THINK
BEYOND.

INTEGRATE
in association with
VIXA CEDIA

SIGHT AND SOUND: MAKE ROOM FOR THE TECHNOLOGY BOOM

This report is brought to you by INTEGRATE

WELCOME TO THE NEW AGE OF CONNECTED, SEAMLESS, INTEGRATED TECHNOLOGY

There are a host of exceptional audio-visual (AV) technologies on the market, all designed to enhance interactions with, and connection to, your customers. Here are the incredible possibilities – and a few challenges to overcome as the world enters a new era of connected, seamless and integrated technology. By Dominic Bayley.

Seamless, digital and connected technologies that deliver cutting-edge images and sound are now expected in workplaces right around the world. When successfully adopted and implemented, these technologies not only allow businesses better operability, they also allow them to scale their operations globally while conveniently managing them centrally.

The rise of these technologies, along with advances in bandwidth and internet-protocol (IP) connectivity, have spawned a whole new era of communication, one dominated by end-user expectations.

Internet traffic and bandwidth have increased substantially in the past few years and are expected to increase exponentially in coming years. As a result, business leaders are embracing a new form of communication, one which has already changed the way we work and play.

Technologies such as digital projectors and 4K touch screen displays are no longer considered side technologies that business professionals and educators manipulate when giving presentations: they are an integral part of the infrastructure of workplaces and classrooms.

As such, smart leaders who realise the potential of these technologies can leverage them as powerful business, learning and marketing tools, where staff can more easily showcase and share ideas and data, and seamlessly connect with external contacts wherever in the world they may be.

The benefits to business are clear: these tools are helping businesses streamline processes, cut costs and increase productivity. And, ultimately, connect better with their customers.

THE FUTURE IS VISUAL

Advances in computer networking and bandwidth along with high-capacity, low-cost storage have made producing, downloading and sharing video easier than ever.

The Cisco Visual Networking Index forecasts global IP video traffic will account for 82 per cent of all IP traffic by 2022. Internet video to TV will account for 27 per cent of all fixed consumer Internet traffic, while video on demand (VoD) traffic will be the equivalent of 10 billion DVDs worth of content per month.

This data supports the view of market analysts that the future will be visual across different market segments, where video-driven forms of communication such as vlogging will continue to shape trends in products and services and will be essential to business reach worldwide.

Statistics from video media platforms indicate a strong global trend of video consumption. For example, around the world people are watching 1 billion hours of YouTube content every day, making YouTube the platform with the highest rate of consumption. YouTube boasts 1.9 billion logged-in users a month, and more than 400 hours of video is uploaded every minute.

Events that are broadcast live are expected to push technologies to their limits in coming years and to increase global IP traffic substantially by 2022.

"Companies wishing to drive their marketing strategies and capture new consumer markets will benefit from a host of new technologies that are making video streaming and live interactive events better than ever before," says Colin Baldwin, owner of HF Event Services, which has provided audio-visual technologies for large corporate clients such as Spotify, the ABC and the Tamworth Country Music Festival.

"Stand-out technologies driving growth include large-scale projection technologies, pixel mapping, animation, immersive sound and moving lights with powerful LED engines," Baldwin says.

Live events and large-scale commercial presentations are where these technologies are truly making a difference. Companies now have unrivalled opportunity to bring their brand or company visions to life with perfectly scalable still images or high-definition moving images on large screens. They can immerse customers in sound experiences that captivate attention from every direction and can personalise events with moving lights – creating light shows with a technical wizardry not unlike that of a theatrical performance, but at a fraction of the cost. They're the ultimate tools to engage your audience, and capture their attention.

Companies will benefit from a host of new technologies that are making video streaming and live interactive events better than ever before

AV OVER IP ON THE RISE

Markets such as broadcasting, post-production, corporate, education, medical, security and houses of worship are expected to benefit from the many advantages of new technologies that enable video and sound signals to be sent through standard IT networks.

