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# INFOTAINMENT - THE HIDDEN GEM OF THE PRO AV INDUSTRY

Installation:
AV Media Enhances Hybrid Learning Experience at NTU Nanyang Business School

Commentary:
The Ingredients of Tech Innovation

Interview:
Generation AV India Looks to Empower Indian AV Market with a Strong Focus on Technology and Partnerships

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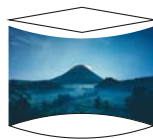## LED display solutions for xR and virtual production
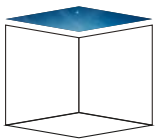
Ceiling
AR Series

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- High-performance
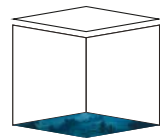- Front/Rear maintenance
- Indoor and outdoor application

Flat Background
DB Pro S8 Series

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> " It is estimated that by 2030, Infotainment as a whole., across various industries is expected to comfortably cross the USD180 billion mark, with a CAGR of over 10.9%. Asia, in particular, has emerged as a major force driving the growth of Infotainment, as the region accounts for approximately 36% of the global market "

Our Feature column touches on Infotainment which has emerged as a hidden gem to date, and retained its 'wow factor'. It continues to captivate audiences and redefine how content is consumed and experienced. We delve into the world of Infotainment, exploring its different facets, the role of professional AV technologies, and some of the notable trends shaping this rapidly expanding sector. Our Interview column sheds more light on the modus operandi of Generation AV India, which commenced formal operations in January this year. In our Commentary column, Neil Colquhoun, Vice President – CISMETA, Epson, outlines the recipe for success for organisations looking to nurture innovation.

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The Ingredients of Tech Innovation

Living in world that is increasingly driven by technology, success of any business means the ability to innovate and usher in new, novel formats of technology. Innovation, however, doesn't just mean anything new, but the one that creates and leads a new dynamic; it requires certain ingredients to fill in before getting acknowledged as such, and offer opportunities of growth. Neil Colquhoun, vice president – CISMETA, Epson, outlines the recipe for success for organisations looking to nurture innovation.

NEIL COLQUHOUN
vice president
CISMETA, Epson

Time only moves in one direction, and with it we must keep evolving. Technology has become central to our development as a species and is likely to remain so. In an upturn, people invest in it to grab market opportunities. In a downturn, they invest in it to drive efficiencies and minimise costs.

If we are to address the world's social, economic and environmental challenges, we need to draw on our best resource. Innovation. Those who can sustainably harness technological innovation will be the winners in the future. There will always be room for new ideas and solutions, enabled by technology.

But this begs the question; how can organisations around the world nurture innovation?

There is no silver bullet, but there are some simple steps that can help. Here are some of the key ingredients for an organisation to consider:

Have a Focus
Innovation works best when there's a problem to solve and a brief to meet. This doesn't mean being restrictive, it's about knowing the result you need to achieve. Unfortunately, some organisations that commit to innovation end up falling into a trap that leads to little to no impact. This is because they don't take the time to define the problem they are seeking to solve, or put in place the right level of focus to sort through and manage ideas.

Many assume that just because chaos and creativity are friends, unconstrained efforts will lead to ideas that set the world on fire. But, innovation is something different. It creates value. As Steve Jobs once said, "People think focus means saying yes to the thing you've got to focus on. But that's not what it means at all. It means saying no to the hundred other good ideas that there are. You have to pick carefully. Innovation is saying no to a 1,000 things."[1]

The more you focus your innovation efforts, the greater the chance that you will come up with a

creative solution. For Epson, innovation is meeting its customer needs sustainably. Through the development of its Heat-Free technology, Epson has helped organisations to reduce their environmental impact by providing products and services that are built around efficient, compact, and precision technologies, with reduced energy consumption and increased accuracy and performance.

Have a Foe
Competition is a key enabler of innovation. Fundamentally, it forces organisations to innovate through differentiation when it comes to their product offerings and business models. Tech is rapidly evolving, and industry frontrunners are battling it out to adopt more efficient production processes, and to offer new and improved products and services to customers.

At Epson, one example of this differentiation is our focus on inkjet printers over laser. Having recently announced that it will halt the sale and distribution of laser printers by 2026 owing to environmental concerns, the business aims to eventually displace laser altogether.

In fact, switching from laser to inkjet printers could halve printing-based global energy emissions, delivering global electricity savings in excess of 2,240 GWh per year, equivalent to approximately 1. 3 million metric tonnes of carbon dioxide annually, which is the amount produced by 280,175 cars driven for one year[2].

Invest in Knowledge and Training
The global investment in research and development (R&D) is staggering. In 2019 alone, organisations around the world spent $2.3 trillion on R&D – about half of which came from industry and the remainder from governments and academic institutions[3].

Investment in R&D yields the critical technology from which organisations can develop new products, services, and business models. But for R&D to deliver value, its role must be woven centrally into the organisation's mission.

R&D staff need STEM skills – now and in the future – and these need to be valued. To foster innovation, organisations need to allow employees to explore and learn new skills and understand the cutting-edge developments in science and engineering[4].

A Catalyst
Given the highly complex, uncertain and dynamic environments facing organisations nowadays, it is more important than ever to adopt an innovative mindset. Innovation needs to be a priority and for that to happen, you need a catalyst: a source of inspiration to others, a champion for new ideas, and a force of creative energy.

But a catalyst can both be tangible and intangible. Whether it's a structure, a leader or a plan that sparks people into action, someone or something needs to begin the chain.

Collaboration
For innovation to thrive, it needs an environment that champions experimentation and the co-creation of bold and visionary new ideas. Few organisations can do this alone. There needs to be an increased collaboration between businesses, academia and the public and third sectors.

Having a genuine culture of collaboration can help organisations define and refine their mission. For example, Epson is breaking its long-established structures to drive more collaboration within and beyond its business. Epson launched Epson X in 2020 - a dedicated venture capital innovation fund to

accelerate collaboration and open innovation. It aims to combine Epson technology with other know-how to solve societal issues around the globe.

As part of a collaborative consortium Epson has contributed to the development of Pararesin, a new form of bioplastic that uses paramylon, a stored polysaccharide in Euglena algae[5]. The consortium aims to supply approximately 200,000 tonnes of this marine-degradable, biomass-derived plastic annually by 2030 as a practical alternative to conventional plastics.

Execution

A great idea is nothing unless the structure exists to realise it. A lot of organisations encourage innovation, but they don't actually take the plunge and follow through on the new ideas that come up, so they never get to see how they function in the real world.

For innovation to be successful, operations, manufacturing, processes and organisational structures need to be in place. This includes having the right teams and tools, supported by effective collaboration and decision-making as innovation progresses from idea to selection and then execution.

Those who execute tactfully in the areas mentioned above will enable their organisation to perform at the highest level with the best chance of success. While 'ideation' might be the most recognisable and 'glamorous' part of innovation, ideas go nowhere without execution.

Innovation rarely happens by chance – there is no shortcut and no substitute for the factors that lead to it. To navigate this complex path requires organisations to follow the recipe, building the right ecosystem and taking a strategic approach

to identifying, then backing and supporting the innovations of the future.

Those who get it right, will be the ones that reap the rewards.

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Generation AV India Looks to Empower Indian AV Market with a Strong Focus on Technology and Partnerships

The Generation AV team with David McKinney (second from right) and Prashant Govindan (first from right).

At the PALM Expo 2023, Generation AV proudly affirmed its commitment to the Indian market with the first official presentation of Generation AV India. Based out of Mumbai; Generation AV India is registered as a private limited entity with David McKinney and Prashant Govindan as partners. The company was formed in October 2022, and formal operations commenced in January 2023.

The two partners, David and Prashant, confirm that while Generation AV, Singapore was formed with the intent of providing manufacturers a representative office in the Asia Pacific region; Generation AV India

was formed as a value-added distribution firm to provide support to the existing distributors of brands such as Martin Audio, Optimal Audio and IPORT in India and also directly distribute brands such as HH electronics, Sonance Commercial, LEA professional, NST Audio, SurgeX and iMAG systems.

"We started Generation AV in mid-2019 and hit the ground running. Over the years, we have seen business steadily grow in various parts of India, and so we decided that it was the right time to establish Generation AV India, and capitalize on the plethora

of opportunities in the market" comments David McKinney, MD of Generation AV.

The hybrid business model was conceived after several deliberations and feedback from customers, channel partners and system integrators, affirms Prashant Govindan, partner-director, Generation AV India. He firmly believes in India being a fast evolving, diverse market where a one size-fits-all formula may not work as with other markets; and therefore, the company had to align its approach accordingly, while factoring a higher emphasis is on knowledge sharing, driving closer relationships between all stakeholders and building solutions that are customizable and flexible.

Prashant elaborates on this, saying, "The need of the hour is to provide value added distribution to several brands that are not strictly boxes alone, but also are part of a larger solution. Brands such as LEA professional make a highly differentiated and technically superior processing and IoT amplifier platform that need a higher degree of engagement with system integrators, consultants and end-users to engage, inform and educate. Furthermore, brands such as NST Audio and Sonance Commercial also offer products and solutions that are slightly unconventional and differentiated. For example, NST Audio make digital signal processors that are several notches above existing products in sound quality and performance. Also, they require a certain level of expertise and knowledge to extract the best from these products. Similarly, Sonance make aesthetically appealing products for residential and commercial spaces, which not only sound great, but also are easy on the eye. For example, their invisible loudspeakers literally disappear into walls and ceilings while not compromising on audio performance. It is these unique differentiated brands that we represent,

which require us to be closer to the channels and the customers they serve. Our offerings are not merely boxes, but complete end-to-end solutions that require a slightly different go-to-market approach."

According to Prashant, adopting this unique approach has allowed Generation AV India to already witness success in several verticals such as high street retail, specialty hospitality, nightlife and mixed-use spaces; as the company has continued to actively engage with architects, designers and end-users to deliver bespoke audio solutions. He proudly affirms that this was the original vision that led to the formation of Generation AV India, and the fact that efforts have borne fruit in such a relatively short amount of time, fills him with confidence for the future as well.

David too shares this confidence in Prashant and Generation AV India, as he happily exclaims, "Having Prashant on the Generation AV team since the beginning has been a big win – his market awareness, customer relationships, and experience in the India market has played a key role in establishing a strong local base for Generation AV and ensuring we have a voice on the ground to support the business. Now with Prashant spearheading Generation AV India and Bhagyesh Mehta coming on-board as the National Sales manager; plus, with key support from Generation AV Singapore, and our diverse network of partners; I believe we're in a great position to take our business and service offerings to the next level. At the same time, the brands that we work with have also been expanding and enhancing their impressive product and technology offerings. So, with the new team and the new line-up of exciting technologies, we're super thrilled and super optimistic for the future!"

Generation AV

PROLIGHTS Upgrades Privilege Club with Stunning Illumination

UAE: PROLIGHTS recently upgraded the lighting system at the Privilege Club in Dubai, one of the most spectacular nightclubs in the UAE, located on the top floor of the prestigious SLS Hotel in the Business Bay area. The club has played host to high-profile artists such as Will.I.Am and Akon, and has received recognition from the Guinness World Records for having the world's highest outdoor pool.

In collaboration with Em-Tec and lighting designer Alex Douglas, the Privilege Club decided to enhance its lighting setup to provide visitors with a visually captivating experience befitting the venue. The lighting fixtures were supplied by PRO LAB, the PROLIGHTS distributor in the United Arab Emirates, and included the PROLIGHTS ArenaCob 4FC and PROLIGHTS Air 5Fan.

With this upgrade, lighting designer Alex Douglas was able to create an immersive design that heightened the club's atmosphere, offering a wide range of visual effects. By strategically positioning the Prolights ArenaCob 4FC fixtures around the videowall to mimic the colours displayed on the screens, Douglas achieved dynamic and immersive visual effects. He stated, "The Prolights ArenaCob 4FC fixtures have undoubtedly enhanced the visual impact of my lighting design."

Douglas further explained his choice of using the Prolights ArenaCob 4FC and Air 5Fan projectors, stating, "Firstly, the Air 5 Fans caught my attention with their sleek and clean build and visually appealing lenses that provide eye candy. offer a wide spread of light thanks to their five independently moving heads, which can be adjusted from 0° to 28°, allowing for versatile lighting effects. Both the Air 5Fan and ArenaCob 4FC fixtures also come with helpful macros that enable quick programming of pixel looks, saving valuable time during setup."

Rami Harber, CEO of PRO LAB, expressed great satisfaction with the outcome of the project and the collaboration with Em-Tec and Alex Douglas. He said: "Our commitment to delivering excellence is reflected in our supply of top-of-the-line equipment, like PROLIGHTS fixtures, for the Em-Tec project: Privilege Club.

Through this collaboration, we have showcased the power of advanced technology and expertise in creating unforgettable experiences. We are dedicated to providing our clients with the tools they need to achieve their vision, and I am confident that our partnership with Em-Tec and PROLIGHTS will continue to set new benchmarks in the industry".

PROLIGHTS

Peavey Joins RAVENNA Community

GLOBAL: ALC NetworX, developer of the RAVENNA Audio-over-IP technology, has welcomed Peavey to the **RAVENNA community** Under its Commercial Audio brand, Peavey offers an entire range of products from the microphone to the loudspeaker and every link in between.

Under the RAVENNA partnership, Peavey has developed "sNET" - a single IP-based network infrastructure technology which will work at the core of their future MediaMatrix products. sNET is based on RAVENNA, the broadcast industry's "de-facto AoIP standard", featuring low latency, fully synchronized signal transparency and the highest reliability – all while ensuring broad interoperability through its compatibility with AES67 and SMPTE ST 2110 standards. This will start to blur the boundaries between the commercial audio and broadcast worlds, paving the way towards seamless integration and interoperability between Peavey's MediaMatrix solution and any IP-based broadcast application.

According to Peavey Commercial Audio general manager, Shayne Thomas, joining the RAVENNA community was a natural move. "Adopting RAVENNA is part of our vision and roadmap to remain on the cutting edge of real-time network audio streaming ensuring the highest level of lossless audio quality within MediaMatrix and Crest Audio products," he remarked. "With a proven track record of near on 30 years and industry-wide recognition as a pioneer in the development of cutting-edge digital signal processing technologies, it is only fitting that we integrate RAVENNA as part of the supported audio protocols in conjunction with MediaMatrix sNET - AES67 audio streaming, control and monitoring over Ethernet."

Andreas Hildebrand, RAVENNA Evangelist at ALC NetworX, was equally pleased to welcome Peavey to the RAVENNA community: "Peavey, with its Commercial Audio branch, is a world-leading manufacturer of network-based audio processing and distribution systems. Peavey's decision to base their new sNET audio streaming protocol on RAVENNA technology demonstrates that RAVENNA's core genes, originating from the most exacting demands of the broadcast industry, are a perfect match for the ever-growing requirements of the commercial audio industry.

As an open technology standard without a proprietary licensing policy, RAVENNA is well positioned to provide system manufacturers like Peavey with the flexibility they need as IP-based technologies continue to infuse their core markets."

Peavey Commercial Audio

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Christie Laser Projectors Deliver Vivid Visuals in Museum's New Exhibition Space

SOUTH KOREA: Christie'S 1DLP laser projection systems have been installed in a new immersive space at **Gyeonggi Provincial Museum** The museum's newest 'video room' venture aims to engage visitors by utilising projection and interactive technologies to produce one-of-a-kind, immersive experiences.

The centrepiece of the new exhibition space is a spellbinding projection display on four surfaces using 8 x laser projectors comprising the Christie DWU960ST-iS and DWU630-GS models. Supplied by SNC Alliance, they bring to life the content of "Staff and Chair of Gyeong-seok Lee and Paintings of the Conferment Banquet", a precious artefact dating back to the 17th century. It is a representative piece from the Joseon Dynasty featuring senior civil servant Gyeong-seok Lee's banquet and the gifts he received from King Hyeonjong in 1668.

"Working on this project at Gyeonggi Provincial Museum has been an exciting and rewarding experience for our team," said Chul-Ho Park, CEO of Mega Link, whose company was responsible for the installation and commissioning of all projectors. "We are delighted to have played a role in bringing the past to life through fascinating imagery made possible by the high-performance and reliable Christie Inspire and GS Series projectors installed in this space. Our goal is always to create an experience that leaves a lasting impact on visitors, and we believe this exhibit achieves just that."

The captivating visuals transport visitors back to the Joseon era, showing government officials, court musicians, and palanquin riders entering Gyeong-seok Lee's residence to present him with gifts from the king. A myriad of brilliantly coloured images displayed on three large screens in front and on both sides generate a stunning three-dimensional effect that makes visitors feel as if they are attending this celebratory event at Bukaksan Mountain, surrounded by colourful autumn leaves.

5 x 9,600-lumen **Christie DWU960ST-iS** laser projectors fitted discreetly overhead are used for projections on the three-sided screens, providing a sense of immersion. The floor projections are accomplished by 3 x ceiling-mounted **Christie DWU630-GS** laser projectors equipped with an interactive device that detects motion on the ground and blends in with the screens. As visitors walk across

the room, the peony flower patterns projected on the floor bloom or wither with each step, creating an added layer of interest and wonder.

Paul Lee, sales manager for Korea, Enterprise, Christie, commented, "Our passion has always been about harnessing technology to create memorable experiences, and this project is a true testament to that. We are proud to work with Gyeonggi Provincial Museum and our partners to bring historical artefacts to life in such an astonishing and immersive way. It's a privilege to see our projection systems used to educate and inspire visitors, and we look forward to seeing the impact it has for years to come."

