the beating heart of your meeting room. There's a model for every type of meeting room, from huddle to boardroom.

The Base Unit is the central system and connects directly with the AV equipment in the meeting room:

- You're connected to the meeting room monitor or beamer for displaying your laptop screen
 or a specific app so everyone in (and outside) the meeting room can see and discuss the same
 data. With a touchscreen (via USB cable) presenters can use touchback, annotation and
 blackboarding on your display.
- The video conferencing peripherals like camera, speaker and microphone(s) so everyone in the meeting room can hear, see and be heard and be seen by the people at the other side of your video conferencing call.



The ClickShare App

The ClickShare App is the software on the employee's laptop that enables a user to:

- Connect to the correct meeting room display.
- Share (mirror) their laptop screen.
- Share a specific program window without pop-ups disturbing the focus of the people in the meeting.
- Connect wirelessly to the AV peripherals in the room for a wireless videoconferencing experience with any UC &C platform (app-based conferencing)

The App is also the software that enables specific functionalities in the ClickShare Experience.

- Walk in and connect: the App checks for ultrasound signals to connect the laptop to the correct meeting room.
- One-click-join: The App searches the outlook agenda to make sure a user can join the correct meeting. It makes sure the meeting link is ready for use with one click.

The ClickShare Button

The ClickShare Button is a combination of hardware and software. Just like a key, it opens the meeting room and provides the ClickShare experience to anyone who plugs in a Button (so including guests who do not have the ClickShare App installed). It gives access to almost all functionalities that ClickShare has in store.

Once a Button is paired with a Base Unit it will automatically connect the user's laptop to the meeting room giving him access to the display and all connected peripherals.

ClickShare eXperience Management System (XMS)

XMS is the backbone of the ClickShare experience and allows to configure, manage and maintain an install base.

XMS is available as an on-premise, Cloud and Hybrid solution to ensure full flexibility and seamless adoption. XMS can be installed as a local Virtual Machine (XMS Virtual Edge) or used as a cloud-based SaaS solution (XMS Cloud). The hybrid solution consists of XMS Virtual Edge and XMS Cloud unifying the communication with only a single point of communication.

The XMS Cloud Management Platform offers the ultimate solution for IT managers deploying or owning a large install base of ClickShare wireless collaboration devices. It provides an easy -to-use interface for remote and reliable device management to guarantee the user experience and brings useful analytics to drive the Digital Workplace.

The XMS Management Platform allows to monitor and manage the latest ClickShare devices within an environment. XMS Cloud is the ideal companion to get worldwide access to an install base.



2.2 Walk in, connect, collaborate and conference: the ClickShare Experience explained

Whether you or your users choose the plug and play simplicity of the Button or the advanced workflow integration of the App, the experience will always be easy, simple, and wireless: The ClickShare Experience.

Users of the App can "walk-in and connect" to any meeting room thanks to PresentSense, which is based on ultrasound technology. This means that when users step into a meeting room, the App on their laptop knows in which room they are. A single click connects them to the correct meeting room and they're ready to use whatever is connected to the Base Unit: from a simple display to a fully-fledged videoconferencing set-up with external speakers and microphone.

Guests and users can use the ClickShare Button to connect to the room, independently of its configuration. The moment they plug the Button into their laptop, they're automatically connected to the correct meeting room, its display and peripherals, allowing them to start collaborating instantly.

The combination of the Button in the room and the App on the laptop ensures that whoever walks into the meeting room and whatever the setup is, they can connect easy and enjoy the ClickShare Experience.

3. Set-up and configuration

These are the aspects you should be aware of when deploying ClickShare in your organization. Following these best practices will ensure a great user experience and easy management of all deployed components.

3.1 The Base Unit

Once you've found the right location for the Base Unit within a meeting room, you'll need to connect the network cable, power, and peripherals. Ensure the Base Unit is accessible through your corporate network, to greatly improve the end-user experience when using the ClickShare Apps and BYOD protocols, but also to be able to remotely configure the device. Ideally devices have internet access, allowing hassle-free updates and central management through XMS Cloud (see below).