Technology specialists are gradually replacing traditional matrix switches that route multiple audio/video sources with low-cost networked solutions and standard ethernet switches that are highly scalable and require minimal cabling.

Hitting the market now are 8K-ready digital-matrix switchers such as those from Kramer Electronics that will support 8K screen technologies. However, it may be some time before businesses can leverage the full scope of this technology.

DM NVX™ technology transports ultra high-definition 4K60 4:4:4 video over standard Gigabit Ethernet with no perceptible latency or loss of quality. Using standard network switches and CAT5e UTP wiring, DM NVX technology delivers a rock-solid, high-performance virtual matrix routing solution that is both economically advantageous and infinitely scalable for any enterprise-wide 4K content distribution application.

See this product at Integrate 2019 on the Crestron Stand J12.

Businesses will benefit from systems that can facilitate much larger volumes of video and audio, and faster transfer speeds of multiple types of data with a high degree of quality. Technical issues can also be streamlined since one system can manage devices with fewer points of failure.

Dante, by Sydney-based company Audinate, is a well-known digital media networking solution now supported by many audio manufacturers. It is a combination of software, hardware and network protocols that enables digital audio distribution via standard ethernet networks at ultra-low latency.

Dante is designed to allow different kinds of data to coexist on the same network and is very useful in commercial applications where a large number of audio channels must be transmitted over relatively long distances or to multiple locations.

Small companies previously excluded from using these technologies can now utilise them thanks to increasing bandwidth. They can transfer data seamlessly and have their telephony, video and audio on a single central system.

In the corporate and education markets, products offering networked audio and visual solutions are increasingly satisfying the need for high-quality, superfast video and audio communications, video conferencing, interactive broadcasting and telemedicine in high-definition 4K resolution.

New technologies and their associated applications are not only improving user experience but also leading to better health outcomes for patients. Telemedicine, particularly the surgical and diagnostic aspects, benefits from the clarity and depth provided by 4K resolution technologies.

4K technologies offer a considerable advantage to clinical practice, allowing clinicians to speed up diagnoses, simplify the clinical workflow and better personalise the patient experience.

> **New technologies and their associated applications are not only improving user experience but also leading to better health outcomes for patients.**

High-resolution monitors and cameras capable of 4K resolution imagery are gradually being implemented in hospitals throughout Australia. These technologies are especially useful in surgical operating theatres, where medical staff can examine video after operations.

For example, a surgeon using a 4K-capable surgical endoscopy camera can now take live footage of the operation that can be viewed simultaneously by external colleagues on high-resolution 4K monitors. The procedure can also be recorded for future analysis.

The Sunshine Coast Private Hospital in Queensland was an early adopter of this technology, installing ultra-high-definition 4K imaging equipment in its operating theatres in 2016.

E-SPORTS AND LIVE EVENTS LEVEL UP

The video gaming and e-sports (multiplayer electronic games played competitively for spectators) sector is expected to grow exponentially in coming years. Internet-gaming traffic is forecast to grow globally by 55 per cent annually and account for 4 per cent of global IP traffic by 2022.

According to the PwC Australian Entertainment and Media Outlook 2018-2022, interactive games revenue is expected to reach $AU3.3 billion by 2022. PwC estimates that interactive gaming in Australia will grow annually by 5.1 per cent and account for 11.8 per cent of consumer spending by 2022.

Audio and visual specialists will have the opportunity to pioneer the Australian e-sports industry in coming years as they navigate the technologies and infrastructure required to broadcast live video games to fans in auditoriums and elsewhere.

Events in the Australian calendar, such as the Intel Extreme Masters and the Esports Summit, will require a full spectrum of audio-visual integration, from videowalls to LED cabinets, mounted audio and video systems and wi-fi signal extensions for fans to comment on live games.

Other industries are also taking the plunge into live events to engage consumers. "We're seeing an upsurge in beauty-industry events where live-to-screen cameras and 3D technology are being used to demonstrate the effectiveness of skincare products," Baldwin says.