Featuring laser illumination, the Christie Inspire and GS Series eliminate the need for lamp and filter replacements, providing 20,000 hours of low-cost operation. Wireless connectivity, a small footprint, low weight, whisper-quiet operation and a full range of lenses make them ideal for demanding, high-use applications. Certain models come with onboard Christie Twist (https://www.christiedigital.com/products/warping-blending/twist-series/) warping and blending software, and **Christie Mystique** automated camera-based alignment tools, making setup, alignment, recalibration, and maintenance of multi-projector systems quick and easy.

Christie

Vega Global Offers AV-as-a-Service Solutions and Flexible Payment Options

APAC: By the end of Q3 this year, Vega Global aims to provide its entire range of solutions through various flexible options such as pay-per-use, risk and revenue sharing, and as-a-Service models.

For the past 37 years, Vega Global has delivered cutting-edge AV solutions to multinational corporations across 16 countries in the Asia Pacific region. Now, the company is expanding its strategic focus in response to evolving customer demands. "As customers now look for greater value from their service providers and want to pay for technology as they use it, with more flexibility, and in some cases, look for their providers to share business risk, it is critical that service providers stay ahead and relevant by meeting market needs. Having the agility to adapt quickly at a time when every company is challenged to embrace digital transformation is key to sustaining long-term customer partnerships," said Vega's CEO, Steve Medeiros.

Vega Global's as-a-Service offerings will enable customers to pay for integrated technology solutions, encompassing all aspects of audio, video and collaboration solutions over time through regular payments. This approach provides the flexibility to upgrade equipment when needs change, all while receiving ongoing support throughout the payment term.

By aligning payments with usage, this model offers financial predictability and ensures that companies can stay up-to-date with the rapidly changing technology landscape. Moreover, as-a-Service solutions contribute to environmental sustainability by incorporating second-life equipment in markets where cutting-edge technology is not necessary. Additionally, equipment is distributed as parts are disposed of in an eco-friendly manner. Ultimately, these solutions enable companies to adopt a technology lifecycle that enhances efficiency, cost-effectiveness, and environmental stewardship.

Vega Global will gradually introduce its as-a-Service offerings across most of its locations in Asia, driven by significant customer demand. Over time, Vega Global anticipates that most of its revenues will stem from services, reflecting customers' increasing shift away from treating technology as a capital expenditure burden. This advancement not only sets Vega Global apart but also represents a pioneering leap forward in the AV industry. It also "showcases Vega Global's commitment to driving innovation and delivering exceptional customer value, solidifying its position as a leading force in the AV sector."

Vega Global

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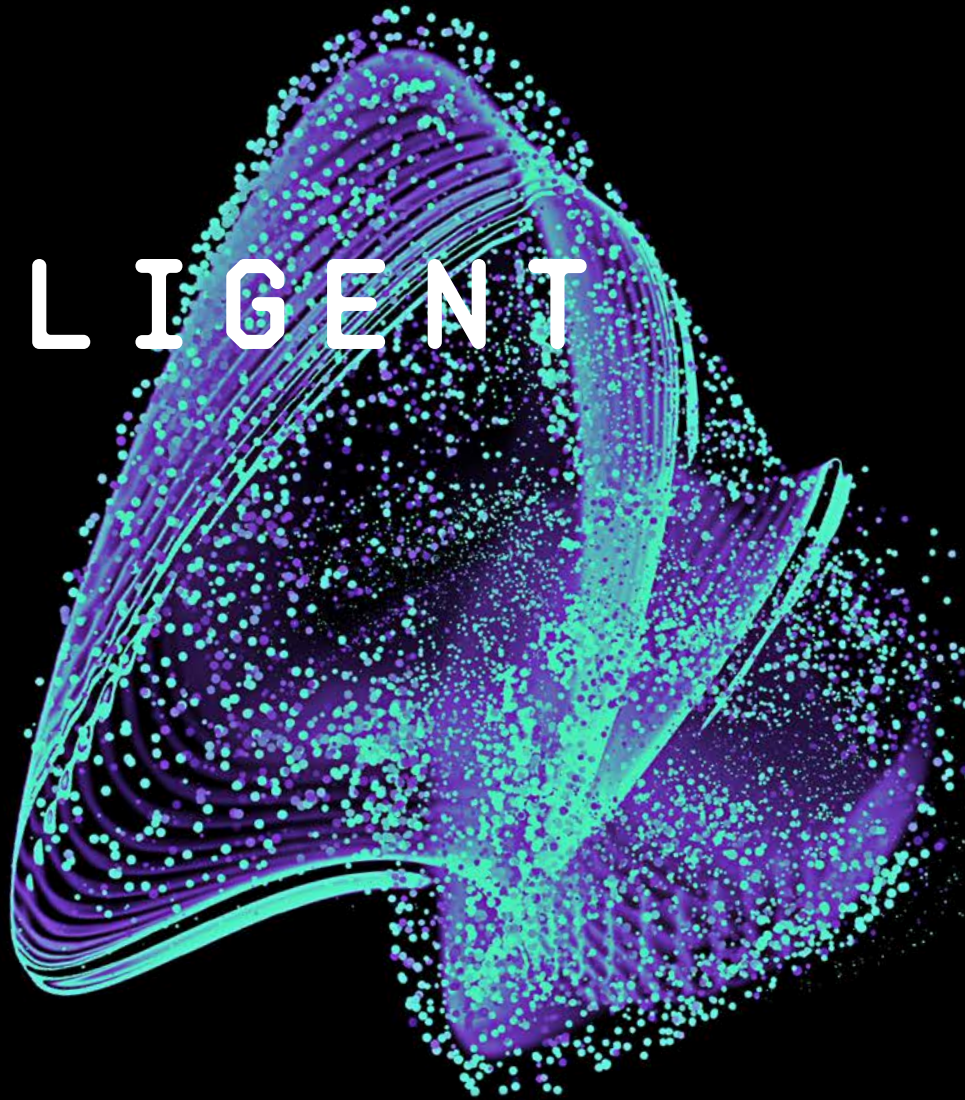
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Largest esports Complex in Southern Hemisphere Outfitted with NEXO Audio System

AUSTRALIA: With over 50 years of dedicated experience in the audio-visual landscape, The Avit Group deploys industry-leading technology in the design of comprehensive systems for hospitality and entertainment venues. The company's reputation for compelling solutions is due, in part, to its affinity for well-crafted hardware. Tasked with the installation of a première audio system for the exhilarative Fortress Sydney, The Avit Group chose state-of-the-art technology from French loudspeaker brand NEXO.

Located in Chippendale's Central Park Mall, Fortress Sydney is a ground-breaking gamer's haven. The expansive new site now holds the title of the largest esports complex in the Southern Hemisphere, drawing crowds as a modern entertainment Mecca. Housing a slew of colourful arcades, streaming booths, a themed tavern, sci-fi inspired bar, a PC LAN lounge and a colossal custom-designed esports arena, Fortress

Sydney has been designed from the ground up as the unparalleled capitol of the city's gaming community.

Sponsored by high-end PC gaming titan Alienware, Fortress is by nature, a hub for the tech-savvy. Packed with a myriad of elite gaming PCs, peripherals and addressable lighting, the word 'performance' was on the lips of every supplier involved in the project. Faced with providing a loudspeaker solution befitting of such a technological pedigree, The Avit Group selected NEXO's P15 point source system for the Alienware Arena.

The Avit Group's operations manager, Adrian Davis, outlined Avit's role in realising the venue's grand vision: "For the Fortress esports project, we were given the brief to create a dynamic, immersive, and technologically advanced AV system, which sits somewhere between an entertainment venue and a broadcast studio. The vision was to set a new benchmark for esports venues not only in Australia but across the globe.

It was essential to provide seamless and high-quality audio experiences that would engage audiences, whether they were on-site or connecting digitally. Our goal was to ensure that the AV infrastructure was flexible and robust enough to accommodate a variety of events and broadcasts without compromising on quality or user experience."

After a careful review of a variety of speaker options for the Arena, NEXO's P+ system was deployed in a L+R hang configuration, made up of a P15 loudspeaker and L18 sub on each side. Adrian revealed that "NEXO's reputation for delivering pristine sound quality, combined with the versatility of their P+ series, made it a clear choice." Proving NEXO a worthy contender for the Alienware Arena, where gaming tournaments are rendered into a thrilling spectator sport, Adrian

championed the capabilities of the P+ Series: "The obvious standout features of the NEXO P15 speakers and L18 subs are their impeccable sound quality, high output, and compact design. The P15's asymmetric dispersion pattern provides excellent coverage to everyone in the arena, while the L18 subwoofers deliver powerful and accurate low frequencies, crucial for an immersive gaming and entertainment experience.

The quality and SPL level of these speakers was very surprising. We were first presented this option on paper [by] the team at Group Technologies and it was only when auditioning that we realised that the unbelievable specs were no lie – they exceeded

everyone's expectations at The Avit Group, especially our audio nerds. Both the speaker and subwoofer components are robust and reliable, ensuring that Fortress can operate smoothly during high-stakes esports events."

With an extensive history utilising NEXO across a variety of installations, The Avit Group's managing director, Brad Magri summarized: "The reason we went with NEXO is that we have always been so pleased using the brand for years. I have a bit of a passion for the product range thanks to the quality of output, and high-end sound and aesthetic in such small-form cabinets."

NEXO

Electro-Voice and Dynacord Elevate the Live Music Experience at Naimuang Station

THAILAND: A new Electro-Voice loudspeaker system with power and processing from Dynacord is delivering state-of-the-art sound quality in a compact format for patrons at Naimuang Station, a leading regional restaurant known for its live music scene, in Chai Nat, Thailand.

The restaurant's management was determined to elevate the audio experience at the venue to the next level. In addition to top-notch sound quality, a key prerequisite was controlled coverage, to keep the output contained in the venue and minimize any noise pollution into neighbouring properties. In step with this consideration, the system also needed to sound great at lower volume levels for daytime guests. And, of course, it all needed to be reliable and easy for the staff to manage.

To deliver on this vision, a system comprising passive EKX and powered ZLX series loudspeakers was specified. The main PA includes 4 x EKX-15 and 4 x **EKX-12 full-range boxes** to cover the dining/audience area, with low-frequency support from 4 x EKX-18 subwoofers. 4 x ZLX-12BT boxes serve as stage monitors. Both the EKX and **ZLX series** models feature Signal Synchronized Transducers (SST) technology, which, in addition to allowing for a more compact speaker enclosure, helps to time-align the low- and high-frequency drivers and allows for a larger waveguide and port to fit inside the enclosure, yielding enhanced pattern control and bass response.

The main EKX system is powered by **Dynacord L Series DSP amplifiers** , designed for live/mobile applications: 3 x L3600FD (2x 1800 W) and 2 x L2800FD (2x 1400 W). Dynacord's remote control software allows Naimuang Station to wirelessly manage and monitor system settings such as volume and EQ without the need for additional speaker processing. For example, the audio can be adjusted to provide the perfect ambience with background music for diners during the day, with higher output for live shows at night. Being able to configure the system quickly and easily completes a solution that combines user-friendly convenience with professional performance.

Electro-Voice

Optimal Audio Welcomes Kwarizmi Engineering as Distributor

JORDAN: UK manufacturer and part of the Focusrite Group, Optimal Audio has announced the appointment of Kwarizmi Engineering Systems & Controls Co. as its exclusive distributor in Jordan.

Optimal Audio manufactures a one-stop solution of controllers, amplifiers, and loudspeakers for small to medium-sized commercial installations, with a focus on supporting multi-zoned venues. Its streamlined product-offering works seamlessly to deliver simple-to-install, high-quality sound systems that can be easily operated by anyone, not just engineers.

Based in the Jordanian capital of Amman, Kwarizmi Engineering specialises in the life safety and security business, supplying products as well as offering technical support, consultation, design and installation

services. Audio systems play an important role in the sector, and Kwarizmi recently sought to expand its audio portfolio to ensure it could meet the needs of its customers across every scale of commercial project.

Thaer A. Ali, executive manager at Kwarizmi enthused about the new partnership: "Optimal Audio has produced an ecosystem of products that will be of great benefit to our customers. They have focused on easy installation and operation without sacrificing audio quality and done so at a very competitive price point. We're very proud to have forged this new relationship and will work hard to place Optimal Audio at the forefront of the commercial audio market in Jordan."

Dom Harter, managing director, Optimal Audio added, "Kwarizmi Engineering is a trusted presence in the Jordanian audio market, with a strongly established customer base. The technical expertise of their team is most impressive as is their track record in supplying the widest possible range of commercial audio projects across the country. We look forward to working closely with Thaer and his team as they develop Optimal Audio's presence in Jordan."

Optimal Audio made its Jordan début at the Jimex 2023 exhibition in Amman, where Kwarizmi Engineering invited visitors to experience the power, flexibility, and ease of WebApp alongside the ecosystem of loudspeakers, amplifiers, and controllers.

Optimal Audio

(L-R) Steve Badham, International Audio and Acoustics Technical Sales Specialist, EAW; Fouad Fowzi, CEO, GSL Professional; John Dodson, Regional Representative, EAW, MEA.

GSL Professional Named Official Distributor of EAW Loudspeaker Systems

GCC: Expanding its reach into the Middle East, Eastern Acoustic Works (EAW) has appointed GSL Professional as its newest distributor in the Gulf Cooperation Council (GCC) region as well as Egypt. Dedicated to bringing the best in professional audio, video, lighting and control solutions, GSL has carved a niche for itself as a leader in distribution and trusted client services throughout the area.

Established over 20 years ago, GSL (https://gslprofessional.com/) has built a dynamic team of highly experienced professionals to offer comprehensive solutions for recording, broadcast, hospitality, houses of worship, stadiums and more. The company's alignment with EAW further cements this dedication, having long admired EAW's commitment to delivering exceptional sound quality and innovation within the industry.

As the AV and live sound markets in the GCC region continue to grow, GSL recognized the need for top-tier sound solutions. Aiming to deliver exceptional experiences to customers and their audiences, a partnership with EAW was a natural fit for the demanding requirements of local events and productions. EAW's products are highly regarded in the industry not only for exceptional performance and durability but also for innovative technology and design trends.

"We are thrilled about our partnership with EAW," said president Fouad Fowzi, CEO of GSL Professional. "EAW's combination of innovative design, strong

customer relationships, ongoing product development and commitment to quality and performance will be key to its success in this highly competitive market. Together, we will continue to deliver exceptional sound solutions to our clients in the GCC region and Egypt."

Further investing in EAW's regional customers, GSL offers a dedicated service centre located in Dubai to support clients and ensure a satisfactory after-sales experience. Featuring highly skilled and experienced technicians, the service centre handles a variety of maintenance, repair and support services. Additional support can be found through GSL's product specialists, who offer on-site assistance that stems

from a thorough knowledge of EAW and extensive industry experience.

"Welcoming GSL Professional as our newest distributor is an exciting venture for EAW," concluded T.J. Smith, president of EAW. "GSL provides only the highest level of technical, marketing, service and sales support, for both consultants and integrators, as well as venue operators, engineers, end-users and more. We look forward to creating a strong and enduring partnership that will bring more opportunity to our GCC-region customers."

EAW

Powersoft Advances Strategic Positioning and Development Process with Vega Global

APAC/MEA: Powersoft signed with Vega Global for the supply of professional amplifiers to expand and strengthen the audio solutions it offers to end customers.

The agreement includes a long-term supply in 16 geographies in the APAC and MEA regions, where Vega Global operates, and Powersost will provide direct access to its portfolio of amplifiers: Duecanali and Quattrocanali Series, Mezzo Series and the new cloud-based UNICA platform.

The energy-efficient Canali and Mezzo Series amplifier platforms feature numerous advantages, including Smart Rail Management technology that helps reduce overall power consumption in a compact design. The amplifiers feature digital gain attenuator control, remote on/off switches and protections to prevent power spikes and short circuits. The UNICA platform, implementing new five-patent technology, enables continuous remote control, saving even more on operating costs.

Thanks to this collaboration, Powersost will be able to better understand customers' needs and explore new audio product opportunities, thus increasing its presence and visibility in target markets and new areas. By adding the distinctive technical features of Powersoft's products, Vega will complement the audio solutions offered to its end customers with a focus on the corporate (Mezzo Series) and hospitality (Quattrocanali, Duecanali and UNICA) markets.

"Working with a partner like Vega Global represents an opportunity for us to maintain a competitive advantage in the market and ensure the mutual cross-pollination of know-how. This partnership is part of Powersoft's strategic and development path, undertaken by the company to enhance its potential and find new and unique technological solutions to increase its global presence," commented Luca Lastrucci, CEO of Powersoft. "As shown in the 2022 Annual Report, Powersoft is reaping important results in economic terms; growing revenues and margins prompt us to be confident and to keep pursuing our business model."

"We are thrilled to partner with Powersoft and bring their high-quality, professional services to our clients," concluded Matthew Deayton, deputy CEO of **Vega Global**. "As a business, we are committed to delivering exceptional customer experiences and adding value to our clients, and we believe this partnership will enable us to do just that. We look forward to building a strong and successful relationship together."

Powersoft

Ayrton Welcomes Iain Quinn to Global Install Team

GLOBAL:

Ayrton has welcomed **Iain Quinn** as the latest member of its growing Global Install Team. The role begins with immediate effect.