The next step is to browse to connect to the Base Unit from your laptop and run through the ClickShare Configuration Wizard. This will allow you to:

- · Choose how you want to keep your device up to date
- · Personalize the device so that users can easily recognize and connect to it
- Set the security level that matches your organization's needs
- Register the device in XMS Cloud to receive extended coverage through SmartCare On completion of the wizard, your configuration will be applied.

Network integration:

The ClickShare Base Unit offer a wide variety of networking possibilities with different integration options. All details, settings and options can be found in this network deployment whitepaper

3.2 The Button

Now that the Base Unit is completely set up, you can start preparing the use of the Button. The only thing you need to do, is pairing the Button to the Base Unit. You can do this by plugging in the Button into the USB-C port of the Base Unit. At this point your ClickShare set-up is ready to use.

To use the Button, you simply plug it in into your laptop. At this point the autorun starts the App on the Button and immediately connects to the correct Base Unit. In case that you are in a conferencing room with a ClickShare Conference system, the meeting room peripherals are now also connected to the laptop, and ready to use with the UC&C app of choice.

The Button has some unique benefits:

- It can be used by any user, employee, or guest, as the laptop connected with this Button does not need to be on the network.
- It is highly secure to use because there is a 1-on-1 connection between the Button and the Base Unit. This means that no data travels over corporate networks.



• It doesn't require any installation on the laptop and doesn't leave any software, virtual drivers, or services on the laptop after removing the Button.

The Button exposes itself as a CD-ROM drive to a computer so even if a company has a strict no USB-sticks or USB-drives policy the Button still will work perfectly on employees' laptops.

3.3 The ClickShare App

By deploying the ClickShare Desktop App to all laptops in an organization, you make sure users enjoy the full ClickShare Experience both with and without the Button.

For users preferring the plug and play simplicity of the Button, the installed App will ensure they can start their meeting even more quickly and that they can always benefit from the latest improvements to the ClickShare Experience.

Deploying the ClickShare App

By using the machine-wide installer package (MSI) for large scale deployments you have the following advantages:

- Deploy to all corporate laptops through your software deployment solution (Microsoft SCCM, Microsoft InTune, ...)
- · Choose the installation path and settings matching corporate policies
- Install the App for any user logging on to a corporate laptop
- Enable App-based Conferencing for all users

Once deployed, the ClickShare App will keep itself up-to-date by downloading and installing any new release or hotfix automatically.

The machine-wide installer (MSI) can be found at www.clickshare.app. Details on how to deploy the App across your organization can be found in this knowledge base article.

End-user installation

When using the Button without having the ClickShare App installed on the laptop, the user will be prompted to install the ClickShare App. This does not require elevated admin rights and installs the ClickShare App only for the logged-in user.

However, this does not install App-based Conferencing and doesn't allow you to control the installation options, which is why it is not recommended to rely on this in large enterprise environments.

4. Managing the Experience with XMS

Every great experience needs to be managed and maintained. The XMS Management Platform helps to monitor, manage and maintain ClickShare devices within your install base. Make sure to define upfront if your environment is on-premise, Hybrid or Cloud only to get the most out of the set-up.



4.1 XMS Virtual Edge or Cloud: on-premise versus cloud

"XMS is available as an on-premise, Cloud and Hybrid solution to ensure full flexibility and seamless adoption. XMS can be installed as a local Virtual Machine (XMS Virtual Edge) or used as a cloud-based SaaS solution (XMS Cloud). The hybrid solution consists of XMS Virtual Edge and XMS Cloud unifying the communication with only a single point of communication."

XMS Virtual Edge on-premise offers the frequently used option of covering customer challenges with a standard software as a central component. However, this is often accompanied not only by considerable costs for the adaptation and implementation, but also by the risk on the part of the customer.

