AUDIO VISUAL TECHNOLOGY SOLUTIONS FOR AN INTEGRATED WORLD

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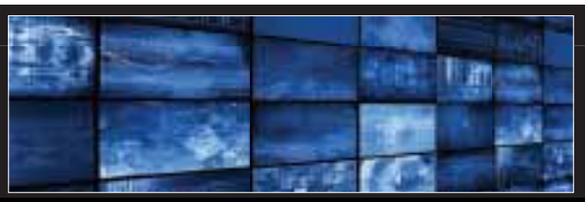

Sign of the times
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Money talks:
Bank invests in boardroom audio

How do you take a small boardroom and enable it to be used for a variety of purposes while maintaining perfect speech intelligibility for all? Nial Anderson sees how Danish integrator Stouenborg achieved this goal.

Sound financial decisions

A simple glance at the newly refurbished boardroom of the Jyske Bank in Denmark reveals an attitude and approach not typical of a financial institution. With its warmth and vibrancy of colour, lighting and design, the room looks more like something you would find in a creative media agency in California than a bank in Europe.

The bank was already using the building in Silkeborg and integrator Stouenborg's brief was to turn a room on the top floor which had been used as a classroom for the bank's IT staff into a modern conference room and auditorium.

> *"The client said his dream was that nobody would notice the system unless they looked up at the microphones and speakers and wondered what they were for."*
> *- Anders Jorgenson, Stouenborg*

"I met with the client in the summer and we started off by talking about how people in a boardroom can communicate," said Anders Jørgensen, a partner at Stouenborg.

"We looked at how problematic communication can become in an environment like a boardroom when you need to use it for many different things.

"You have a long table because you need all these members to hear each other, but on the other hand you would like smaller tables for group discussions and presentation areas and sofa lounges to have business conversations in more relaxed and comfortable ways.

"But you can't have variable acoustics in a room like this either because it's too difficult to do manually or too expensive by using drapes. So we came up with the idea with Meyer Sound that its Constellation system could probably be used as a combination of a lot of systems."

He added: "The client said his dream was that nobody would notice the system unless they looked up at the microphones and speakers and wondered what they were for."

Jørgensen explained that while Meyer Sound's Constellation system had been used in restaurants, sports venues and concert halls, it had never been used in such a small environment with the aim of delivering a variety of purposes.

The Constellation system was deployed here to ensure reflected sound contributes to, and does not detract from overall speech intelligability in the room no matter what purpose it is being used for.

The system installed in Jyske Bank consists of 25 DPA microphones installed across the ceiling of the boardroom, alongside 64 speakers with an equal distance between one another so they are spread out across the whole room. The microphones capture the direct signal from the voices in the room and, with the help of acoustic treatments, sound refelections are optimised for what the room is being used for reflections that fit the room best.

The DPA microphones are among 25 types Meyer Sound has hand-selected for use with Constellation out of 200 that were initially trialled. >

Tech-Spec

Audio

Canford PDUs

ClearOne Converge Pro 840T audio conferencing

DPA 4080 microphones and miniature condenser microphones

Meyer Sound Constellation system, D-Mitri digital audio platform, MM-4XPD, MM-4XP, UP-4XP & Stella-8C loudspeakers and MM-10XP subwoofers

[Left to right] Colourful designs, AMX touch panel and Meyer Sound's D-Mitri

"DPA are very much into how the frequency response of a microphone is – they don't tell that much about the level response," Jørgensen explained.

"With the 200 microphones that were tested at one end it would be -60b and the other would be +60b, so they needed to find the ones that are almost equal in level to have the best solution for equal gain across the whole system."

Jørgensen characterised this project as a large number of calculations and tasks that needed to be completed correctly for the system as a whole to work effectively.

"Microphones and speakers in a Constellation system have to be placed to within an accuracy of 3mm, so everything is placed by DPA's coordinates," he explained. "Every microphone has a unique serial number that has its height, how it's been treated and so on which gives you the history.

"We also had to put rubber plates between the walls and the speaker brackets otherwise you would get resonance into the walls, then back into the microphone. It's all the small things together that make this system complex, and enable it to perform 100%."