Iain brings to the position over thirty years of experience in business development and project management roles with some of the industry's major lighting manufacturers. Iain will be working alongside Global Install Director, Paul 'PJ' Johnson, focusing on the large-scale, permanent installation market, both on land and sea, exploring and expanding the Ayrton brand on a global scale.

He described his new role as a 'natural evolution' in his career where his wealth of experience will break new boundaries. "I'm very excited to be joining Ayrton right now," enthused Iain. "The product is at its absolute peak, the people, company culture, agility and pace are amazing, and the company is in a dynamic phase of growth and development but with an attention to quality that is awe-inspiring. The future potential for my role is extremely exciting and I can't wait to get started."

"Iain's years of experience in project management and business development will be an undeniable asset to our newly formed Global Install Team," concluded Michael Althaus, global sales director of Ayrton. "His understanding of the global lighting market, specifically in the Middle East, as well as his extensive experience with large-scale projects and his people management skills will play a vital role in the advancement of Ayrton in the install field. PJ and I have great plans for him and intend to keep him very, very busy indeed!"

Ayrton

Visionary Unveils Custom Profile AV/IP Endpoints with NETGEAR

GLOBAL: Visionary and NETGEAR, Inc., have partnered to unveil a new, custom profile for Visionary's AV-over-IP endpoints in NETGEAR's esteemed line of professional AV-enabled switches.

With this innovative enhancement, NETGEAR's switches can now automatically recognize Visionary devices as soon as they are connected, simplifying the configuration process and offering a plug-and-play experience to the end users. This integration promises unparalleled reliability and performance, reducing installation times and ensuring a consistent user experience across all devices. Customers using Visionary's AV-over-IP solutions with NETGEAR's AV-enabled switches will benefit from increased system stability, superior performance and simplified deployment and management.

The custom profile leverages Visionary's unique ability to VLAN tag network traffic within their endpoints. This feature further enhances network traffic management and segmentation, improving efficiency and reducing congestion in network infrastructures. With this integration, Visionary's VLAN tagging can be leveraged directly from NETGEAR's managed switches, creating a more efficient network setup and maintenance process.

"This partnership brings together the best of both worlds, merging the power and reliability of NETGEAR's managed switches with Visionary's groundbreaking AV-over-IP solutions," said Scott Freshman, chief operating officer for Visionary. "Our collaboration with NETGEAR's Pro AV team will streamline integrating AV over IP endpoints with network switches, creating an intuitive, reliable, and highly effective solution for our customers."

"We are excited to partner with Visionary to provide an enhanced user experience through automated configuration and streamlined networking," said Devan Cress, director of professional AV, OEM and manufacturers for NETGEAR. "The simplified recognition and configuration of Visionary's AV-over-IP devices empowers us to deliver on our commitment to provide customers with seamless, hassle-free solutions that meet their unique needs…"

Visionary

Avocor Partners with Exclusive Networks to Deliver Cutting-Edge Collaboration

APAC: Avocor has extended its partnership with Exclusive Networks (EN), an APAC-based digital infrastructure specialist. The two companies will work together on delivering cutting-edge interactive collaboration solutions including Teams, Zoom and Google Meet rooms, as well as packaged solutions for all types of video conference applications.

Dana Corey, SVP & GM of Global Sales at Avocor, said: "We are excited to be expanding Avocor's global reach into the APAC region through our partnership with Exclusive Networks - a well-established VAD with a strong track record of success in the territory. The EN team have a deep understanding of the local market, as well as a proven ability to sell well-packaged UC solutions to an expanding portfolio of new and existing customers, across many different verticals. I'm very much looking forward to working with them."

"We are extremely gratified to have been chosen by Avocor as their exclusive value-added distributor for the APAC region," said Todd Robertson, APAC vendor manager at Exclusive Networks. "Avocor products are the ultimate visual collaboration display endpoint, and their product range perfectly complements many of the existing brands we represent. Our partnership is full of possibilities and I'm really looking forward to working with Avocor to deliver meeting equity and brilliance for our mutual customers."

EN will be focusing on including Avocor displays as part of their Teams, Zoom, Google Meet and Ring Central 'Poly conference' solution bundles. The company also has Huddly and Unify in its portfolio, so with the existing alignment between the companies offering many opportunities, future packaged solutions are already in the pipeline.

Avocor

NEXO Packs a Punch in Iconic Boxing Stadium

THAILAND: The iconic Rajadamnern Stadium is one of the two main venues for the popular Muay Thai boxing sport. The landmark building in Bangkok was completed in 1945 and, after a brief period of government ownership, is operated by the same family-owned company to this day.

Looking to the future, the latest generation of owners has embarked upon a program of improvements to give spectators an even more exciting experience on the fight nights that take place every Monday, Wednesday, Thursday and Sunday, while also equipping the venue for the television broadcast opportunities available to the sport.

At a launch event to unveil new investments in lighting and large LED screens, the venue asked Mr.Team Productions Co.,Ltd. by Intouch Integration Co.,Ltd. to bring in a sound system for the night, at which point the requirement for an upgrade to the permanently installed system became immediately apparent.

"The NEXO Alpha system we used at the launch event sounded very impressive, and soon after the stadium managers asked us to suggest a permanent system that could provide clear commentary for spectators seated in all three tiers, then a full live concert experience when the boxing finishes and the bands come on" reported **Fuzion Far East** director Sutat Kohkiat.

Designed using NEXO NS-1 configuration software and installed by local AV technology specialists **Mr Team** , the new system at the Rajadamnern Stadium comprises 8 x NEXO P15 point source loudspeakers covering the first and second tiers of the venue, with 12 x NEXO ID24s covering the ground floor. Bass extension comes from a stack of 4 x NEXO RS18 subs configured in cardioid mode, located off to the side and out of the way of the high-traffic areas such as the bar, and amplification and processing are provided by NEXO NXAMP powered controllers.

"The NEXO P+ Series speakers have very high SPL output for their size and, like the ID24s, the option to easily change the HF dispersion really helps to achieve consistent coverage" continued Sutat. "The NEXO system at the Rajadamnern Stadium performs very well for both commentary and music."

NEXO

Q-SYS Acquisition of Seervision Accelerates Development of Intelligent Collaboration Solutions

GLOBAL: Q-SYS, a division of QSC LLC, has announced a definitive agreement to acquire **Seervision**, a Swiss-based industry pioneer in AI-driven camera automation software. The acquisition accelerates the Q-SYS strategy to develop and deliver a scalable and flexible software platform with intelligent audio, video and control technology that supports integration with leading unified communications & video conferencing applications in the era of post-pandemic hybrid work.

Seervision's camera automation software combines years of research in multi-camera control with deep expertise in real-time optimization, machine learning, and predictive motion models to automatically predict and track a person's movements. Seamlessly integrating into existing AV/IT ecosystems, the software can control multiple pan-tilt-zoom (PTZ)

cameras with smooth, broadcast-quality motions that rival the capabilities of human-operated cameras, delivering an immersive collaboration and viewing experience.

"The hybrid work phenomenon, 'meeting equity' requirements, multi-camera control and workflow automation, along with the use of artificial intelligence and machine learning for AV applications represent some of [the] most dynamic and exciting opportunities today and into the future," said Joe Pham, chairman of the Board & CEO, QSC. "AI technology leadership will be critical in defining and delivering on the next era of AV experience innovation, and we believe Seervision is a key technology pillar for enabling this future. This acquisition creates tremendous opportunities for Q-SYS and our partners to create and deliver extraordinary in-person, remote and hybrid collaboration experiences across many different markets and applications, now and in the future. We couldn't be more excited for the opportunities ahead."

As with the Q-SYS software-based Platform, Seervision's software is made to be hardware agnostic and delivers many unique capabilities including:

- Automatic scene perception & person identification
Using audio- and vision-based signals, Seervision autonomously triggers specific actions and workflows based on the person's location in the room. This dynamic scene-understanding technology is unique to Seervision and allows for a truly automated and seamless operation.

-AI-assisted camera operation with adaptive full-body detection and tracking
Seervision's advanced auto-tracking recognizes and tracks a subject based on full-body identification, creating a unique visual ID for each detected subject

from multiple reference points, increasing reliability and robustness compared to alternative motion-tracking solutions.

Seervision's unique software solutions automate video production workflows in high-impact spaces across many sectors and use cases including auditoriums, boardrooms, classrooms and teaching spaces, flexible rooms, large meeting rooms, stages, event spaces and studios. Specific application examples in use today include:

-Dynamic scene understanding that transforms hybrid collaboration
The Seervision Suite combines networked audio-visual triggers with leading PTZ camera auto-tracking to enable fully automated, multi-camera operation for video conferencing and high-impact spaces. Seervision's scene-understanding uses visual and audio inputs to give PTZ cameras, and any device in an AV installation, the ability to see and react live to activity happening in the room. Seervision adapts the shot and frames the person perfectly even in a changing environment, keeping all the subjects shown in the same size without the need for fixed zoom values or presets.

-Simplified operation and increased engagement in remote learning
In presentation or higher education applications, Seervision's solution delivers high-quality, dynamic video content that delivers a better experience and increases engagement for participants and students in remote or hybrid environments. Seervision's trigger zone and tracking zone features, combined with intelligent full-body camera control and tracking, enable cameras to autonomously follow a subject and correctly frame them or the whiteboard, ensuring a stress-free experience for the presenter or lecturer.

As part of the transaction, the Seervision founders and team will be joining Q-SYS. "Making AV smarter by innovating at the software layer is part of our DNA," commented Jatan Shah, president and COO, QSC. "The Seervision team are proven innovators and best-in-class technical professionals with industry-leading experience and expertise in many strategic technology areas including video, computer vision & imaging, artificial intelligence/machine learning, motion prediction & real-time control, cloud & virtualization.

The combination of Q-SYS and Seervision will bring the industry's best engineering talent, technology and resources together to create a new class of high-performance AV solutions that set a new bar for our industry. I am beyond excited this impressive team will become part of Q-SYS, and together we are very well positioned to redefine intelligent video collaboration in multiple applications."

"We are embarking on a thrilling journey as we unite with the Q-SYS team," concluded Nikos Kariotoglou, co-founder and CEO, Seervision. "We believe this acquisition signifies a pivotal moment in the AV industry's evolution towards a future defined by intelligent and scalable AV software platforms. Together with Q-SYS, we envision an open ecosystem fostering innovation and delivering novel capabilities and solutions to our diverse markets and customers. Exciting times lie ahead, and we are ready to shape the future of AV technology."

Q-SYS

Airtame and Sennheiser Usher in New Era of Video Conferencing with Strategic Alliance

GLOBAL: Airtame, creator of the hardware-enabled SaaS platform that allows seamless collaboration in businesses and schools, has announced a strategic alliance with Sennheiser to offer seamless integration of the Airtame Hybrid Conferencing Solution and Sennheiser's all-new TeamConnect Bar Solutions.

"At Airtame we believe that providing high-quality, flexible solutions is essential to keeping up with the evolving trends shaping our industry," said Jonas Gyalokay, Airtame co-founder. "In partnership with Sennheiser, we are able to further develop our commitment to channel partners and end-users with accessible, easily-installed solutions that make an immediate impact by boosting hybrid meeting equity and simplicity."

Airtame's conferencing platform – compatible with Microsoft Teams, Zoom, and soon, Google Meet and Webex – can now be fully integrated with the suite of TeamConnect Bar Solutions from Sennheiser, including options for small to mid-sized meeting rooms that allow for powerful flexibility and enjoyable hybrid meeting room experiences.

"At Sennheiser, we focus heavily on providing our customers with the greatest flexibility possible so they're not boxed into a single ecosystem," remarked Charlie Jones, global alliance & partnership manager, Business Communication, Sennheiser. "Our partnership with Airtame extends the options we are able to provide. Airtame shares our same philosophy and forward-thinking outlook on the future of the AV industry and together we're proud to deliver solutions that support realistic hybrid work habits."

Newly launched, **Sennheiser's TeamConnect Bar Solutions** meet modern hybrid demands with built-in cameras, microphones and speakers and are further enhanced with compatible products including the Airtame Hybrid Conferencing Solution.

"With the powerful capabilities of Sennheiser's TeamConnect Bar, Airtame is able to enhance the quality of our solution and increase user experience, ushering in a new era of video conferencing and collaboration," concluded Gyalokay.

Airtame

MADRIX Appoints Hi-Tech Audio & Image As Distributor

INDIA: MADRIX, a German developer and manufacturer of LED lighting-control solutions, has announced a new partnership in India.

"We have always experienced the booming Indian LED-lighting market firsthand at PALM Expo and saw an enormous interest in our products; especially this year. A trend that has only continued in this fast-growing country and it is important that we serve our local customers with the right products and fast delivery times. By partnering with Hi-Tech Audio & Image, we are making sure that we are reaching more customers to supply them with the control hardware and software they want for their projects thanks to LED fixtures that are getting more and more affordable", explained Christian Hertel, Business Development at MADRIX.

The MADRIX product range offers powerful yet simple solutions for all kinds of creative LED installations by easily mapping each individual pixel to achieve smooth visuals and eye-catching effects alike. "We are very delighted to be associated with MADRIX as [a] distributor in India. The cutting-edge technology of MADRIX is awe-inspiring and reliable for users. Christian Hertel and his team were very supportive during PALM Expo 2023, Mumbai. MADRIX is creating high-quality products backed by high-end engineering to achieve pixel-perfect results. Thus, we are geared up to explore limitless opportunities with MADRIX", noted Rajan Gupta, CEO & founder of **Hi-Tech Audio & Image LLP**

Hi-Tech have a lot of experience in distributing professional systems for audio, video, and lighting. They are already representing lighting brands such as MA Lighting, Claypaky, ETC, ADJ, and Luminex. MADRIX was the next natural choice for clubs, residential projects, and the growing façade market.

"MADRIX products are appreciated by lighting designers worldwide. For us, it's an honour to be associated with such a highly acclaimed brand who has revolutionized the professional lighting industry. We trust the expertise of MADRIX and look forward to achieving new milestones", commented managing director Nirdosh Aggarwal.

"As head of the lighting department at Hi-Tech, I am very keen to learn all about MADRIX products. The symbiosis of hardware and software offered by the team from Germany is phenomenal. Thanks to this new partnership, we plan to offer flawless lighting solutions to our clients", concluded Yash Gupta, vice president sales & marketing, Hi-Tech Audio & Image LLP.

Madrix

广州市领先视听科技有限公司

Yunnan University of The Arts' Experimental Theater Boasts Sonic Excellence with Martin Audio

CHINA: World-renowned audio brand, Martin Audio, has once again showed its strength in the field of performance install sound, with the Experimental Theater of Dance Academy of the Yunnan University of the Arts recently commissioning a comprehensive installation of the Martin Audio TORUS constant curvature sound reinforcement system.

The Yunnan University of the Arts was established in 1959, and started a dance department in 1961 which later developed into a dance academy in 2003, and soon after obtained a master's degree authorization in dance in 2006. There are currently three undergraduate majors (orientations) in dance performance, choreography, and choreography (dance education, folk dance inheritance); and two postgraduate training categories of academic and professional. The university has a team of skilled and highly qualified teachers that boast strong creative ability and fruitful achievements; with more than a thousand students actively engaged in various courses at any point in time.

Not too long ago, the university decided to commission a major renovation of the experimental theatre which was widely used by teachers and students of the dance academy. And this involved a complete overhaul of the audio system for the space, as management noted the desire to bring in a world-class high-performance audio system that would offer meet the venue's demands in terms of audio coverage and sound quality, while also presenting a solution that

scores high on points in terms of adaptability, ease-of-use, longevity, and of course, cost-efficiency.

While scouring through the options of various brands, technologies and solutions that would best match the requirements of experimental theatre, the university's management chanced upon Martin Audio's TORUS series; which is considered by many as the brand's latest masterpiece in terms of loudspeaker technology. With its' precise sound field and consistent voice reproduction, TORUS has received a great deal of praise and acceptance within install applications world-wide, the likes of which include spaces like auditoriums, theatres, and multi-purpose halls. And impressed by the Martin Audio TORUS' repertoire, the management decided to lock this in as their preferred audio solution for the Experimental Theatre.

With the overhaul of the Experimental Theatre encompassing various rigorous measurements and thorough evaluation of the stage environment; the design and commissioning phase saw Martin Audio's professional team leveraging its proprietary technologies and expertise to assist the venue's management in overcoming several technical challenges, and coalesced a strong foundational support for the upgrade and transformation of the experimental theatre.

The comprehensive TORUS system integrated at the Experimental Theatre includes T1215 15°constant curvature arrays and T1230 30° constant curvature arrays that form the primary 'FOH' solution; and this is complemented with strategically positioned T820 passive two-way loudspeakers that provide solid fill-reinforcement.

The TORUS' dynamic horizontal horn proved to be vital as it allowed the integration team to precisely focus the sound field evenly across the space, and reduce spillages off of reflective surfaces. Owing to the relatively complex geometry of the venue space, the upper unit of the arrays are designed to have a narrow dispersion, with the descending module gradually increasing the width of the dispersion. In essence, the asymmetrical horizontal coverage provides for a better sound image to efficiently cover a larger percentage of the audience area, while minimizing off-axis sound pressure levels, and reducing sound leakage and interference – factors that are especially vital for the success of live performance venues such as the Experimental Theatre.