The opposite model is software as a service (SaaS) which is represented by XMS Cloud, including the operational and maintenance responsibility on the part of Barco. Adjustment options are also available here but are already being implemented as part of the service. While with on-premise the Integration and thus considerable burdens lie with you, predominates XMS Cloud with its free offer, which in addition to software also covers hardware, operation, management costs and maintenance.

Every IT system must process and persist data. In the on-premise case, this data is still with you as well as the responsibility that goes with it. If XMS Cloud is used as a cloud service, the data is on Barco's system and is protected by numerous appropriate mechanisms.

Using XMS you get to

- View the status of all your connected Base Units
- View the installed firmware versions on your Base Units
- Schedule firmware updates whenever suits you
- Do mass config changes
- Have insights into the usage of your meeting rooms

4.2 Deployment

XMS Cloud

WithXMS Public Cloud, we make our IT infrastructure available to the general public. That means everyone can get access to XMS Cloud via a normal internet connection. XMS Cloud is hosted off-premises, i.e. not in your company, but in Barco's data centers. We rely on well-known and established providers such as Amazon Web Services (AWS), Microsoft Azure Cloud.

For the deployment of XMS Cloud you only need a user account and your tenant information. Proceed as follows to get started. You will need to take the following steps. If you do not have a myBarco account yet, first go to www.barco.com and create one. Once your account creation is completed, you can proceed to www.xms.cloud.barco.com and set up your tenant.



That's all it takes to deploy and work with XMS Cloud.

XMS Virtual Edge

Different than with XMS Cloud,XMS Virtual Edge will be deployed and installed on-premises. This means that the software is established within your organization's internal system along with the hardware and other infrastructure necessary for the software to function correctly and allow best experiences.

For the deployment of XMS Virtual Edge you'll need a myBarco account, a VM host and the XMS Virtual Edge VM file. Go to www.barco.com to create your myBarco account. Once you have successfully created your account, you can go to

https://www.barco.com/de/clickshare/support/xms-virtual-edge/drivers and download the required VM image. You will need to take the following steps.

Open your VM host and import the previously downloaded VM file. Ensure connectivity is given to Base Units but also to the internet to download firmware updates.

5. Ecosystem

5.1 The ClickShare ecosystem explained

ClickShare Conference comes to life when paired with the most appropriate peripheral for your specific situation. Barco is partnering with 50 peripheral vendors and has over 330 validated peripherals.

The Alliance Program consists of

- Product validation between the Partner peripheral(s) and ClickShare
- Aligning the Barco and Partner product roadmap
- Creating common marketing collateral explaining the specific value and features of the combined solutions

The results are reflected on the ClickShare Alliance Partners website. The list of working peripherals given on the supported peripherals overview page is a non-exhaustive list of USB cameras, USB speakerphones, and touch panels that have been tested by the ClickShare and/or the partner's teams. This list is divided into three categories:

- Certified peripherals: these devices are validated (tested firmware is mentioned) through our partnership program by both Barco and the partner every time we release a firmware version. This is the list of devices that we actively support through our vendor partnerships and are the recommended devices to use in combination with ClickShare Conference.
- Compatible peripherals: these devices have been tested by our compatible partners (tested firmware is mentioned if info is available) and have been found to work. Compatibility of the devices will be tested from time to time.
- Community tested peripherals: these devices have been reported to work by one of our customers or channel partners. No guarantee is given by Barco that these devices work perfectly or will continue to work in the future and or that these will be actively supported when issues arise.

In case the peripheral is not mentioned by name, there is still a good chance that it works, since we support the generic USB standards, but no guarantee is given by Barco that these devices work perfectly or will continue to work in the future and will not be actively supported when issues arise.