These new commercial events represent a strong opportunity for audio-visual experts with large venue and event space integration experience to leverage their solutions – especially those familiar with live broadcasting of events.

> **We're seeing an upsurge in beauty-industry events where live-to-screen cameras and 3D technology are being used to demonstrate the effectiveness of skincare products**

The challenge for business leaders will be to realise what's technologically possible and what they require to reach their target markets: a standalone live event or a live event broadcast to consumers?

The good news is business leaders are becoming extremely savvy about how new technologies can boost their business. "We're seeing a lot more corporate clients becoming more aware of new and available technologies that can set them apart from their competitors – and that's a good thing," says Baldwin.

From interactive product catalogues to queue management terminals and holographic displays, visual technologies are being used to aid employees as well as drive customer experience.

For example, retailers such as Country Road and Witchery have installed a range of visual solutions by Engagis to better catch the attention of customers and boost sales.

Large matrix screens and digital displays showcase promotions and new styles and can be centrally updated by the companies, allowing them to reduce the time and money required to manually update posters.

These examples illustrate how companies that engage these technologies are likely to have a competitive advantage since they are able to react faster to dynamic market conditions. In the case of the retail market, that means syncing with trends and delivering product information to customers faster and at much less cost than competitors.

This new product from Christie is claimed to be the first LED wall solution to integrate AVoIP via support for the SDVoe. A low-profile ADA-compliant QuickMount system means that the display can be created in any shape and size, including 90 degrees inside/outside corners and both concave and convex curves.making them suitable for broadcast sets, venues, museums, retail, stadiums, arena, and higher education installations.

See this product at Integrate 2019 on the Christie Digital Systems USA Stand G1.

INTEGRATED FUTURISTIC HOMES

In the home sector there is a global trend towards technologies that provide ease of living. Wireless internet of things (IoT) technologies and automated gadgets are popular with consumers who are looking to connect their devices and unify their digital experience.

The forecast for growth in this sector is significant. The global home automation systems market is expected to reach $US68.1 billion by the end of 2025 due to rapid adoption of automated devices in households.

A report by market research firm Telsyte predicts that the average Australian home will have 30.7 connected devices by 2021.

Products such as Amazon's Alexa and Google Assistant have found considerable success in the home consumer market, and vendors such as LG and Whirlpool are offering a range of products that are compatible with Alexa and Google Assistant.

Technology providers in Australia are well positioned to offer customised smart solutions for home automation. These include structured wiring, whole-house music and lighting control, climate control, automated shades and home theatre and security systems – to name just a few.

Automation can completely transform a home, turning it from a simple abode into an intuitive, futuristic living space. One such example is a private residence in Sydney's Manly, completed by company Xcite Audio Visual.

Highlights of the whole-house project include a theatre room with 103-inch full HD plasma screen, 9.1 Meridian sound system, Axonix media-deck Blu-ray player and Dynalite intelligent lighting system throughout. All blinds, air-conditioning and visual equipment are operated by AMX Control Systems.

Intuitive and automated technologies are finding a foothold in the hospitality industry too. Audio and visual interfaces, touch screens, voice activation and on-demand video services all offer ways for hospitality managers to engage consumers in a competitive market.

One such example is a project completed by Intouch Electronics for the Katoomba Experience Centre to showcase the Blue Mountains' panoramic landscape to visitors.

The centre's old media playback system needed to be manually synced five times a day, a tiresome task for staff. The display was updated with five HD Panasonic laser projectors run by SpinetiX media players. The screens were synced using the media players' software which prevented the need for manual updating. Staff now operate the system only once a day via a Creston touch-screen interface.

SPOTLIGHT ON COMMERCIAL AUTOMATION AND IOT

Automation is expected to expand in the next decade, with advances in digital connectivity and the internet paving the way for a host of sophisticated, smart digital products that are connected and unified.