In order to deliver a fuller and richer sound experience within the venue, the integration team have also deployed multiple units of Martin Audio's powerful SXC118 cardioid technology subwoofer, which perfectly complements the loudspeakers with impactful and thunderous low frequency fidelity. The entire system is powered through iKON series advanced power amplifiers and supports VU-NET control software, along with Dante integration. This move has enabled the technical team to create 3D projection models with optimized filters using the DISPLAY 3 software; and tailor the sound projection in a manner that it enhances the overall sonic consistency and coverage throughout the venue.

GenerationAV

Bose Professional Launches New PowerShareX Amplifier Series

The Bose Professional PowerShareX series of adaptable power amplifiers is comprised of the PSX1204D, PSX2404D and PSX4804D. In collaboration with Powersoft, these smart amplifiers, with Dante digital audio, offer 1200, 2400 and 4800W of rated power across four channels, providing the precise power and functionality required for a variety of applications. Building upon the success of the existing PowerShare amplifier range, the PowerShareX models bring even higher power levels and enhanced features, making them the perfect complement to Bose Professional loudspeaker systems.

PowerShareX amps easily integrate with Bose Professional DSPs, loudspeakers, and the entire ControlSpace ecosystem, ensuring design, configuration, installation and operation is simplified. Loudspeaker presets are factory-tested to optimise performance, allowing for quicker configuration; and ControlSpace Designer software provides visibility of the entire Bose Professional system from a single user interface for easy design, configuration, control and monitoring. All this means jobs are completed quicker, saving time and increasing productivity.

Each PowerShareX amplifier provides proven Powersoft technology ensuring every watt is utilized efficiently. PowerShareX's distinct benefits ensure system designers have access to innovative power-sharing flexibility to dynamically allocate power evenly or asymmetrically across outputs; high peak power capability to deliver maximum output from all Bose Professional loudspeakers; and Dante connectivity to support up to four digital input channels and four analogue inputs for line-level source connections — all within a space-saving 1RU design.

The collaboration between Powersoft and Bose Professional aims to provide customers with the best possible audio experience and performance. The new PowerShareX family of adaptable power amplifiers will be available in Q3 of 2023

Bose/PowerShareX

Atlona OmniStream 2.0 Upgrade Enhances Visuals for Video and Computer Graphics

Atlona is raising the bar for visual quality, performance, and integration convenience in networked AV deployments with the launch of a free upgrade for its OmniStream AV over IP platform. The new OmniStream 2.0 firmware adds support for 4K/60 video with 4:4:4 colour sampling alongside significantly improved bitrate efficiency and integrated multi-view processing capabilities.

OmniStream 2.0 features the new VCx codec, enabling 4K/60 4:4:4 streams with the artifact-free presentation of both computer-generated content and fast-motion video. Significant gains in coding efficiency – compared to the earlier-generation VC-2 codec – enable more HD streams over 1 Gigabit Ethernet networks, multiple 4K streams over 10 Gigabit switch-to-switch uplinks, and simultaneous 4K and HD over Gigabit Ethernet. VCx also offers ultra-low latency of less than 1 frame from encode to decode.

OmniStream 2.0 brings new multi-view window processing, enabling the simultaneous display of multiple sources from OmniStream Pro encoders on one screen from an AT-OMNI-121 decoder.

Bypassing the need for a dedicated, external multi-view processor, this new functionality is ideal for settings such as lecture halls or auditoriums with overflow rooms, network operations centres, and multi-room monitoring applications.

Additional key features in the OmniStream 2.0 technology update include ultra-fast switching between 4K/60 video streams; integrated Ethernet link testing between encoders and decoders; and the ability to preview video streams as thumbnails through Atlona's Velocity AV control system or in the OmniStream web GUI.

The OmniStream 2.0 firmware is available in new OmniStream units and as a free firmware update for existing OmniStream Pro and R-Type hardware models except for the AT-OMNI-122, preserving customers' investments while letting them take advantage of the latest technological advances. OmniStream 2.0 users can choose between using the new VCx or earlier VC-2 codec, enabling compatibility and security updates for existing OmniStream deployments while letting customers transition to VCx at any time.

Atlona/OmniStream

Impera Connect-X MP6 Multiport Extender Takes Your Biamp Control Farther

The Impera Connect-X MP6 is a lightweight peripheral that easily extends the versatility of Impera controllers, control pads, and Apprimo Touch 8i control panels by adding serial, IR, GPIO and LAN control to Impera controllers connected to local area networks. Each LAN-connected Impera controller can host up to eight Connect-X MP6 multiport extenders without consuming any LAN ports. The Connect-X MP6 bridges the local area network and conventional AV ports, letting installers use the convenience of Ethernet cabling to bring AV ports directly to devices. At less than one-quarter pound (110g), the Connect-X MP6 is easily mounted using screws, double-sided tape, or zip ties.

The Connect-X MP6 is easily configured within Project Designer software as the needs of the room change over time. The Connect-X MP6 bridges the local area network and conventional AV ports, letting installers

use the convenience of Ethernet cabling to bring AV ports directly to devices. Weighing less than one-quarter pound (110g), the Connect-X MP6 is easily mounted using screws, double-sided tape, or zip ties.

While in stock and ready to ship, standard lead times apply for new Connect-X MP6 orders. Readers are advised to consult with their regional sales representative for estimated shipping times.

To enable the Connect-X, be sure and download the latest version of **Project Designer configuration software** This newest release – version 1.33.1 – also contains needed updates for other control products.

Biamp/Connect-X MP6

LynTec Expands Power Distribution and Control Portfolio with PDS-12 Sequencing Relay Panel
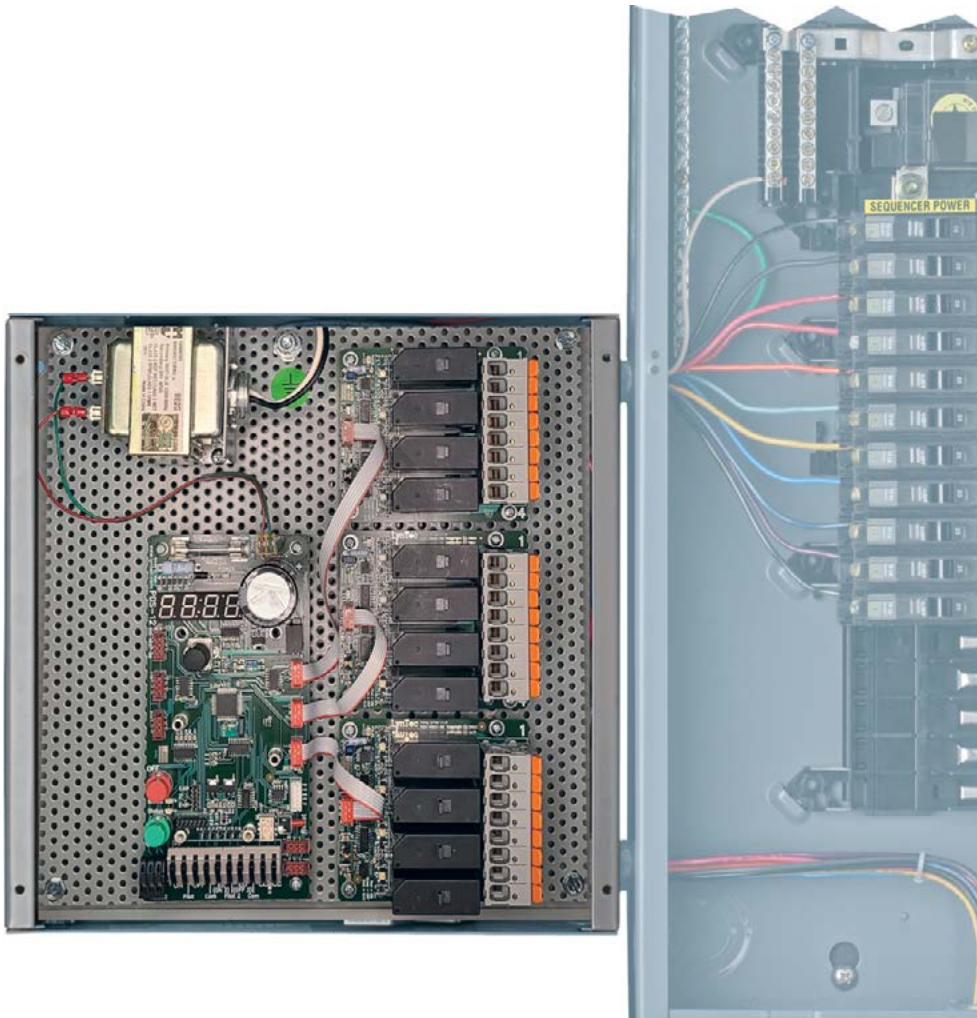
LynTec's new PDS-12 panel builds on the power control features of the legacy PDS-10 relay panel — one of the company's most popular products — with a critical redesign that delivers additional cost savings and features.

LynTec's PDS-12 is a low-cost, feature-rich relay panel with four, eight, or 12 30-amp, single-pole latching Panasonic relays installed in a compact, 1-square-foot NEMA 1R or 3R enclosure. The new panel features individual step delays between each relay, emergency off by circuit, emergency on for lighting by circuit, as well as under-and-over voltage sensing for brownout and voltage spike protection. It's easy to set up via an LED display and rotary encoder.

BACnet IP is expandable and can be added to existing building automation systems — a feature also available with the company's LCP and RPC power control solutions.

The PDS-12 Sequencing Relay Panel is now shipping.

Lyntec

Modulo Pi Focuses on Interactivity with Launch of Modulo Kinetic V5

Introduced in 2016, Modulo Kinetic was Modulo Pi's flagship media server. The versatile platform can be used across a complete project workflow thanks to its 3D environment, real-time timelines, embedded live mixer and show control tools, all brought within one consistent user-friendly interface. Additionally, the scalable platform is based on Kinetic Designer, an intuitive user interface with a dedicated workstation, connected to one or several networked V-Node servers.

Previewed at ISE 2023 in Barcelona, version 5 of the Modulo Kinetic is now available. Modulo Kinetic V5 facilitates the creation and implementation of experiences featuring real-time interactions with video, audio, light, generative content or machinery, for both permanent installations and live events. All the steps required in an interactive design, from calibrating sensors to creating effects, are accessible from the media server, without having to program code or create gateways to a suite of third-party tools.

Modulo Kinetic V5 adds the support of various sensors to meet the needs and budget of any type of project such as 2D LiDAR from Hokuyo and Leuze, 3D LiDAR from Ouster, but also Azure Kinect, Orbbec cameras, and Leap Motion.

Integrated into Modulo Kinetic's internal library of devices, the sensors can be calibrated in seconds, allowing the media server to flawlessly retrieve the position of one or multiple users to generate the interactive experience. A library of the effects available as nodes is also embedded in Modulo Kinetic. The media server's nodal compositing tool allows nodes to be chained and cumulated to create unique effects. Modulo Kinetic's timelines system makes it easy to mix interactive layers and pre-calculated media for smooth playback.

Until August 31, 2023, a special offer is available on the Modulo Kinetic V5 software version: 50% discount on the 1-month and 3-month subscriptions with the code **MKV5**

Modulo Pi/Modulo Kinetic

Scalable Real-Time Projection Mapping API Includes Streamlined Connection to Third-Party Media Servers

Scalable Display Technologies has unveiled a new Real-Time Projection Mapping API which automatically calibrates a group of projectors displaying onto an intricate object that moves freely in any orientation or direction in a large 3D space while maintaining precise content mapping at every frame.

Scalable's Real-Time Projection Mapping API includes new calibration elements and a streamlined connection to third-party media servers. Historically, Scalable has calibrated to a fixed screen location, but with this new capability, it can auto-calibrate a single object at many different locations, generating a meta-calibration for the entire projected area.

This new technique allows for high-accuracy 3D mapping in real-time as an object moves anywhere within the calibrated volume. This latest functionality

from Scalable is accessible from any media server integrated with Scalable's SDK to deliver cutting-edge visuals for the most engaging entertainment applications. Media servers integrated with Scalable's SDK may use the volumetric calibration in conjunction with a motion tracking system to achieve accurate image registration to a tracked object at up to 240 frames per second as the object moves freely within the space.

Scalable

Nureva HDL410 Enables Precise Camera Tracking with Lumens PTZ cameras

Nureva Inc. has announced a Lumens Digital Optics Inc. integration that enables sophisticated positional camera tracking. It involves pairing Nureva's HDL410 audio conferencing system with Lumens' PTZ cameras.

Using Nureva's sound location device API, available through the Nureva Developer Toolkit, and the **Lumens CamConnect Pro** , this software-free integration allows coordinate-based location data from Nureva's HDL410 system to steer one or multiple cameras accurately and smoothly to where people are speaking in the room.

The HDL410's accurate sound location data delivers improved camera views across a large, crowded boardroom or classroom, where face and body tracking can often be challenging. The precise steering and switching of cameras create an enhanced remote collaboration experience by accurately focusing on the active talker and eliminating the need for configuring lobes mapped to camera presets.

Lumens completed an integration with Nureva's HDL300 and Dual HDL300 systems in January. The integration with the HDL410 system is set to be completed this summer.

Camera tracking is becoming a key requirement in hybrid spaces, and the upcoming Lumens integration is one of many to leverage Nureva's next-generation Microphone Mist technology. Its thousands of virtual microphones are used to accurately locate sound sources everywhere in a room, and advanced processing algorithms filter out unwanted sounds that make it difficult for remote participants to follow the presenter.

Nureva's API streams data regarding sound location and sound level, tailored to the Nureva audio system being used. Sound locations are reported several times per second to enable automatic camera adjustments based on the location of the talker or multiple talkers. This ensures accurate camera positioning and an enhanced experience for remote participants.

The Lumens integration with the Nureva HDL410 system will be available in August 2023. The MSRP for Lumens CamConnect Pro is US$ 1,999. Prices in other countries will vary.

Nureva/HDL410

Barco Unveils New G50 Projectors

Barco, a leading innovator in projection technology, has launched its new G50 laser smart line projector. With its unparalleled size, weight, and energy efficiency, the G50 is poised to revolutionize the industry, delivering exceptional performance for a wide range of applications.

Earlier this year, Barco shared a proud announcement as the sales numbers of their single-chip G-series laser projectors hit the symbolic mark of 10,000 units. The InfoComm launch of the three new G50 projectors is a new milestone for the projector manufacturer and its G-series offering, which now comprises ten projectors between 6 and 22K lumens.

One of the key highlights of the G50 is its exceptional compactness and lightweight design. Weighing between 11-13kg, the G50 is currently the smallest projector available in the entire industry. Despite its diminutive size, the G50 outperforms similar projectors on the market, offering the highest light efficiency for visualizing high-quality content in all its glory.

In addition to its size and weight advantages, the G50 projectors address the growing importance of sustainability. With an industry-leading energy efficiency of up to 18 Lm/W, the G50 offers the most cost-effective lumen per watt ratio available. Furthermore, its long-lasting laser light source makes the G50 a smart choice and an environmentally friendly solution for all your projection needs.

Its affordable price point and powerful and green performance ensure that G50 users can achieve outstanding visual experiences without breaking the bank. "The Barco G-series bring uncompromised laser projection with premium value at a very competitive pricing," adds Domien De Witte, vice president of Product IX at Barco. "With the introduction of our new G50 models, we want to reaffirm our commitment to pushing the boundaries of our projection portfolio into new markets, bringing best-seller solutions for every budget."

This projector promises to redefine visual experiences in various applications – such as boardrooms, museums, corporate events, and even entry-level simulation – offering unmatched size, weight, energy efficiency, and compatibility with rental peripherals, all while delivering superior image quality.

Barco/G50

Ross Video Quorum Transforms Meetings with Next-Gen Control

Bring your meetings into focus with Quorum, the new meeting control system from Ross Video. Quorum represents a "significant leap forward in meeting control technology", built from the ground up it revolutionizes the user experience. While originally conceived for legislative customers, Quorum is an ideal solution for any production seeking an easy-to-use system for generating meeting content or simple coverage, even with minimally experienced operators who may have little to no prior broadcast experience.

With Quorum's intuitive interface, navigating the intricate controls of the broadcasting system has "never been easier". Users gain the power to choose the most visually appealing angle, granting them unparalleled control over their broadcasting experience. Combined with broadcast quality graphics and switching Quorum allows anyone to level up their meetings production. Gone are the days of grappling with technical complexities; now, users can effortlessly harness the full potential of advanced broadcast tools.

Key Features of Quorum:

- Thumbnail-based Camera Selection
By merely selecting a thumbnail image of a meeting

participant, Quorum revolutionizes the broadcasting experience by allowing users to prepare and utilize up to three camera shots concurrently. This empowers them to select the best angle without requiring in-depth knowledge of the intricate broadcast systems working behind the scenes.

-Intelligent Graphics Integration
The system seamlessly integrates relevant graphics and overlays, enabling meeting participants to enhance their visual presentations with captivating visuals and compelling information.

-Simplified Controls
With a user-friendly interface, dealing with complex broadcasting tools is a thing of the past. Users can navigate through the system, choosing the optimal angle that suits their preferences and delivers the most impactful visual representation.

-Intuitive Web Interface
Quorum boasts an intuitive web interface, empowering operators to master the platform in under 30 minutes. This enables subject matter experts to take control of meetings from anywhere, offering unparalleled flexibility.