More information about the compatibility, capabilities and restrictions of the ClickShare Conference system with third party peripherals can be found here: [KB11027]

5.2 Peripherals

Audio-Video Peripherals

ClickShare Conference supports a variety of audio-video peripherals. For an audio-video



peripheral to be compatible with ClickShare Conference, the following rules must be followed:

- USB 2.0 devices are supported
 - HDMI cameras are supported via HDMI to USB converter
 - Audio devices must be connected via USB
- USB 2.0 power is supported
 - Devices that require more power can be connected via USB-C connector or powered USB hub
- Speakerphone devices with echo-cancellation built-in
 - · Microphone and speaker must show up as same name
 - Devices that are not supported:
 - Separate microphone and speaker (even when connected via USB)
 - Microphone in camera (without being part of a speakerphone)
 - Microphone in display (without being part of a speakerphone)
 - Audio over HDMI for conferencing
- One camera and one speakerphone can be connected
 - As separate devices or integrated as "all-in-one"
 - If multiple devices are required, connect these via an USB switch and make sure only one camera and one speakerphone is active at any point in time.

More information about the compatibility, capabilities and restrictions of the ClickShare Conference system with third party peripherals can be found here: [KB11027]

Barco allies with top players in their fields of expertise to build the best solutions available. The specific categories that are currently supported are:

- All-in-one USB Audio-Video device: before looking at any other solution, Barco recommends
 investigating if there is an appropriate device in this category since these are the easiest to
 deploy. Just plug in one USB cable into ClickShare Conference, and you have a working
 solution. There are great solutions in our certified and compatible list including capabilities
 such as autoframe, acoustic fencing, etc.
- Camera: if the all-in-one camera cannot satisfy the requirements, then we have a long list of PTZ and other cameras.
- Speakerphone: these cameras can be paired with a speakerphone (integrated mic and speaker). There are many solutions from small speakerphones for small rooms to high-end systems for much larger rooms.
- DSP-Audio and DSP-Audio-Video: these DSP systems are intended for the higher-end rooms
 where quality is of utmost importance. Some can also be combined with switching capabilities
 so that the AV system can be switched between ClickShare Conference for agnostic laptop UC
 and PC room system like MTR (Microsoft Teams Room) or Zoom Room systems
- USB Adapter/Processor: to further build specialized solutions, we have a number of USB adapters and processors, e.g. to convert HDMI into USB, or switch between multiple USB inputs.

The validated peripheral page allows searching on a search term or use the filter to check out which solutions have been thoroughly tested to work seamlessly together with ClickShare Conference.



Displays

We test and list these categories of displays:

- Touch displays: displays with touch capabilities enabling interactive ClickShare capabilities: touch back to the laptop, annotation on top of shared content and blackboarding
- AV displays: displays that include camera and speakerphone, hence mainly and "all-in-one USB Audio-Video" experience integrated inside the display
- Collaboration displays: these are typically the Windows Collaboration Displays (WCD) that have touch and AV capabilities integrated. A single USB connection provides touch and audiovideo functionality. The content to the display is delivered over HDMI.

5.3 Integrations

ClickShare developed modules to control the Base units via TCP/IP for Crestron, Extron and AMX equipment. These modules allow communication between room devices and ClickShare for the integration of ClickShare with existing room control equipment.

The supported functionalities are:

- ClickShare status, version, login, IP addresses, ...
- Display control (in/out standby)
- Button info

The following modules are available:

• Crestron: available to download from Crestron Application Market

CS module	Note
Barco ClickShare CS v2.0	Works only with Crestron Device Database version earlier than 200.x.x.x This module works with ClickShare CS(E) devices
Barco ClickShare CS v4.0	Works only with Crestron Device Database version earlier than 200.x.x.x and later This module works with both ClickShare CS(E) and CX devices, there is a small parameter in the module to define which generation device you're using.

Extron: NAAMX: NA



5.4 API

ClickShare can be integrated with 3rd party systems through a REST API. This API is available on all models, but the API is different between CS(E) models and CX models.

API for CS-100(Huddle), CSE-200, CSE-200+, CSE-800

The API for CS(E) models is referred to as the V1 API. The specification for this API can be found here.