Market research and advisory firm Gartner predicts phenomenal growth in IoT technologies in businesses worldwide. Adoption of IoT in the commercial sector is growing by 30.7 per cent a year. Gartner estimates 10 billion businesses around the world will have engaged IoT by 2021.

The Hewlett Packard Enterprise-Aruba 2017 global study, The Internet of Things: Today and Tomorrow, predicts 77 per cent of Australian organisations will have adopted some form of IoT technology by the end of 2019. The applications for these technologies are numerous – limited only by a business's requirements and the vision of leaders for their AV setups.

Businesses can also capitalise on the trend towards smart digital workplaces with automated solutions in a broad range of categories, including:

- environment: smart lighting, heating, ventilation and air-conditioning, automatic shades and lighting
- security and protection: access-control systems, video surveillance, cameras, recording and processing equipment, fire control
- application-focused: including Bluetooth beacons, room-occupancy sensors, digital signage and systems focused on end-user services

Capitalising on IoT technologies will have solid commercial benefits, reports show. According to the HP Enterprise-Aruba study, 83 per cent of IoT adopters in the commercial sector reported substantial increases in business efficiency and innovation, while 80 per cent reported significant increases in visibility of processes across their organisation.

Healthcare providers are among the biggest adopter of IoT Technology globally

The ability to simplify and streamline the working environment is the biggest reason for this growth trend. For example, people in offices, retail, education and hospitality can use connected devices to locate facilities, call up floor plans or control the internal climate and lighting.

Smart control systems have evolved to the extent they can respond not only to such fundamentals as interior and exterior lighting, but also to times of the day, room temperature and even the level of occupancy in a room, allowing users to tailor and integrate their key technologies accordingly.

Business managers in hospitality and retail can receive the latest information about productivity, monitor energy use, get the latest data on costs and space utilisation, as well as other key metrics.

Healthcare providers are among the biggest adopters of IoT technologies globally: 60 per cent of healthcare organisations are using IoT, with the main benefit

reported to be in sensor technologies that maintain and monitor medical devices.

One particularly innovative use of smart technology as an integrated AV solution is happening at the Sydney Adventist Hospital.

The hospital has a sensor-based UHF RFID (radio frequency identification) network with control attached to a single enterprise network. Location data received from the RFID tags is used as a clinical tool to locate patients throughout their stay in the hospital.

60 per cent of healthcare organisations are using IoT, with the main benefit reported to be in sensor technologies that maintain and monitor medical devices.

"If a patient is having surgery, for example, that information is presented in real time through our workflow information on heads-up display," explains Barbara MacKenzie, the hospital's information services operation and infrastructure manager.

"What was previously time-and-date data entered by a human over the course of a patient's treatment is now automated from the sensor-based network, so we're now automating inputs into our automated medical records," MacKenzie says.

Patients benefit from more personalised clinical care and the hospital benefits from a swathe of intuitive data that can be analysed to streamline its processes and increase operational efficiency, she says.

Sydney Adventist Hospital is considered "top of its class" with this innovative technology (the system is relatively unknown at most major Australian hospitals). It begs the question: what cost savings and payoff in terms of better patient health outcomes could exist across the healthcare sector if this technology was widely adopted? And how would health consumers' choice of medical care change in the light of the existence of such groundbreaking technology?

CHALLENGES TO IOT

While there are significant opportunities for the adoption of IoT technologies, end users will need to be wary of the challenges that enterprise networks will inevitably face as IoT grows and is assimilated into the workplace.

One challenge is ensuring networks provide a common service and security fabric across the many connected devices. Ultimately, each IoT device connected to a network will require sufficient bandwidth, security protection and access to other resources on the network.

As a consequence, there will be a growing need for unified wired and wireless networks with sufficient reliability, scalability, flexibility and security to support a heterogeneous IoT environment – as well as a suite of products that are intelligent, open and autonomous.

SIGNAGE MAKES A SPLASH

Digital signage and interactive displays are making a big impact across different markets from hospitality and healthcare to the corporate world.