-Seamless Integration
Quorum seamlessly integrates with the most extensive device library in the industry, ensuring compatibility with a wide range of broadcasting equipment. This enables users to leverage their existing resources while simplifying the control of the system.

With built-in security, user management, and an innovative user interface, Quorum stands in a

class of its own. It empowers users to effortlessly prepare and customize meetings at the touch of a button. Organizations can now align Quorum with their corporate IT policies, granting access only to

authorized personnel who can fully harness the system's potential.

Ross Video/Quorum

New Extron Network Button Panels Offer the Convenience of Volume Control

Extron's NBP VC1 D and NBP VC2 D Network Button Panels are fully customizable AV system control interfaces that have been designed for use with Extron control systems and HC 400 Series products. Customizable and easy to use, they connect to your control processors via standard Ethernet and provide convenient volume control within a room.

The **NBP VC1 D** features a rotary volume control knob that provides smooth, precise volume levels and a dual colour, illuminated soft touch button for muting.

The **NBP VC2 D** provides volume and microphone level controls with six customizable, soft-touch buttons that are backlit for easy operation in low-light environments.

Both models offer LEDs that provide an at-a-glance level indication of volume levels. The PoE-powered NBP VC1 D and NBP VC2 D mount in single gang junction boxes and include black and white decorator-style wallplates and mud rings.

With their freedom from distance limitations, a broad variety of button layouts, and customizable labels, there are multiple applications for Extron Network Button Panels. Network Button Panels work with TouchLink Pro touchpanels and HC 400 Series products and share the same IP Link Pro xi control processor. This is especially convenient for applications that require simple pushbutton AV control in some locations and sophisticated interactive control in others.

Extron/Network Button Panels

Emerging Pro AV Expo AV-ICN Wins Industry Support in Creating Alternate Platform

AV-ICN Expo won the support of the AV industry which was equally determined in creating an alternate AV expo platform that could be trusted to be neutral and independent. The Indian AV industry by virtue of strong IT legacy and very high level of knowledge in integration, communication networking boasts of a developed AV ecosystem. The AV professionals thus recognized the need for AV-ICN Expo as providing a just platform to showcase their latest product technology, innovation and frontier-edge engineering in providing solutions for 4G/5G interface and delivery in audio video -AV over IP. "Creating the future was the mantra for AV-ICN, and now after witnessing the opposing wind to somehow forestall AV-ICN, the mantra now is determining the future", declared

AV-ICN Expo's Founding Director, Anil Chopra. He adds, "The explosion of very high-end AV projects in India in sports, hospitality, education, corporate, devotional and consequently explosion of large system integrators augurs success of AV-ICN."

Attendees at AV-ICN Expo

PALM + AV-ICN Expo witnessed a total footfall of **27,786** and a unique visitor count of **21,659** attendees across the expo halls over three days of the show, exploring and interacting with state-of-the-art product technology, innovation, and display, while acquiring trade knowledge, insight, and wisdom from reputed industry experts at the AV-ICN Conference. AV-ICN Expo 2023 estimates that the show floor was

populated with approximately 45% Actual Users and 52% Trade Visitors.

With these visitors engaging the exhibitors for business and identifying products for their needs, the show delivered quantum business to fulfil the demand in the pro AV industry, which is exploding for display, digital signage, OOH LEDs. The exponential growth in AV conferencing in India with the entire marketplace supported by affordable broadband and the rapid explosion of corporate conferencing has resulted in a massive demand for microphones, displays and speakers – fulfilled by a massive number of integrators.

A total of 44 exhibitors displayed the latest AV product brands and solutions at the AV-ICN Expo in Hall 2, while a substantial number of exhibitors covering AV segments such as install sound, amplifiers, and more, were at the top of their game in Hall 1. The AV-ICN Expo 2023 saw crème de la crème exhibitors, influential, decisive, key players from the AV market, exhibiting avant-garde products from game-changing brands like Epson, Christie, BenQ, Optoma, Maxhub, Absen, AOTO, NewTech Video Systems, Lotus Cine Group, and NTeck Systems.

Narendra Naidu, Chairman & MD, Rhino Engineers Pvt. Ltd., commented, "The AV-ICN Expo was indeed great! I enjoyed meeting OEMs and System Integrators from the AV Industry and CAVS gave me a platform to educate young generation about the application of Pro Audio in Indian AV Industry."

The AV-ICN conferences, divided over a span of three days, focused on the latest trends, practices, and innovations in the world of Pro AV, addressing the audience on the massive transformation underway in the AV industry.

AV-ICN Conference 2023: A Symposium of Intelligentsia

'Sound In Visual Design – Integrating Invisible Sound Into Aesthetic Spaces', revolved around how form and function are brought together by creating a fine balance between aural and visual components in design. **'Large Scale AV Integration of Visitor Attraction Venues',** provided a detailed insight into the nuances of integrating AV tools and technologies in large-scale visitor attraction venues. **'PANEL DISCUSSION ON TOP DISPLAY TRENDS IN 2023 – Flexible Displays, Immersive Displays, Digital Signage, Micro LEDs, LCDs, Projection Technologies, OLEDs, Quantum Dots, Laser-based Display**' saw panellists deliver an overview of the emerging trends from the display industry and the momentum it created with regards to the demand for various AV applications. **'Holistic Museum Design and Integration'** addressed the implications involved in museum design and integration, and the need for developing a talent pool of AV professionals to deliver holistic AV solutions. **'Education – Smart Class',** was an elaborate session that initiated a dialogue about how the Indian education sector is making knowledge accessible with the use of powerful AV applications.

CAVS 2023 Galvanizes Indian Pro AV Education

A highlight feature of AV-ICN Expo, CAVS (Certified AV Specialist) Course played a proactive role in galvanizing Pro AV standards, integration, and process for AV professionals in India. With 50 attendees eager to upskill themselves in the field of AV, over the course of three days, the CAVS imparted AV knowledge to numerous attendees, with renowned industry experts such as Narendra Naidu, Arif Patil, Satyanaryanan Reddy, and Sajan Joseph conducting day-long sessions on Pro Audio, Video, Integration Networking, and AR/VR respectively.

AR/VR at AV-ICN Expo

Ctrl Alt Experience delivered another pivotal feature of the AV-ICN Expo with the revolutionary AR/VR walkthroughs. The company successfully got in touch with numerous clienteles who demanded the AR/VR applications, such as 3D AR/VR Virtual Reality Walkthroughs, for their AV consultancies. Ctrl Alt Experience worked with the companies and brands to design and structure the VR experience or training, then create 3D models and environments and put them all together to develop the application either in

Unity3D or Unreal Engine which that runs on the virtual headsets for an immersive experience/training.

Visitors were able to explore 3D Virtual Interaction in gaming, education, training simulations, architectural visualization, healthcare, and virtual tourism, offering them unprecedented levels of engagement and realism.

Visitors at the PALM AR/VR experiential feature are seen at the booth using the Meta Quest 2 and the PICO Neo 3 virtual reality standalone headsets both of which combine high-resolution displays, motion tracking, and audio with 6 degrees of freedom enabling users to truly experience an immersive and interactive virtual environment.

Infotainment - The Hidden Gem of the Pro AV Industry

by Elton Noronha

The landscape across business, education and entertainment has witnessed immense transformations over the course of the past two decades or so; and through it all, one sector has been quietly gaining momentum and transforming the way brands and establishments the world over engage and entertain their target audiences … Infotainment … Combining the power of information and entertainment, Infotainment has emerged as a hidden gem that has, till date, retained its 'wow factor'; as it continues to captivate audiences and redefine the way content is consumed and experienced. In this feature, we delve into the world of Infotainment, exploring its different facets, the role of professional AV technologies, some of the notable trends shaping this rapidly expanding sector; and a whole lot more …

Infotainment and its Market Scope

Infotainment can be described as the convergence of information and entertainment, where engaging content that is meant to inform and educate the viewer about a particular topic, is delivered in an entertaining format.

Bala Krishnan, owner of Singapore based veteran professional AV solutions company, **Mediatechnic Solutions** informs, "Infotainment is essentially about presenting content in

an entertaining way using technologies. We also use the term Edutainment when it involves catering to a younger audience, like children. An example for this would be an interactive playground that entertains kids and shares valuable information about nature, materials, etc. Unsurprisingly, Infotainment and Edutainment have become increasingly popular in recent times; though the transformation had already begun about 20 years ago."

MediaTechnic Solutions is a multi-disciplined Integration company with offices in Singapore and Malaysia. The company provides high quality AV system integration services to the corporate, education and entertainment sectors across South East Asia and beyond; while also having created a niche in the Infotainment space with projects like the URA Gallery, Discovery Centre, Haw Par Villa's Hell Museum and most recently, the largest aquarium in Vietnam, the Sea Shell Aquarium in Phu Quoc Island.

Calling upon his experience of commissioning some of the most fascinating interactive infotainment venues in Singapore, Bala speaks about the origins and progress of infotainment as key segment, as he informs "Museums or visitor centres started incorporating multiple slide projectors and sound and light systems to make static and diorama exhibits more interactive. This was the beginning of integrating audio, video and lighting to present and entertain. Now-a-days, it's almost impossible to visit a space that does not have an interactive element. With millennials and Gen Zs being tech-savvy, museums and other institutions have accepted the need to create more interactive experiences."

Permeating various industries; Infotainment today stands as a multifaceted concept that encompasses a range of mediums including digital signage, interactive displays, experiential installations, immersive environments, and much more. In fact, application segments such as retail, hospitality, transportation, education, corporate sectors, and even government-backed initiatives; have all invested heavily in Infotainment over the course of the past decade or so. This has, essentially, become a key part of their operational strategies to elevate customer experiences, enhance brand engagement, improve communication and increase overall customer interaction.

Reports suggest that Infotainment as a market segment world-wide has witnessed a remarkable surge since 2015, with a steady year-on-year growth of a minimum of 7.92%. It is estimated that by 2030, this segment as a whole (across industries like automotive, retail, government, hospitality, corporate, education etc) is expected to comfortably cross the USD180 billion mark, with a CAGR of over 10.9%. Asia, in particular, has emerged as a major force driving the growth of Infotainment, as the region accounts for approximately 36% of the global market; with the steady increase being attributed to an accelerated rate of technological advancements, increasing urbanization, and the growing demand for interactive and compelling experiences across Asian markets.

Kelvin Ashby-King, a widely respected veteran of the professional AV domain and **principal consultant at Clarity Consulting** – one of India's most renowned professional AV solutions providers – explains how India has become a key geographical market for infotainment applications, as he comments, "Infotainment has been around for many years … for us it started as creating in 2000 customer briefing / experience centres for TCS, Infosys, Satyam, Wipro among others. It all started off with the idea of

creating spaces to mainly promote and explain the various services that Indian software company's were providing to their customers, and to create 'WOW' experiences through the use of technology – the likes of which had not been seen or experienced before. This eventually led to us winning the 2004 Association of Briefing Centres Award for Best New or Renovated in the World for Satyam L.I.V.E. (Live, Interactive, Virtual Experience).

Holographic projection at the Life and Times of Sadhu Vaswani museum in Pune

Then in 2010 or so new museums started coming up in India, both government and private, and this was the start of experiential museums with the first major one being Khalsa Heritage Museum in the Punjab and Dharshan - The Life and Times of Sadhu Vaswani in Pune which used may of the new technologies that were entering the space back then. These included, edge blended projection, projection mapping, holographic projection, interactive video and audio and so on. When you look at it in terms of the present-day scenario – these technologies are all now a major component of all new and upcoming museums, as the current generation have high expectations from content being not just informative, but also entertaining!"

Role of Professional AV Technologies in Infotainment

It is common knowledge by now that Infotainment applications rely heavily on the successful strategic implementation of professional AV technologies; and many a times, the technologies assimilated in such applications are quite similar to those deployed in traditional AV projects. These include products and systems across categories like sound, projection, display screens and other viewing mediums, cables and connectors … and so on. And while the products and technologies might be the same; the methodologies adopted in designing and commissioning a comprehensive AV solution for infotainment applications vs traditional applications, are evidently distinct.

Kelvin informs about the major differences in running AV systems for infotainment applications; as he affirms, "There are unique control methodologies for bringing together infotainment experiences – and these usually have many different technology elements working together simultaneously in a highly coordinated manner. Stuff like audio, projection, mechanical systems, along with interactive elements like touch, gesture, and so on. We use time-code based control systems for precise control of these various facets. At the same time, we as solution providers, also need to design the system for repetitive 16/7 operation, with due consideration to the fact that they are critical systems with a 0% room for failure. For example, failure of even a single projector in a multi projector show would mean that the show cannot go on. This is exactly why we as solution providers pay extra close attention in designing strong systems that can match performance and longevity expectations, while also being highly efficient in terms of maintenance and redundancy."

To this, Bala adds, "Every Infotainment project is different, and an integrator needs to know about a whole bunch of different products and technologies, that would essentially be in addition to and/or complement the AV aspect. One thing is for certain though, – the system is generally expected to be used at a minimum of 12/7 – so durability is essential, as downtime is unacceptable. This is exactly why all of the AV equipment needs to be commercial-grade, especially the displays. Though the initial investment would be higher, the cost would eventually be amortized over several years of consistent use. Having an innate understanding of this concept and putting it into practice is perhaps the most important aspect of designing a system for infotainment applications. Additionally, an SI also needs to understand the various communication protocols and the method of communication between the different sensors, triggers, media servers, interface and AV equipment to ensure a successful outcome. Another extremely important underlying aspect of an infotainment integration is cabling. Though this may not be the sexy aspect of AV, it definitely is critical. Cabling is your infrastructure where content, data and control are transmitted; and this is why cabling must be future-proof so that any upgrade or movement of exhibits can be handled easily."

Factoring Content into the AV Design

Speaking about content, since infotainment applications rely heavily on the creation of emotive and immersive environments that can foster higher retention of the information being shared, it naturally becomes important for system designers, integrators and solution providers to have a certain level of creative understanding of the content / message that needs to be delivered. This understanding helps them advise the design team members on how a favourable

outcome can be achieved by deploying a carefully curated set of products, systems and technologies.

Bala throws more light on the subject as he reveals, "Even before we go into content creation, the first step in Infotainment projects is to understand the creative intent of the consultants. When we go into a project, we usually tell the creative consultants to put aside the technology aspect of things and share their vision of the user / audience experience they hope to achieve in each part of the project. We adopt this approach as we do not want them to be constrained by the technology. Once we get the creative intent, we can then begin work on what is possible, what is not, and where we can compromise."

Kelvin too agrees that an AV expert first needs to approach an infotainment project from the content point of view, while also taking stock of the diverse requirements of the project, the complexity, scale and high reliability requirements, and the programming capability needed for show control and integration of various AVand mechanical systems. He asserts, "You first need to understand the content, and collaborate with various content experts like the exhibit designers, animators, film makers, and scripting and content teams etc. Through such collaborations, the team is able to plan the use of the technology and how will this react with the exhibit layout - space requirements, restricted areas for projection requirements, control rooms and hub rooms and so on. AV experts need to work together with the content providers to ensure the right resolutions and file formats are generated and make sure the creative personnel understand how content needs to be prepared for mapping, blending, etc; and how film needs to be shot for holographic use; how to prepare the right kind of audio mixes for 11.1, Atmos or multi-channel surround processing … and so on. Together, the exhibit designer and the AV

expert also need to consider acoustics and placement of audio for audio pollution avoidance. Content is very costly to develop and more often than not, content cannot be changedat the last minute. Therefore, the coordination between AV experts and content providers is more important than words can express!"

While it is important for AVSIs to understand the content aspect of the project in order to design the most comprehensive AV system that can do justice to the content; it is also important for the exhibit promoters and content experts to be clear about the various technologies that would come together to bring the content to life.

Bala details this as he shares, "They are creating an experience, and they need to understand how lighting, sensors and all the various AV components will affect the interactive aspects of their content. Even the size of the content is a key consideration; as perhaps a sensor might not be able to 'capture' a guest's movement if the icon is too small. From a systems integrator's point of view, we also need to understand from the content developers what kind of communication protocol they intend to use, what is the content resource, and how heavy the resource is. All of this information helps us ensure that we have the right sensors and triggers to make it work smoothly, as envisioned. A simple example to explain this is to consider a piece of content running on tablets. We need to know the operating system so that we have appropriate tablets."

Challenges Faced by AVSIs

From the previous discussion on how the consideration of content is vital to the overall AV infrastructure of an infotainment project, it is safe to assume that a close level of active collaboration between the various AV and content stakeholders tends to be paramount in terms of saving on time and cost. And for this scenario to come to fruition though, it becomes imperative for AVSIs to be involved with the project from the get-go; so that enough of time is allowed to build and foster the kind of channels of communications required to enable meaningful collaboration between the respective stakeholders.

The truth of the matter, however, appears to be far from ideal, as Kelvin explains, "We do make it clear to the client that programming requires time and it is very important to have multiple dry runs in order to finalise timing, iron out any operation issues and fine-tune the overall experience for the end audience. It is important to start the programming process early so that we can setup and test all equipment enough to ensure that they communicate properly with the show control systems. Sadly though, as with all AV installations, we are always the last ones in the cycle – and so, any and all kinds of delays tend to have an impact on the AV schedule."

In such situations where time is of the essence, yet scarce; it becomes imperative for AV experts to choose products and technologies that not only work well together as a cohesive system, but are also dexterous and efficient enough to compensate for any unforeseen situations.