The default username and password are integrator/integrator and can be changed in the web Configurator under Security > Passwords. Make sure the **Remote control via API** is enabled in the web configurator under Wi-Fi & Network > Services.

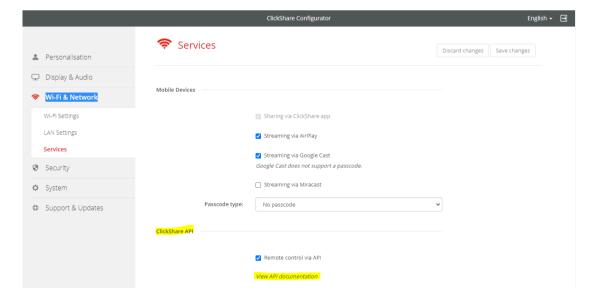
To integrate the ClickShare CS(E) models with control systems, specific modules can be found on the respective vendor's website. More information can be found in [KB8505]

API for CX-20, CX-30 and CX-50

The API for CX models is referred to as the V2 API. This API is only available for the CX models, which do not support the V1 API spec. Note that this API is only available as of firmware update 2.5. Make sure Base Units are up to date at all times.

The specification for this API can be found in the web configurator of the device. To access the configurator, see [KB11142]. You will find the spec under Wi-Fi & Network > Services. Make sure the option **Remote control via API** is enabled to use the REST API.

Click on **View API documentation** to access the swagger interface.





In the V2 API, the username and password have been unified with the web configurator's credentials. The default username and password are admin/admin and can be changed in the Security > Passwords section of the web configurator.

To integrate the ClickShare CX models with control systems, specific modules will be available soon on the respective vendor's website.



6. Security

The ClickShare development teams follow the Software Development Life Cycle (SDLC) process, and during the initial stages of this process the security aspect of the ClickShare solution was already accounted for and given top priority. This focus on security ensures that the final product is a very user-friendly collaboration system that is protecting users of the system against malware, corporate espionage and hackers at the same time.

Another important aspect that was taken into account from the early stages of the SDLC process is the privacy-by-design principle which aims to minimize or eliminate the amount of collected personal data (e.g. IP, username, MAC addresses). Barco can proudly state that the ClickShare product line does not store any personal data in any way (log files or persistent memory), nor that any of it is transferred outside of the ClickShare ecosystem. ClickShare users can thus be assured their personal data is not used/distributed.

Barco obtained the ISO 27001:2013 certification at the beginning of 2019. The scope of the certification is restricted to the business processes and infrastructure that relate to the software development, sales, deployment and support of the ClickShare product line. This proves that Barco is not only concerned about security on a product technical level, but also aims to consistently improve information security management of all processes involved in the deployment of ClickShare. Barco is engaged in the thorough procedure of getting ISO certification for its processes as a whole, aiming to confirm its leading market position in terms of security in the market of wireless collaboration and conferencing technology.

Next to this certification there are a lot of security features built in in the ClickShare eco-system.

Base Unit & Buttons:

- Debug interfaces closed on Base Unit and Button
- Secure boot on Base Unit and Button
- Encrypted filesystem with device specific key Base Unit and Button
- Encrypted communication (TLS) between Base Unit and Button
- Unique device certificate for Base Unit and Button
- Secure (auto-)update
- 3 Security levels to fit corporate security policies
- Extensive logging capabilities

ClickShare Apps:

- Signed app
- Secure upgrade
- Desktop app running with non-privileged permissions (except for Conference drivers)
- Mobile app runs with limited permissions
- Encrypted communication (TLS) between App and Base Unit



XMS:

- Link with Barco CIAM (myBarco account)
- Role and user management
- XMS Audit logs
- Base Unit and XMS Edge connectivity based on Azure IoT Hub security features
- Based on rigid cloud infrastructure with security best practices in place

More details concerning security can be found on our ClickShare Security Whitepaper: https://www.barco.com/en/support/docs/tde10355



7. Sustainability

There are a lot of things to keep in mind when equipping meeting rooms for the hybrid workplace: ease-of-use, efficiency, security, ... Another one to think about: sustainability. How do you make sure the choices you make for your hybrid meetings are eco-friendly? Choose future-proof solutions that carry out your sustainable company values in every aspect of the workplace, certainly also in your meeting room tech.