Meyer Sound tuned the system in three phases that took around a month to complete due to the unusual application for the Constellation system. Post installation verification - to see if there were any errors in the system or [alterations required such as] microphone levels that needed to be changed, took around a week. More than 500 sets of data then went back to Meyer Sound to be assessed. Finally engineers completed the pre-tuning and voicing that took roughly a fortnight.

"[Meyer Sound] really put an effort into getting these systems perfect," Jørgensen commented.

"This was an unusual use for the system. The room is very small and we had to get the microphones below the level of the speakers. It was also the first Constellation system we have installed in Denmark – there are other companies offering similar systems but the difference is you get a complete package with Constellation. All the speakers and mics come with the system but the mounting brackets had to be specially made because the mounting surface is curved.

"We always do risk analysis before carrying out an installation and something that I didn't think of was that the mounting system for the microphones would take that long to create, and cost as much as it did."

Now when employees come into the room they choose which scenario they want on an AMX touch panel. There is Presentation mode, Q&A mode, Conference Table, Boardroom Table, Small Groups and Reverberation – for use when the bank's choir uses the room for rehearsals.

"It is a wide range of uses," explained Jørgensen, "For instance Small Groups is where you want to talk to each other and hear each other perfectly, but exclude the noise that's around so you don't actually hear what the people on the table beside you are talking about. We wanted to achieve complete and perfect speech intelligibility for the people that are across the table form each other.

"The Presentation mode is more typical to what [Meyer Sound has] done in the music halls where you amplify and you can hear what is happening everywhere.

"The really beautiful aspect of this room is when you have question and answer sessions. You are able to have people standing in the front of the projection screen and if they turn and look into the projection screen, say if they are talking, those sitting at the other end of the room can hear them perfectly even though the speaker is not facing them."

While the different scenarios are chosen by the room user, Jørgensen expects the next challenge will be for scenarios to be selected automatically by the system.

As a secondary consequence of the install, the room is now perfectly equipped for video and audio conferencing (the former with use of already installed equipment).

Although Stouenborg had been called in to install AV equipment elsewhere at the bank before, this project was limited to changes in the boardroom. Jorgensen and his team installed the sound system and other equipment, such as the touch panels and projectors, were installed by integrator AV Center.

Non-audio equipment in the boardroom including a back projection set up in line with the client's wish for technology to be almost invisible, and exist only in the background.

AV Center deployed a DNP Zenith 120" rearpro screen with a DNP mirror due to lack of throw distance behind the screen.

Jørgensen credits the excellent feedback Stouenborg has received on Jyske Bank, on the bank very proactive in making sure its employees know how to use the system properly and make the most of it.

"People are overwhelmed that the system works this well and that people are able to hear each other perfectly in all the different scenarios," he said.

"The bank's choir that use it for rehearsals are extremely happy because they don't have to stand in a small room in the basement that sounds horrible, they can be in this room and hear each other perfectly.

"Everyone is thrilled that they took the chance to install such a system in an auditorium, in a bank, which you wouldn't normally associate with it."

Jørgensen said the client had presented the system to his board members by turning the system on and letting all the people into the room.

"When they had been there for 30 minutes talking about the microphones and how it was done somebody asked 'can we hear it?'" he recalled.

"The client replied 'no – but I can tell you how it sounds when I turn it off.'

"When he did so everyone was stunned at the difference."

Tech-Spec

Video

AMX MXT-1000 10,1" touchpanels, DVX-3156HD 10x4 presentation switcher, MXA-MPL-300 Multipreview AVB-WP-Multi-DXLink input wall panel, and input box, AVB-RX-DXLink-HDMI and NXV- 300 virtual touch panel

Canon WUX4000 projector

DNP Zenith 120" rearpro screen and single mirror kit & stand

Extron DXP44 matrix, DTP-HDMI TX/RX kits and SSP 7.1. surround processor

Panasonic AW-HE60 camera

Samsung ME-55 monitors 55" andME-40 monitor 40"

Tandberg C20 Video Conferencing System

Yamaha BDA-1020 Blu Ray player