Selection of products and technologies from a single manufacturer that are designed to work together as a cohesive solution have traditionally been looked at as the best approach to system design, mainly because the products are designed to work together and also extend the capabilities of the other essential components of the tech infrastructure. However, with overall maintenance and operability of the equipment taking precedence; instituting such solutions may not always be possible.

Thankfully, technological advancements in AV across categories like sound, lighting, displays, projection and the likes, have now made it easier for AV experts to design tailored solutions that bring together technologies from different manufacturers and brands, without compromising on quality, performance, operability, and of course, maintenance.

AV Experts Excited About Advancements in AV Technologies

"AV technologies have improved by leaps and bounds. For example, I had mentioned earlier that cabling is integral for Infotainment projects, and fibre now offers a lot more bandwidth for video, data and signal transmission effectively. Prices have come down for fibre, and I really do believe this will be used increasingly for large-scale projects in the near future. Plus, on the projection front there are now laser projectors, 4K resolution displays, advanced control systems and even immersive audio systems – all of which have proven to be fantastic for infotainment applications!" exclaims Bala as he briefly speaks about the various technological advancements within the AV realm that have now come to be an integral part of infotainment spaces. Bala further engages his optimism about the 2D and recently released 3D LIDAR sensors, which hold the capacity to transform an LED wall into an interactive space without requiring cameras or IR sensors, with the 3D LIDAR sensors offering more visual depth thereby making the user experience much more engaging.

There's no denying the fact that the convergence of Infotainment with smart environments and Internet of Things (IoT) technologies does introduce a whole new world of possibilities. By connecting Infotainment systems with IoT-enabled devices and sensors, seamless and context-aware experiences can be created, enabling real-time information delivery and interactive engagement. This convergence opens up new possibilities for Infotainment in smart cities, smart buildings, and other such connected spaces. Plus, by leveraging AI algorithms and data-driven insights, Infotainment systems can analyse audience behaviour, demographics, and preferences to deliver targeted and customized content, maximizing engagement and impact. And added to these is the growing fascination with eco-friendly technologies, energy-efficient solutions, and the use of recycled materials are gaining traction, which aim to enable organizations to minimize their environmental footprint while delivering captivating Infotainment experiences.

Back to the realm of AV technologies; and Kelvin too has an extremely positive take on the topic, as he details some of the key advancements that have equipped AV experts with an enhanced set of tools to create better and more realistic experiences. He describes, "For example, digital and spatial audio allow us to create completely immersive audio environments, while networked audio makes the installation process a whole lot easier. On the other hand, integration of new age LED lighting technologies and sophisticated moving heads has allowed for colour changing capabilities and possibilities to create complicated lighting effects by using a single type of fixture, which in turn has resulted in reduced costs. Then there's also advancements in projection that covers edge blending, holographic and mapping capabilities which come with new feature sets, tools and possibilities; all of which now allow for easier creation of more immersive experiences. I must say, though the biggest change that I've noticed in the field has been the widespread incorporation of touch technology and gesture control, which has allowed visitors to access information on many levels and has been successful in actively engaging people, thereby fostering a more meaningful interactive element."

AV Manufacturers Upping the Ante

Positive remarks shared by the AV experts depicts the fact that manufacturers have paid keen attention to developing their product lines and technologies in ways that make them conducive to infotainment applications (among others!).
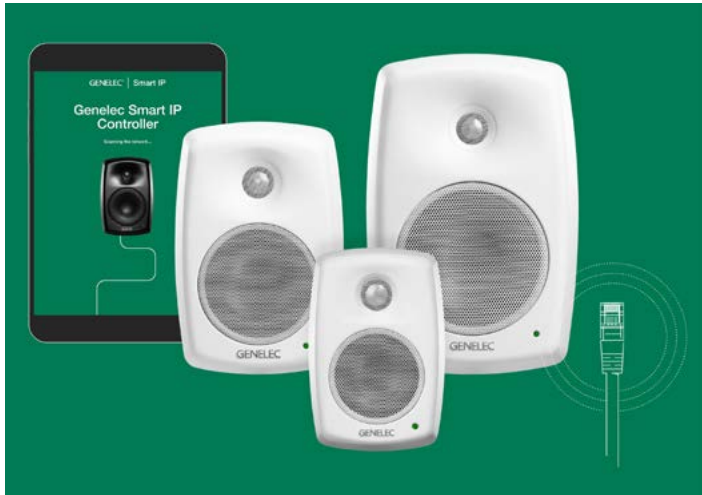
Genelec Smart IP

For example, **Genelec** – a reputed market leader in audio technology – created its Smart IP family of networked loudspeakers, that have been designed to offer an enhanced combination of exceptional sound quality and single cable convenience. Operating via a single standard CAT cable which provides power, audio and management, Smart IP loudspeakers are quick and simple to install and configure using any building's standard Ethernet IT infrastructure; while also offering the ability to tailor each loudspeaker's performance to match the acoustics of the room (even in challenging spaces) – all of which is made possible via a combination of powerful onboard DSP and flexible management software. Their active design removes the need for bulky external amplifiers and cabling, whereas their minimalist aesthetic combined with multiple colour options and a vast array of mounting accessories, allows the loudspeakers to blend discretely and seamlessly into any environment. And owing to these range of benefits, Genelec's Smart

IP family of loudspeakers have caught the attention of AV experts for Infotainment applications world-wide.

It's worth noting that Genelec's success and acclaim within the Infotainment space isn't restricted to the Smart IP family, as several of the brand's loudspeakers have found their presence as an integral part of prestigious projects world-wide. As **Arun Kumar, Genelec's regional business manager** for Asia and the Middle East, notes, "At Genelec, we're definitely seeing a global increase in the number of Infotainment projects that are moving well beyond the dusty and static environments of yesteryear, and are using the latest AV technology to both educate and entertain visitors. These days, technology is allowing people of all ages to experience interactivity and immersion in their daily lives – so the bar has really been raised in terms of what's necessary to engage and inspire visitors these days. For us as a loudspeaker manufacturer, we've seen the installation of an increasing number of multi-channel immersive sound systems, in conjunction with sophisticated sound design and cutting-edge video equipment. These more complex soundscapes are therefore driving the demand for high quality loudspeakers, since precise and intelligible audio is essential in creating a believable and engaging visitor environment."

A prime example of what Arun described is Tokyo's Zukan Museum, which is hailed by many as an 'experience-based facility' that fuses the digital and the real, and offers an immersive and interactive journey to discover the natural world beyond time and space. Over 100 Genelec loudspeakers (85 units of the 8010 loudspeakers, 23 units of the 8020 loudspeakers, and 7 units of the 7360 subwoofers) combined with cutting edge video technology help drive the experience –

The Zukan Museum features over 100 Genelec loudspeakers

where natural environments of forests and water are seamlessly connected for a magical journey through the world of living things. System integrator Takashi Miyamoto commented on this saying, "Other loudspeakers used different mechanisms to achieve localisation, but that was problematic in multichannel setups, and in general, they lacked the accurate sound reproduction we were looking for. Genelec's superlative acoustic characteristics and flexible installation were a major attraction."

Like sound, projection technology is another product segment that has witnessed a huge surge in technological development with a key focus on expanded capabilities.

As **Lieven Bertels, segment marketing lead – Immersive Experience, BARCO**, affirms "Infotainment is a rapidly evolving market segment – and whether for immersive customer experience centres, digital museums and 'artainment' displays or in general themed entertainment – we see an increased demand for visualizations that offer a true wow-factor through immersing the viewer in the visual narrative, offering faithful colour and dynamic range reproduction and displaying high-resolution, crisp images without artifacts. With more complex setups

though, the infotainment sector will benefit from cloud-connected technologies for easier diagnostics and remote management. To improve image quality and facilitate signal flows, most a/v technology will adopt AVoIP signal routing over fiber IT networks, and Barco is proud to be part of the AIMS consortium setting these new standards. A specific infotainment growth area for which projection is the technology of choice is permanent video mapping. These vast indoor and outdoor immersive projections manage to bring large audiences together, and are a great tool for creative storytelling and city branding. The future of infotainment is looking bright, and the Barco Visioneers are ready to support SIs who are active in this segment."

Barco G50 single-chip and UDM 3-chip DLP projectors

Universally known and lauded for its faithful colour reproduction and crisp image quality; Belgian image technology specialist **Barco** developed two projection platforms that are widely seen in Infotainment projects – the G-series single chip DLP and the UDM 3-chip DLP projectors. The G-series comprises of the G50, G62 and G100 models covering brightness ranges from 5,000 to 22,000 Lumen. They accept 4K inputs and offer in-projector blending and warping and an easy-to-use OSD interface, sealed optics and a laser light source guaranteed to last over 20,000 hours. The new G50 model is the most energy-efficient projector in its class, offering over 18 Lumen per watt of electrical power. On the other hand, the UDM 3-chip platform offers a modular design with an extremely durable metal exoskeleton, sophisticated air filters and Barco's

unique Pulse software on board. The new UDM 4K30 model offers unrivalled colours and install flexibility up to 30,000 lumens.

Beach Cloud an immersive media art project by d'strict usign Barco projectors

d'strict's ARTE MUSEUM, South Korea's largest immersive media art exhibition is a key project that employs the use of Barco's UDM and G-series projectors. In 2020, d'strict opened its first ARTE MUSEUM on Jeju Island with Barco image technology, and has subsequently expanded rapidly across three more locations in Gangneung, Yeosu, and Hong Kong. This includes the delivery of UDM and G-series DLP projectors, as well as access to Barco's Insights Management Suite for global fleet management. And based on the outstanding success of this first collaboration, the Korean digital design company appointed Barco as its sole projector supplier for all its upcoming immersive projects. Through its in-house specialist consultancy group Xcite, Barco affirms that it is able to provide tailormade solutions for demanding clients like d'strict.

Epson – another a leading manufacturer in the realm of laser projection – too have worked diligently in devising high performance solutions that can efficiently cater to the increasingly diverse needs of

the infotainment sector. **Tan May Lin, regional director - Printer & Visual Products and Brand & Communications, Epson**, confirms; "The Infotainment segment represents an exciting intersection of information and entertainment and is experiencing rapid growth. I believe that these days, the key to education lies in engagement. We aim to ensure that our audiences are equally informed and entertained when learning new things. This approach encourages the retention of information as well as delivers a memorable, immersive, and once-in-a-lifetime learning experience for the audience. As the digital landscape continues to evolve, the Infotainment sector has ample opportunities for growth. However, being on top of technological advancements, consumer trends, and changing preferences is crucial. At Epson, we constantly seek innovative solutions to remain at the forefront of digital experiences. We are excited to see the growing demand for more immersive and engaging experiences in the years to come

Epson EB-PU2010B

The brand conceived the EB-PU1006W and EB-PU2010B laser projectors that combine a laser light source and 3LCD technology for brilliant images with no rainbow effect – a crucial factor that is important for photo and video experiences within Infotainment spaces. Both laser projectors offer enhanced colour

brightness, with the former boasting 6000 lumens of colour/white brightness and the latter, 10,000 lumens. When it comes to maintenance and operability, Epson affirms that their 3LCD projectors provide 20,000 hours of virtually maintenance-free operation, meaning that museums and art galleries that need reliable equipment for their infotainment exhibitions can expect 20,000 hours of continuous performance with no bulbs required for replacement. Furthermore, the WUXGA resolution projector is further enhanced with the 4K Enhancement Technology which delivers crystal-clear and true-to-life images 4K-like images.
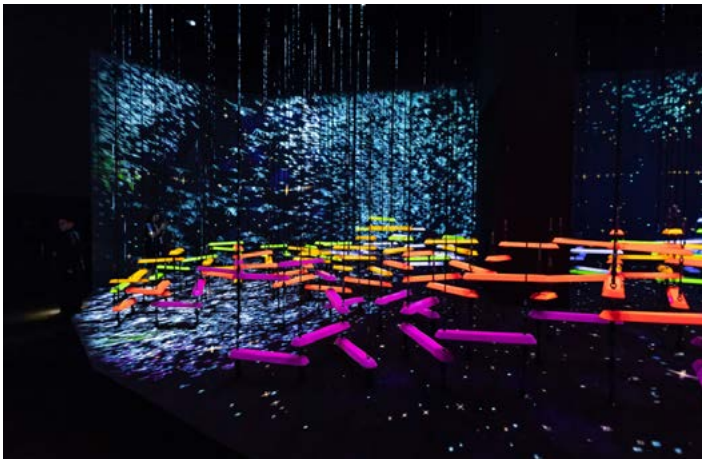
Future World features Epson's 3LCD projectors.

The company affirms that the aforementioned projectors combined with the versatile ELPLX01S ultra-short throw lens have since been used in various Infotainment settings; a prime example of which is the teamLab art exhibition at the ArtScience Museum in SIngapore, titled Future World, which aims to bring visitors into a world of imagination powered by creativity. Over 30 Epson projector units are installed in the space (Epson EB-PU1006W, EB-PU2010B and EB-PU1008B), with the high-brightness projectors delivering superior images, especially within those artworks that feature interactive elements which aim to engage visitors. Epson confirms that convenient and flexible installation process, easy set-up and management of equipment were some of the key

factors that worked in their favour, especially with due consideration to vast expanse of the exhibition.

Christie 4K22-HS

In the same light, **Christie** – one of the world's most preferred brand for projection technologies and innovative displace solutions - offers a range of cutting-edge solutions tailored for infotainment venues. A key example of this is the Christie Griffyn 4K35-RGB pure laser projector that offers a brightness of 36,500 lumens while operating as low as 44 dBA in quiet mode. The unit is capable of producing an exceptionally wide colour gamut, achieving ~98% of the Rec. 2020 colour space for an enhanced audience experience; and also features Electronic Colour Convergence (ECC) that allows users to easily adjust the colour convergence via remote control for picture-perfect colour alignment, and omnidirectional capabilities for unlimited installation flexibility. Similarly, the 22,500-lumen, high-performance Christie 4K22-HS 1DLP laser projector is touted as the 'brightest 4K UHD 1DLP projector on the market' as it boasts of incredible brightness and resolution, plus enhanced colour performance thanks to Christie BoldColor+ technology that enables it to deliver deeper blacks and more natural and realistic onscreen visuals. Alongside, the built-in Christie Twist warping and blending capability enables users to quickly and easily set up and align irregular screens and multi-projector displays.

Xpark Aquarium features 60 Christie 1 DLP laser projectors.

Christie asserts that their range of laser projectors and image processing solutions have brought a new level of excitement and immersion to several infotainment projects across the world; one of which is the Xpark Aquarium in Taiwan. This world-class aquarium showcases over 30,000 fish from more than 300 species across 13 exhibition areas. To create a captivating underwater experience, Xpark Aquarium partnered with Dacoms Technology to deploy Christie's projection and image processing systems throughout the facility. The installation features 60 Christie 1DLP laser projectors comprising the GS and Captiva Series models, and Christie Pandoras Box Compact and Media Players. With Christie's reliable and high-performance solutions, including their long-lasting laser illumination, colour accuracy, and quiet operation, Xpark Aquarium offers visitors a mesmerizing journey through stunning projections and educational messages about environmental protection that perfectly complement the marine life on display.

Delving into details about how Christie's range of projectors and associated technologies have played a vital role in commissioning some of the leading infotainment projects with high-quality immersive

experiences, **Michael Bosworth, executive vice president, Enterprise, Christie**, states, "The prospects of growing the Infotainment segment are promising. With the increasing demand for entertainment and integration of information, this particular segment is poised for greater growth in markets such as China, India and Vietnam. In recent years, we have seen an increasing number of venue owners for museums and public attractions, as well as organizers of cultural events embracing AV technologies to deliver more exciting experiences that include interactivity and a greater sense of immersion. Additionally, factors such as rising consumer expectations, and the rapid development of reality-shifting technologies such as VR and AR have contributed to this positive outlook. The ability to provide interactive and immersive experiences, customized content, and seamless connectivity will be crucial in driving the growth of the Infotainment segment in the future. At Christie, our display and integrated solutions are designed for use in infotainment venues, and we are committed to empowering our customers to create and deliver visually stunning experiences."

Hyper-Real & Hyper-Interactive with AR, VR & MR

Beyond audio, projectors, LED screens, and the likes; other emerging technologies such as augmented reality (AR) and virtual reality (VR) are slowly but surely making their presence felt within the Infotainment sector. These technologies have shown immense potential in offering a hyper-real and hyper-interactive experiences, blurring the lines between the physical and digital realms. With AR and VR, Infotainment content can be delivered in an engaging and personalized manner, providing users with a unique and memorable experience.

Offering the present-day perspective of the involvement of these technologies within infotainment sector, Kelvin informs, "VR, AR and Mixed Reality are definitely technologies that we're starting to deploy; among which AR seems to be the most requested and most implemented for now. I guess this is because the implementation process is quite straight forward. When it comes to VR technology, there still is a need for further development in terms of offering a wider field of view and in reducing latency with higher frame rates to minimize motion sickness – which studies say occurs in 47% of users. Apple's Provision is definitely a future option, and time will tell."

Bala also agrees that AR, VR and MR are already in use at a few infotainment spaces. However, he does present a unique take on the challenges that these technologies would need to overcome for their adoption to become more widespread. He notes, "For VR, the main issue will be hygiene, and because it is based on a single user, it will have its niche for only some installations. For AR, it will be all about designing excellent apps that work instantly when used and if people are comfortable downloading an app."