ClickShare takes care of your smooth wireless presentation & conferencing and likewise of the environment. All our devices are designed in an eco-friendly way. We continuously look into ways to improve energy efficiency, the use of durable materials, renewable packaging and the end-of-life of our products. Since the launch of ClickShare Conference we've made significant improvements in all areas! That's why all our ClickShare products, without exception, now receive an A-label in the Barco ECO-score.

Energy efficiency

All our ClickShare products are optimized for energy efficiency. Our Base Units comply to the strictest requirements for standby mode: it won't eat away at your electricity bill, which also reduces emission.

Material use

We pay close attention to the materials used in our products: choosing for non-paint plastics and opting for halogen-free PCB where possible. We also focus on using recycled materials, all our manuals are printed on recycled paper but also the products themselves use recycled materials. From Button to Tray: every component uses up to 30% recycled materials.

Packaging

Packaging is probably the least exciting thing about getting new meeting room tech: you throw it out right away and plastic packaging just ends up polluting the ocean. That's why ClickShare now uses sugarcane packaging. Sugarcane is a renewable resource: it's fully recyclable and can be reused several times. Moreover, it's biodegradable in a matter of months, so it doesn't contribute to pollution and waste. We also strive to make our packaging as light as possible and our shipments are done by ship which reduces the shipping cost and carbon footprint of our products.

Design for recycling

From the very beginning, already at the design stage, we keep in mind the end of life of a product. We make sure all parts of our products can be disassembled easily, which makes it easier to recycle them. Moreover, we offer a ClickShare Trade in Program where you can return your old ClickShare solution in exchange for a big discount on your new device. No need to worry about recycling: we take care of it. We make sure all materials are reused or recycled correctly while you are already enjoying your new ClickShare device.



8. Privacy

The ClickShare Conference and Present product lines do not store any personal data in any way (log files or persistent memory), nor is any of these transferred outside of the ClickShare ecosystem. ClickShare users can thus be assured their personal data is not used/distributed, aligned with GDPR regulation.

The privacy of the data on the meeting room display is protected by two functionalities:

- You can activate a pin code so only the people within the room can connect to the Base Unit
- If anyone uses the "View Room Display" functionality in the app, a red eye symbol is shown in the status bar of the meeting room display.

9. Educate users, tips and tricks

As with any successful integration of new hard or software into your company, the key to success lies within educating users. You can have the most fantastic products available to them, if they do not know how to use them correctly, you will have a very limited return on your investments. A few tips and tricks to help you educate users:

- Try to achieve the same workflow for any type of meeting room in your enterprise. From a small offline collaboration room to the biggest boardroom, ClickShare has the matching solution for your needs. We incorporate the same recognizable workflow for all spaces and use cases.
- Make sure the capabilities of the meeting room are clear. This begins with a correct calendar and room booking solution where the user knows which type of room, he/she is booking.
- Give your users training material. The basic working of the Button to start normal screensharing is very easy and will not need any extra info. However, ClickShare incorporates more possibilities than this. To get the most out of your systems you can refer your users to the Barco TV YouTube channel. They will find a lot of interesting functionalities, explained in the easiest way.
- Train the IT helpdesk. Make sure they are ready for whatever question users can have.
- It's also a good idea to have a short, to-the-point user manual in the room as a backup. This way, the user will feel more at ease and more confident.

Your IT/AV partner will also have some good examples and tips for all of the above tips and tricks. Do not hesitate to contact them, or Barco, of you have any questions.