Statistics from the US show installations are growing by 40 per cent annually, with about 20 per cent in healthcare and 12 per cent in corporations. However, where this technology is really making its mark is in the retail sector, accounting for about 25 per cent of sales.

With a host of advanced digital products on the market, managers and innovators in the retail sector can now integrate their marketing plan into digital advertising signage, tell their brand story and provide consumer-facing information that can engage customers in a multisensory way. And in an already saturated market, grabbing consumers' attention (and keeping it) is of paramount importance.

Business leaders have a very good reason to invest in digital signage and interactive displays: statistics show they work. A Nielsen study that tracked digital signage in 120 grocery stores in the US found that four out of five brands increased sales by up to 33 per cent by using digital signage over printed signs.

Furthermore, 68 per cent of customers said digital signage would "influence their decision to buy the advertised product in the future" while 44 per cent said it would "influence them to buy the advertised product instead of one they planned to buy".

> **68 per cent of customers said digital signage would "influence their decision to buy the advertised product in the future"**

Retailers are coming up with innovative, customer-driven solutions. For example, upmarket US department store Nordstrom uses a digital display kiosk to simplify the process of buying jeans. The kiosk at select stores uses 360-degree imagery and smart filters to find the right jeans to suit a customer based on their body type and fabric preference.

This system and others like it offer customers a level of convenience that is truly futuristic – helping to simplify their purchasing decision and, in this case, also simultaneously easing demands on staff.
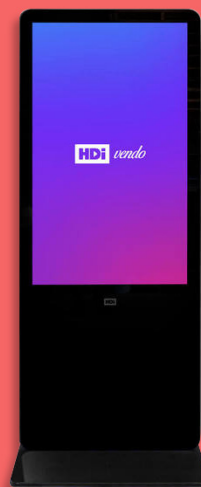
The HDi Vendo kiosks incorporates capacitive touch technology with a unique 'micro air gap' feature for a seamless experience. The screen offers up to 10 points of touch and have built integrated cameras which allow you to broadcast a variety of dynamic content to your target audience.

See this product at Integrate 2019 on the Technology Core Stand D34.

INTUITIVE ARCHITECTURE

Business managers are no longer fitting out work spaces and thinking of their technology later. The technology requirements of the digital age mean these spaces need careful planning and consideration of how they can maximise their audio-visual offering and provide the most beneficial user experience.

As a result, AV is facilitating a new kind of meeting and learning. Tired-looking rectangular workspaces are being replaced with less intimidating open-plan areas featuring huddle spaces for small groups of workers to meet.

"AV is no longer just a side technology that you use in a meeting room when you're giving a presentation – it has become a facilitator of a whole new way of working and planning in office buildings," says Richard Neale, general manager of AV distributor Amber Technology.

"We're seeing fewer private offices and more open-plan space with workstations and meeting rooms where people can easily go and hook up their laptops, meet with handfuls of staff, give presentations then go back to their own desks."

> **AV is no longer just a side technology that you use in a meeting room when you're giving a presentation – it has become a facilitator of a whole new way of working and planning in office buildings**

These informal meeting spaces are often optimised with "walk-up-and-use" technologies such as unbound digital whiteboards and interactive digital displays including 4K touch screens capable of Skype or SIP (session initiation protocol) audio conferencing and wi-fi for easily connecting mobile devices.

Huddle spaces have become more popular in convention centres, in the hospitality industry and in universities, where touch-screen technology allows students and staff easy access to activity-based tasks. Staff can quickly connect with external contacts or colleagues working from home.

AV professionals are being challenged to do extensive installations and solve never-before-seen issues to accommodate client needs. One such unique installation was a collaboration between Rutledge AV, CHW Consultants and Ultralift to develop a unique octagonal TV lift system for a multiple-screen learning space at Melbourne's Monash University.