Impact of Infotainment on the Future of Professional AV

As the Infotainment sector continues to thrive, driven by the integration of increasingly competent and advanced professional AV technologies, it comes as no surprise that we can expect a constant stream of innovation and transformative experiences that will shape the future of entertainment, education, and communication in general. In tow, it also brings in immense potential and untapped opportunities for growth and possible diversification.

Bala sums his thoughts on the subject as he exclaims, "The future is bright, and the potential goes beyond just museums or galleries embracing infotainment

to engage visitors or guests. More and more visitor centres and experience spaces are incorporating interactivity, whereas some schools in Singapore are creating a 'Heritage Trail' to share their school's history using interactivity. There are also places of worship like the Ram Temple in New Delhi in India that is under construction, where they are planning an interactive boat ride to share the story of Ramayana. At the same time, travelling shows also incorporate interactive technologies, such as the Van Gogh Immersive Experience or the Marvel themed events. All in all, it is constant learning when you are involved as a systems integrator for Infotainment projects. Never a dull moment!"

On the other hand, Kelvin explains that though the future may seem bright for infotainment and its subsequent impact on the professional AV market, there still is a need for all stakeholders to keep enhancing their service and technological offerings with the eventual view of bringing together a truly superlative experience for the audiences. As Kelvin puts it, "Infotainment or experience AV is definitely an area that my companies have focused on over the last 25 years, and the market right now is growing and developing concurrently along with technology. It is certainly a niche market area, but one that is definitely worth developing skills in. Companies working in this area will have to develop specialized projection design skills, projection mapping skills, multi-channel audio and programming, and of course, show control programming skills in multiple systems. Most importantly though, they will need UI/UX development skills and a strong ability to work on content delivery – both in terms of the ideation as well as the technological application. These steps will help bring together a higher quality experience that's more cohesive and impactful for the audiences."

AV Media Enhances Hybrid Learning Experience at NTU Nanyang Business School

Nanyang Business School integrates ceiling microphones to transform tiered-seating auditorium into hybrid venue that caters to both attendees and presenters

FACTFILE

Project Name: Auditorium at the NTU Nanyang Business School

Project Location: Singapore

Project Segment: Education

Systems Integrator: AV Media Pte Ltd

AV Highlight: Integration of ceiling microphones at auditorium. This is the first installation of its kind in the world of a Sennheiser ceiling microphone mounted at a height of nine metres

A research-driven university, Nanyang Technological University (NTU) has consistently been ranked among the world's top learning institutions. Adding to the education accolades, the newly launched six-storey building named GAIA, which houses the Nanyang Business School, one of the more established Schools, providing comprehensive business and management education also takes pride as a zero-energy building adding to the university's commitment to sustainability.

GAIA is a mass-engineered-timber (MET) structure with teaching spaces on the first through third floors, a research centre on the fourth, faculty offices on the fifth through sixth floors, and a one-storey M&E

ancillary block. A highly renewable material, MET contributes positively to environmental sustainability. Furthermore, MET is more manageable than steel and concrete due to its high strength-to-weight ratio. The building has a simple and efficient modular timber frame system approximately 220m long. The construction time and workforce required were significantly reduced since the MET components can be prefabricated off-site and assembled on-site. In this space, the Nanyang Business School offers undergraduate and graduate programmes and non-degree executive courses.

The school also wanted to provide hybrid learning opportunities for its diverse student cohort; and also optimise the space for hybrid events, allowing in-person and online engagement. As such, Joe Chan, facilities manager at NTU, was tasked with transforming the auditorium into an effective hybrid space.

"It is important that the experience for all participants attending the lessons and events in-person and those attending remotely would have an all-encompassing experience," explained Joe Chan. "This would certainly enhance the experience for all."

The hybrid system enables the seamless integration of remote speakers and attendees, making it easier than ever to connect and enable a consummate engagement for participants on-site and from around the world.

To achieve this experience, NTU put out a tender and awarded the project to AV Media. Key objectives to be met included:

• Ensuring seamless communication between the instructor/presenter and the in-person and online attendees at the auditorium. Speech clarity for the instructors/presenters and their students/attendees was crucial to achieving this aspect of the brief.

• Additionally, preserving the presenter's audio and video quality was paramount since all presentations and lectures are recorded to facilitate on-demand requests.

AV Media was confident that they would meet the school's objectives, with a spokesperson from AV Media noting, "we immediately recognised that ceiling microphones would be ideal for this project."

The Challenge

This is the first installation of its kind in the world of a Sennheiser ceiling microphone mounted at a height of nine metres and still able to pick up the voice effectively.

The showcase 190-capacity auditorium at the Nanyang Business School has tiered seating with a maximum ceiling height of nine (9) metres, at the front

of the theatre, decreasing gradually towards the back of the theatre.

"The first consideration for us was the pick-up of the voice of the instructors, typically at the front of the auditorium, where the ceiling is high. Additionally, with the tiered seating, the ceiling microphone pick-up had to be adjusted for different seating segments to avoid feedback and cancel out unwanted sound," said the spokesperson from AV Media.

The Solution

"Thankfully, with Sennheiser's TruVoicelift audio tuning, we appropriately increased speech intelligibility across the auditorium. Regardless of where you are standing or sitting, the audio output is seamless and at a level where everyone, including those participating remotely, can listen without the audio fading off or being unclear," added the AV Media spokesperson. The voice-lift system, combines the best of in-person and virtual events to deliver exemplary experience for participants.

The concern of the ceiling microphones picking up the presenter effectively at nine (9) metres, evaporated quickly when the room equipped with the state-of-the-art high ceiling voice-lift microphone proved highly effective. This is the first installation of its kind in the world at such mounted height of nine metres. Typical ceiling installations are less than five metres," said a pleased Joe Chan.

The AV Media team also took pains to ensure that the number of TeamConnect 2 ceiling microphones installed in the auditorium was sufficient. "The TruVoicelift technology helped us adjust the pick-up of audio in a defined manner. Also, the ceiling microphones' automatic beamforming technology, which has 28 inbuilt omnidirectional microphone

capsules, can easily scan the lecture theatre and identify the speaker's position," highlighted the AV Media team. This meant installing the appropriate number of Voicelift technology throughout the room and calibrate it, to ensure presenters with low decibel voices are also heard loud and clear.

Given the likelihood of numerous individuals speaking simultaneously, the AV Media team programmed the system using the Priority Zone function to always give preference to the lecturer or presenter, who is expected most of the time to be at the front of the auditorium. The Priority Zone feature of the TeamConnect 2 ceiling microphones employ advanced algorithms that prioritise the person speaking at the front of the auditorium (the lecturer), concentrating the microphone on that person and over-riding the others speaking simultaneously.

Additionally, the AV Media team carefully calibrated the ceiling microphones to prevent unwanted background noises (such as air conditioners, projectors, door openings, chair movements, and the dropping of pens) from being captured by the mics. "This is particularly useful for those participating remotely where other noises do not distract them from the lecture," added the spokesperson.

Finally, the AV Media team integrated the auditorium's auto-tracking cameras with the ceiling microphones. By doing so, remote participants can see and hear everything occurring in the lecture hall. The tracking camera, follows the presenter as they move around the venue, providing a more engaging and dynamic experience for remote participants.

The AV Media spokesperson was impressed with the cost-efficient solution, "The ceiling microphone is also compatible with different conferencing platforms,

which makes it easier to seamlessly integrate whatever conferencing platform the school uses into the system, saving the school licensing fees and ensuring that lecturers and students can continue with the same platform that they are familiar with."

The Outcome

Joe Chan with Sunny Tan, managing director of AV Media

"We are very pleased with the outcome," affirmed Joe Chan. "Our auditorium is fully hybrid-ready. Both in-person and remote students share the same experience – clear, intelligible audio. Additionally, the auto-tracking cameras allow remote students to be fully engaged as if they are present in the classroom.

The ceiling microphones are simple to use and ensure everyone is heard clearly." Noting the added benefit that AV Media has created "a hands-free solution that eliminates the need for multiple hand-held microphones, thus reducing hygiene risk."

The outcome has benefited more than just the students, according to Joe Chan. "The user experience has improved significantly with these enhanced capabilities. Our hybrid systems are designed to integrate remote speakers and attendees. The presenters, too, can directly deliver their presentations knowing that they can be heard and seen clearly by both remote and on-site participants, especially as they walk around the auditorium. In addition, our technicians are trained to ensure that the technology works seamlessly and deliver a truly world class and interactive experience for everyone. These things matter for a thoroughly engaging experience and it's a great way to connect with new audiences. "

AV Media

Veronica Auditorium: An Equilibrium of Art and Technology

Multi-purpose venue equipped with best-in-class audio-visual and communication technology

by Ram Bavanashi

FACTFILE

Project Name: Veronica Auditorium

Project Location : Patna Women's College, Patna-Bihar

Project Segment: Auditorium

Project Owner: Catholic Religious Sisters of the Apostolic Carmel

Project Architects/Interior Designers: Prayog Architects, Studio Vasuda

Project Consultants: Soundxperts, Mohali, Punjab.

Project Management & Design: Soundxperts

Project Acoustics: Soundxperts

Project Systems Integrator: Soundxperts

Project Contractors: Kumar Heights Pvt Ltd, Patna

Electrical: The Audio Visual Store, Mohali, Punjab

ELV: The Audio Visual Store, Mohali, Punjab

AV & PA/VA: The Audio Visual Store, Mohali, Punjab

Security: The Audio Visual Store, Mohali, Punjab

Project Highlights: India's Largest Samsung Active LED Screen (51 ft x 21 ft); 7.1 Dolby Digital Cinema setup; Lumens 30X PTZ Cameras for video conferencing; iPad/phone-enabled, AMX remotely controllable video system

Key AV Brands in Install: Audio Focus, SX-Pro, Quest, Allen & Heath, Shure, ONYX, Russelz, Lumens, AMX, Samsung

Patna Women's College – one of the earliest higher learning colleges in India, and first of its kind in Bihar – is an institution that glows with a grand aura of nearly a century. Known for its heritage architecture that is as grand as its journey through history, the college has recently invested in a massive, best-in-class audio-visual and lighting system for its newly created 2500-seat Veronica Auditorium.

The prestigiously large AV systems integration is a fruition of coming together of Delhi-based AV distribution major Sun Infonet, and Mohali-based systems integrator Soundxperts.

An SI Asia exclusive:
Patna Women's College, simply said, is unique for many reasons- grand architecture, colossal structure, and century-old history.

Having its initial seeding in third quarter of 19th century – through an assiduous missionary endeavour – it traversed history to take shape as full-fledged college of higher learning as early as 1940, and has come a long way to occupy a haloed status in promoting women's education- in a region hardly known for female literacy.

Growing from strength to strength over the years, the college was conferred upon with Autonomous status by the University Grants Commission in 2018. Today, the institution offers holistic education in as many as 26 undergraduate streams, nine post-graduate courses and four post-graduate diplomas for around 6000 students.

With such a grand setting, and expansive academic endeavour, the historic institution required a matching venue to cater to its increasing demand for a dedicated facility.

Apparently, keeping in view its stature, nay, statute for quality infrastructure, the college administration envisioned the facility to be a multipurpose venue equipped with best-in-class audio-visual and communication technology, in a very classy ambience and able to address applications of diverse nature and size.

Thus came the ideation for its own, dedicated, multipurpose auditorium, and that resulted in the creation of what is christened as Veronica Auditorium- a 2,500-seat large ensemble of art and audio-visual technology.

A thorough market scan and due diligence saw the combination of Delhi-based AV distribution major Sun Infonet and Mohali-based AV solutions provider Soundxperts landing the prestigious project to deploy the turnkey solution that included AV, lighting, acoustics, seating and flooring.

"Having the complete audio solution with renowned brands like Shure, Allen & Heath, Audiofocus, Quest Engineering and Meyer Sound from under one roof will bring a great advantage," says Soundxperts owner **Amninder Warraich**. "It's not just about economies of scale; it's about delivery, precision, technical support, and after sales service," he details. "Sun Infonet is known for their commitment for all that."

Stylized Grandiose – Veronica Auditorium
The Veronica Auditorium is a veritable statement of grand setting:
• It's been designed with a vast stage that can accommodate as many as 350 performers at one go; it can be used for the full spectrum of live band

performances, theatre shows, cultural events, video conferencing and cinema screenings.

• The main screen featuring Samsung P4 active LED screen is the biggest of its kind, measuring 51 feet in width and 21 feet in height.

• Switching mechanism provided by AMX.

• Four networked cameras, and as many as 14 smaller Samsung display screens have been installed alongside the main screen and in the green room, VIP room, control room and main hall.

• For the main PA system, Soundxperts installed eight Audiofocus ARES 8a line array elements and three B 18a LF extensions on each side of the stage, plus a further cluster of four ARES 8a cabinets as centre fills.

• Keeping in view the potential for large numbers of artists onstage, the integrator deployed as many as eight Audiofocus CM 15a low profile monitor speakers, together with four MTSub 218a twin 18" subwoofers.

The Samsung P4 active LED screen meausres 51 feet in width and 21 feet in height

"The P4 Samsung active LED screen comes with a super wide viewing angle," informs Amninder. "It adds another star to the venue and allows multiple pieces of content to be shown at once."

"Audiofocus has always focused on transparent tonality that needs minimal equalisation," commends Sun Infonet Senior Application Engineer, Kallol Nath. "Audiofocus being the main PA system, it gives the user a great ease of operation," he explains further. "As all the cabinets are equipped with internal Wi-Fi, the user can check and alter any parameter of any loudspeaker whenever needed. This brought a lot of flexibility to the entire system."

The beauty of the PA system here is that in addition to live events, it is also capable of delivering full 7.1 Dolby cinema sound for screenings. In order to achieve this surround sound capability, as many as 18 Quest Audio HPI 110 loudspeakers have been installed, with a further 13 units of HPI25 cabinets employed as front fills under the stage and balcony and 2 QM4 as side fills, plus a pair of QM18SA speakers on each side of stage.

Four Quest QSA200i active speakers have also been positioned in the main and stage control rooms while Quest QX2280 amplifiers were weaved in to power the speakers in the main control room and entrance foyer. A pair of Allen & Heath Avantis mixing consoles console was supplied for both FoH and monitor mixing duties. The main PA and surround systems are controlled by an Allen & Heath AHM-32 matrix processor, supported by DX168 and DX012 I/O expanders connected over S-Link. Presets transforming the entire auditorium from a live venue to a cinema can be recalled from the AHM-32's front panel.

"Allen & Heath's AHM DSP is built for scenarios where we have multiple sources and zones," explains Amninder Warraich. According to the Soundxperts

chief, the ability to link AHM-32 to external input and output modules expands its horizons and allows one to control the entire system with surrounds, green rooms, control rooms and more.

"AHM is a very versatile, powerful DSP and it is readily available on the market; that makes it a great choice," he endorses.

The console operations to manage the stage as well as control room activities have been entrusted to Avantis units equipped with a gigaACE card and a DX Hub remote audio networking hub. This enables the consoles handle multiple inputs and outputs.

The microphone architecture is across the facility, and the control rooms has been done with Shure microphones, that include the Shure Axient digital system for the main presenter, plus ULX-D, SLX-D and SVX systems for the audience, anchors, performers, and main control. All Shure systems are networked and can be checked and controlled through the Shure Wireless Workbench application.

The system is designed to cover the entire facility, enabling easy communication between audience members and guest speakers during panel discussions, and allowing interaction between the stage and control rooms.

While wired Shure CVG 18RS-B/C gooseneck mics have been installed at the podium, SM7B vocal microphones have also been roped in to enable studio quality recording of key performances and speeches.

Thinking futuristically, the Patna Women's College management has also invested in a large inventory of microphones for musicians and performers, adding Shure Beta 91/A/C-X, SM57, SM58, PGDRUMKit7, MX 418D/C, MX393/C, SM81-LC, PSM 300, PGA57 and PGA58 to cater for all performance scenarios. Shure UA844+SWB antenna distribution systems and UA874 active directional antennas have also been used to ensure strong, uninterrupted wireless signals.

In the words of Amninder, "today's auditoriums go above and beyond to provide high-impact entertainment, from video, to music, to live performances, delivering an awe-inspiring experience. The high-end range of audio products installed delivers full fidelity, full bandwidth sound, from the deepest lows to crystal clear highs, over a range of programming, from announcements to music."

Sun Infonet

SOUNDEXPERTS

The Audio Visual Store

Museum Visitors Experience 24 hours in 60 minutes with Genelec's Immersive Audio

Inspired by Shogakukan's NEO series of picture books, Zukan Museum is an immersive journey into the world of living things

FACTFILE

Project Name: Zukan Museum Ginza

Project Location: Tokyo, Japan

Project Segment: Museum, Attraction

Systems Designers and Integrators: coton Inc

AV Highlight: To inspire fact-finding in visitors by moving beyond the passive experience of storytelling

Key AV Brand: Genelec

The modern museum experience is a far cry from the dusty, static exhibits of yesteryear that would only interest the most passionate of visitors. Today, a trip to the museum is a treat for all ages, offering visitors the chance to be plunged into alternative realities as part of an experience designed to entertain as well as educate. The Zukan Museum Ginza in Tokyo is no exception.

Located on the 6th floor of the vast Tokyu Plaza Ginza shopping mall, the Zukan Museum has been described as an experience-based facility that merges the virtual and the physical worlds, allowing visitors to learn about the natural world outside of time and space.