AV professionals developed a steel ceiling frame capable of housing the eight 98-inch screens. The frames are driven by tubular motors and drawer slides allowing functionally independent motorised movement and a range of different viewing and servicing heights for each screen. The screens can be reconfigured quickly and easily. The result is a flexible AV solution in a modern learning space.

Corporate and educational presenting technology has changed. Users now need options compatible with digital technologies. Lamp-based projectors, while still in use by many businesses, are increasingly being replaced by multi-format presentation switchers that support the latest sources and displays. These systems are scalable and highly intuitive.

"The corporate sector has jumped ahead in leaps and bounds," Neale says. "We have amazing 4K projectors now at incredibly low price points."

The two big advantages for organisations which develop intuitive architecture built around the latest audio-visual technologies are better productivity and better communication. Both of which are excellent news for the bottom line.

CUTTING-EDGE TECHNOLOGIES IN EDUCATION

In K-12 education, the emphasis is still on creating a multimedia experience that will engage students and cultivate a learning environment for a new generation used to ubiquitous screens.

As such, many installations in primary and secondary education are focused on replacing outdated learning materials with modern and more engaging ones, Neale says.

"We've moved beyond blackboards and whiteboards and through the non-interactive projection phase, and we're now into interactive projection and flat-panel displays," he says. "It's very colourful and bright and provides an engaging experience where kids can walk up and touch the screens, move things around and open documents to have an engaging multimedia learning experience."

> "**We've moved beyond blackboards and whiteboards and through the non-interactive projection phase, and now we're into interactive projection and flat-panel displays.**

Also diffusing into the education market is virtual reality (VR). This technology is being used in primary and secondary schools to immerse students in multisensory learning. In tertiary education it has the added benefit of teaching complex skills for hazardous occupations without the danger.

Enable teamwork anywhere with new Surface Hub 2S, an all-in-one digital whiteboard, meetings platform, and collaborative computing device that brings the power of Windows 10 to teamwork. Enjoy the power of a fully integrated Windows 10 device designed for teams. All-in-one Surface Hub 2S natively runs your must-have Microsoft apps, including Microsoft Edge and Office,2 and your essential business apps. Incredibly high resolution and amazing graphics performance deliver vibrant, crisp, and clear images and video on the thin, light 50" display.

See the this product for the first time in Australia at Integrate 2019 on the Microsoft Stand C28.

DYNAMIC
DAYS AHEAD

The trend towards intuitive and automated technology solutions that are designed to be seamlessly integrated into the workplace and educational environments presents a strong opportunity for end users to modernise their AV setup, increase productivity and better reach consumers.

With the aid of these technologies and as network bandwidth increases, business leaders can easily engage clients and consumers with high-definition video streaming and fully immersive sound for applications such as teleconferencing and live events.

The challenge for business leaders and AV integrators now is to develop AV architecture that fully utilises the technologies on offer.

As the formerly separate fields of AV and IT converge, there will be a greater need for unified, wireless technologies that are scalable, flexible and secure.

End users who realise the enormous potential for automated AV devices are well positioned to gain a competitive advantage in the marketplace as they embrace technologies like automated signage and interactive kiosks that can simplify and streamline operations.

The future of AV is bright. It is a dynamic, ever-evolving industry fuelled by innovations and cutting-edge technology. ■

THINK BEYOND.

You can learn more about how you can use the power of AV to reach your business potential at Australia's ultimate experience in sight and sound, Integrate, 27-29 August 2019.

Integrate is Australia's leading event for audio visual and emerging interactive technologies. It is a hub of new ideas and a dedicated industry nexus that continues to inspire, shares the latest insight and prove that Australia is at the forefront of innovation and creativity.

Discover how Integrate can help you create exceptional experiences for your business and lose yourself in the technology of tomorrow - register FREE online! Find out more at **integrate-expo.com**

#INT2019

REGISTER TODAY.

INTEGRATE
in association with
AVIXA CEDIA

Melbourne Convention & Exhibition Centre
27-29 AUGUST 2019

INTEGRATE-EXPO.COM