Takayuki Kitai of AID-DCC Inc., a contributor to the facility's creative process, explained, "Designed as an

experiential entertainment space that can be enjoyed by people of all ages, the main concept is to encourage visitors to actively seek out information for themselves and go beyond the passive experience of simply being given information."

The 'recording stone' is handed to visitors to help them navigate and record their experience.

As they enter the museum, visitors are handed a recording stone which helps them navigate and record their experience. They then set out on a journey into the world of illustrated books, while witnessing the natural world as it changes over the course of 24 hours—from early morning to late at night—in only 60 minutes.

"The museum faithfully recreates the ecosystem of the natural world, with different creatures appearing in each area, such as the forest, savannah, underwater, etc., where the act of observing and recording the creatures is interactive. For example, if you get too close to a creature, it will be startled and run away," explained Jun Fujiwara of invisi Ltd who was behind the sound production and UX design.

This magical journey is made possible by cutting-edge visual technology and more than 100 Genelec loudspeakers. Kitai elaborated, "This is a world in which living creatures are the main focus. As such,

the element of sound is just as important as the visual aspect in recreating the feeling that these creatures are actually there."

Takashi Miyamoto of coton Inc., the company responsible for implementing the audio system and sound design, described, "The acoustical element is made up of three components: sounds produced by living creatures; background environmental sounds; and musical elements.

The environment changes according to the time of day, just as it does in the real world. In particular, the musical elements are generated using coton's original music generation technology called 'soundtope' – a programme that is closely attuned to human emotions, which are, of course, influenced by the environment. Soundtope automatically generates the most appropriate music based on the season and time of day for a truly authentic experience."

These three acoustical elements, with a total of 150 channels of sound, create different worlds in each of the multiple areas within the museum. There was no physical separation between areas, so it was particularly important to ensure that transitions from one area to another were smooth and coherent.

"In order to compose the sound so that it would be seamlessly connected without any boundaries, we used a common tonal scale between adjacent areas to prevent sounds from clashing with each other," continued Miyamoto. "Furthermore, in terms of timbre, the placement of intermediate common tones between areas has the effect of a boundary partition, like a sound curtain. Another acoustical issue that emerged was the panning system, which pans the sound produced by the creatures. The loudspeaker arrangements didn't allow us to use existing panners, so we had to develop our own panning system."

Jun Fujiwara continued: "This panning system allowed us to focus on the sound of the creatures after they were out of the frame. In other words, we were able to blend into the space the sound of their footsteps and wings gradually fading away. This is also a mechanism to give visitors a sense of depth and expanse similar to that of the natural world, without the spatial constraints of being inside a building. Conversely, when a creature enters the frame, we can hear its approach beforehand, emphasising the "presence" of the creature and fostering a sense of excitement and willingness to explore before the actual encounter.

We were able to realise this plan thanks to our ability to expand the panning area and the excellent localisation characteristics of Genelec loudspeakers. In the real world, actual sounds generated by living creatures, such as squeals and footsteps, differ slightly every time, so we prepared 10 to 30 different sound sources for each and played them randomly in a single shot to create a sense of reality as an auditory experience. The museum has over 2,000 files of sound sources - I think that this variety of sounds is one of the factors that increases the resolution of the experience."

According to Takashi Miyamoto, along with their accurate sound reproduction, the excellent localisation achieved by Genelec loudspeakers with the panning was the deciding factor in deploying them at the museum: "Other loudspeakers used different mechanisms to achieve localisation, but that was problematic in multichannel setups, and in general, they lacked the accurate sound reproduction we were looking for. Genelec's superlative acoustic characteristics and flexible installation were a major attraction."

Fujiwara agreed, "As we wanted to prioritise the atmosphere of the museum, we tried to make the loudspeakers as invisible as possible. We explored various options, including high positions on the ceiling and gaps in the structure. This meant the loudspeakers had to be as small as possible – and when it came to the size/ performance ratio, Genelec was the obvious choice."
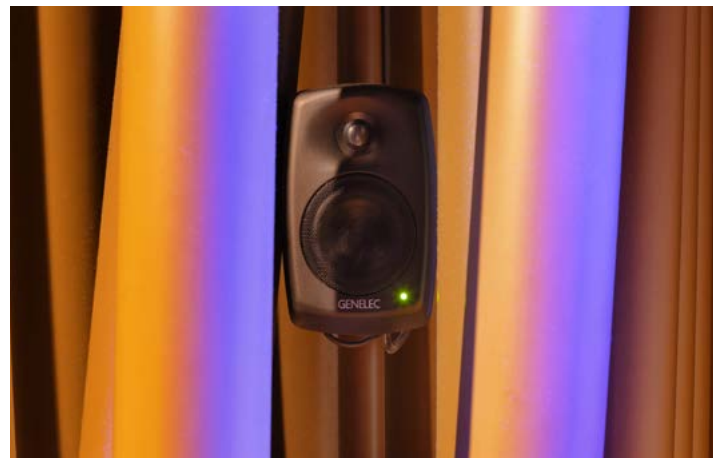
The Genelec 8010 compact active studio loudspeaker.

At the Zukan Museum, 85 x 8010 compact active studio loudspeakers, 23 x slightly larger 8020 models, and 7 x 7360 subwoofers were installed throughout the space. The 8010 is used widely throughout the museum due to its combination of exceptional performance and small footprint, while the 8020 reproduces creature sounds as they require more low-end. In addition, Genelec's range of accessories proved ideal for the project with the 8000-420CB short wall mount and 8000-416B truss mount both employed to achieve flexible installation tailored to the space.

"To create the world where living creatures inhabit, we received supervision from emeritus university professors and other experts," noted Kitai. "We believe that we managed to provide an experience unique to this museum that cannot be obtained in conventional facilities. Since its opening, the museum has received favourable reviews from various fields as a new form of experiential facility. I hope many people will experience it."

Genelec

Opulent Audio is Ensured by Meyer Sound at Ultra-Luxury Hotel

Tailored sonic environments enhance the guest experience at the resplendent Atlantis The Royal

©Atlantis The Royal

FACTFILE

Project Name: Atlantis The Royal

Project Location: Dubai, UAE

Project Segment: Hospitality

Systems Designers and Integrators: Mediatech and GBM

AV Highlight: To provide the highest-quality audio without interfering with the visual aesthetics

Key AV Brand: Meyer Sound

As Dubai's newest ultra-luxury hotel, Atlantis The Royal delivers a guest experience that captivates all the senses. The 43-storey edifice, with 795 guest rooms, catches the eye with an imposing yet playful façade while 17 on-site restaurants delight the taste buds. Ears are not forgotten, as throughout the hotel's common areas carefully crafted sonic environments are impeccably reproduced by more than 400 discreetly placed Meyer Sound self-powered loudspeakers.

Thrusting up from Dubai's elegant Palm Jumeriah, and surrounded by the waters of the Persian Gulf, Atlantis The Royal opened to widespread acclaim early in 2023. The developers of the hotel, Investment Corporation of

Dubai, made it clear to all parties involved that only the highest standards of excellence should be considered in the selection of vendors.

The Meyer Sound speakers helping to create opulent audio at Atlantis The Royal

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This brief was communicated to the media consultant, Mediatech, and the firm's principal consultant on the project, Ged King. Because the audio systems could in no way intrude on the visual aesthetics, of the restaurants and most common areas, Mediatech specified four models incorporating Meyer Sound's proprietary IntelligentDC technology: the MM-4XP miniature self-powered loudspeaker, the UP-4XP ultra-compact loudspeaker, the Ashby-8C ceiling loudspeaker, and the MM-10 miniature subwoofer. For the larger ballroom spaces, the brief specified a flexible system employing Meyer Sound's digitally steered CAL column array loudspeakers.

Meyer Sound's partner in the region, Systech Middle East, coordinated all logistics involving the loudspeakers, working in close coordination with the overall AV and IT systems integrator for the project, GBM.

The elegant dining areas presented the main challenge of providing an aural experience that suffuses the room with full-bodied sound that was enjoyably evocative yet never aggressively intrusive. "At Atlantis

The Royal we deliver bespoke experiences to our guests," noted Richard Carter, director of Audio Visual Facilities ATR, Atlantis Dubai. "As part of these experiences, high-quality entertainment within our restaurants is paramount. The use of Meyer Sound systems to reproduce and amplify this entertainment in an even way, while using discreet loudspeakers, has proven to be a great advantage."

The brief for audio systems was handed to Mediatech back in 2017, and the massive project understandably was delayed by the global disruptions of the pandemic. By the time construction had proceeded to the point where loudspeakers were required, Meyer Sound had discontinued the UP-4XP and replaced it with the narrower UP-4slim. Although the technical performance was comparable, the changes in dimensions would require some construction adjustments and offer a different look where the loudspeakers were mounted in the open. To prevent any potential glitches, Meyer Sound brought the UP-4XP back out of retirement, building a custom lot for the project and finishing each with the exact RAL colours required.

"This was a bit unusual, but certainly not unprecedented," commented Andrea Granata, Meyer Sound's sales manager for the Middle East and Africa. "For a company of our size and global reach, we offer exceptional flexibility in adapting our manufacturing to meet specific and unusual customer needs."

Among the many restaurant spaces, the third-floor Gastronomy — with seating for 950 — presented a particular audio challenge because of its size and multiple themed areas. To provide maximum flexibility, the system was zoned into 15 distinct areas.

"The challenges to providing audio in Gastronomy were made easier by the coverage provided by the

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Meyer Sound loudspeakers," noted Carter. "And, where required, we could individually control each speaker, giving us the ability to precisely zone each area."

A sampling of other dining areas receiving the complete Meyer Sound treatment would include Dinner by Heston Blumenthal (32 MM-4XP loudspeakers and four MM-10 subwoofers), and the Peruvian-themed La Mer (21 MM-4XP plus three MM-10). Similar systems inhabit Jaleo by José Andrés and Ariana's Persian Kitchen. Additional systems bathe the 22nd floor's Cloud 22 and the nearby poolside cabanas with sound from, all told, 32 UP-4XP and 45 MM-4XP loudspeakers aided on the bottom end by 23 MM-10 subwoofers.

In most dining areas, the sound level varies from subtle ambient background to a pleasantly present foreground. However, in the Resonance Bar by Heston, the excitement can be stepped up a notch or two when the sun goes down and the resident DJ steps in. With a dozen UP-4XP loudspeakers bolstered by four MM-10 subwoofers, the level can be pumped up to a constant 105dB with zero distortion.

For larger indoor gatherings (lectures, conferences, gala dinners, etc.), Atlantis The Royal offers a 10,000 m2 ballroom that can be divided into three separate spaces by moveable walls. Each of the three areas is equipped with a dedicated pair of Meyer Sound CAL 32-column array loudspeakers that can be digitally steered for precise coverage. Each space also has a pair of MM-10 subwoofers to boost the low end. When the three spaces are combined into one ballroom, coverage throughout is anchored by a pair of CAL 64 loudspeakers.

"This project was not without challenges, but thanks to the diligence of our partners, all were managed skilfully and everything performed without a hitch for the opening," concluded Meyer Sound's Granata. "At Meyer Sound, we were pleased to be part of a project that — across the board — has raised the bar for excellence in the hospitality industry."

Meyer Sound

E&E Equips SMU's New Building to be Hybrid Ready

The integrated AV technologies help enhance a seamless experience for students attending lectures remotely

FACTFILE

Project Name: SMU SOSS-CIS Building

Project Location: Singapore

Project Segment: Education

Systems Integrator: Electronics & Engineering Pte Ltd

AV Highlight: Integration of AV solutions at new building with emphasis on being hybrid ready

The Singapore Management University's (SMU) latest SOSS-CIS building was officially launched on 28 October 2022. The new seven-storey multi-use building caters to the university's ever-growing student population from the School of Social Sciences (SOSS) which was established in 2007 and College of Integrative Studies (CIS), which was newly launched in May 2022.

Electronics and Engineering Pte Ltd (E&E) was called upon to integrate the audio-visual solutions for the classrooms, seminar rooms, meeting rooms and the Psychology Lab in the building. In addition, the company also integrated digital signage displays at lift lobbies and the faculty lounge.

A typical classroom featuring projectors and ceiling microphones.

Hybrid Ready

The classrooms and seminar rooms are Zoom-ready to enable remote participants to be actively engaged with those physically present in the classrooms. Besides being equipped with Zoom software, the classrooms provide an integrated experience for presentations, wireless screen sharing and video conferencing.

Participants can connect their devices wirelessly via Kramer's VIA GO2 wireless presentation and collaborate within the classrooms. IOS, Android, Chromebook, PC and Mac users can connect wirelessly and instantly to the presentation display. VIA GO2 also includes iOS mirroring via Airplay, Windows & Android mirroring via Miracast, and Chromebook mirroring. The super-compact (7x7cm) size of VIA GO² makes it easy and inconspicuous to install. Furthermore, it includes industry–leading 1024–bit encryption for safe use on the internal network.

PTZ cameras, projectors, LCDs, audio speakers and Shure MXA 910 ceiling array microphones are also installed within the classrooms. The Shure ceiling microphones incorporate Voice Lift technology, thus ensuring that both near and far-seated participants have the same listening experience. These solutions are integrated within the classrooms and seminar rooms to cater to in-room lectures and the hybrid experience, where remote participants can be visually present via the LCD or projection screens and be heard through the loudspeakers.

Extron's digital media modular matrix switcher, HDBaseT transmitter, HDMI distribution amplifier, Mediaport USB scaling bridge, H.263 streaming media processor and recorder provide the backbone to the AV distribution in each of the classroom and seminar rooms.

A typical front of classroom with the control panel which is easily accessible by the instructor.

Controls Made Easy

A Crestron 10-inch wall-mounted touch panel is installed in each classroom and seminar room. E&E made efforts to ensure that the GUI closely resembles what is being used in other SMU buildings, so as not to overwhelm the instructors. "As this is a new building, we had to ensure that academic instructors still have familiarity with the controls. However, I would say that the GUI is more refined as we improved on it. I would say it is more user-friendly," said Gary Goh, CEO, Electronics & Engineering Pte Ltd (E&E).

If for some reason, the instructor has any technical issues, a SMART 10-inch display from Nexlabs serves as an intercom to connect him/her to the facilities or IT support team. The SMART display even has a Classroom Equipment Guide to help the instructor.

The Psychology Lab
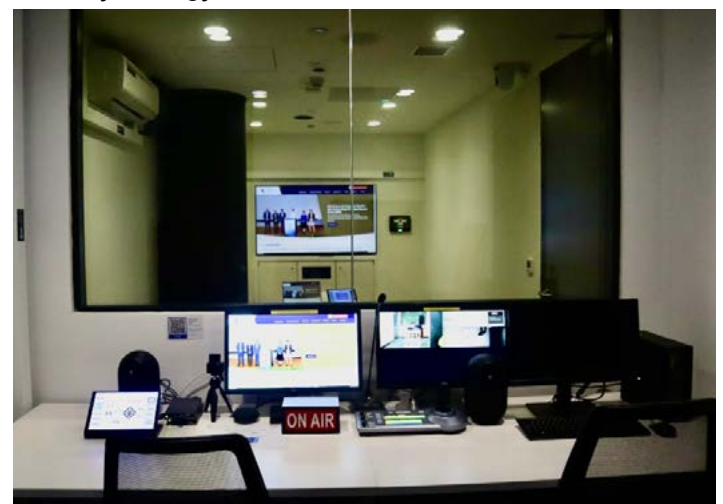
The control room with a one way mirror looking into the interaction room in the lab.

The Psychology Lab is used by Faculty and students to conduct experiments, observations, and studies for research purposes. The Control room and Interaction room in the Lab is partitioned by one-way mirror to

allow experiments and other sessions to take place in privacy and with professionalism. The Lab is designed with an AV system to support real-time monitoring and video recording of the activities and behavioural responses in the Interaction room. E&E has integrated Voice Assistant Technology, using Google Home, to use AI to recognize and respond to voice commands to control the AV equipment in the Lab, a first in the SMU campus.

Digital Signage

E&E installed LG 55" LCDs in lift lobbies and the faculty lounge to serve as digital signages. The signages keep the SMU community and visitors informed of the schools' latest activities and announcements, and can be switched to broadcast free-to-air TV channels from the local terrestrial TV broadcaster at a single touch. Scala digital signage media player and digital TV set-top box are integrated with the LCD displays to perform the necessary functions.

Objectives Achieved

The new building AV set-up allows the university to prepare for future situations where hybrid learning may be implemented. "Beyond that, we also needed to be mindful that the AV solutions and operations installed were consistent with the other buildings to give

instructors the confidence to operate them," continued Gary Goh.

"Recording of classes, easy retrieval of the recordings, and enabling students to easily connect with the displays regardless of the device they are using were all key objectives that we had to meet. In addition, enhancing the online experience for students to make them feel they are in the classroom was important. Being able to get remote students to be visually present and for remote students to see their course mates and the instructor, plus being able to hear and be heard, helps create the experience of being involved.

"The main aim of the integrated AV solution is to enhance the learning experience for the students, for both face-to-face and online classes. As for the instructors, we are pleased that the system supports them with ease of use and I believe that we have achieved that for SMU's new building," shared Muhammad Khairi, a Technology Solution Engineer with SMU.

Electronics and Engineering

Singapore Management University

The digital signage displays.