

Low Earth orbit satellites will revolutionise onboard connectivity when they enter the market next year

# Tech up your yacht

From futuristic TV screens to AI-controlled lighting, there are plenty of innovative upgrades to tempt yacht owners back to the shipyard. Steve May talks to the tech specialists ready to take your boat to the next level

**F**rom spectacular 200-inch unfolding screens and pop-up party speakers to universal internet connectivity and sophisticated LED lighting, there's no shortage of upgrade options available to aspirational superyacht owners. The latest networking technologies can transform the yachting experience for charter guests, much to the relief of Netflix addicts, and what value is a helipad if it can't do double duty

as a dance floor? To find out more about what's in vogue, we got in touch with specialists in the business of upgrading the world's best boats. David Savage, founder and CEO of Excelerate Technology Group, knows what it takes to upgrade a yacht. His Sunseeker 94 has become the research and development platform for the company, and has been subject to a number of smart embellishments. "We all know that space is at a premium on smaller yachts, but you would still be amazed

where old technology may have been installed" says Savage. "When we were upgrading our Sunseeker we noticed something was consuming bandwidth on board, but we didn't even know what it was. Because of space problems it took us ages to find out where the hell it was." The team eventually located an errant media server hogging the bandwidth. Furthermore, it wasn't a cool running design or kept in a ventilated space. "I'm surprised my 2006 yacht didn't catch fire at some point," he adds.

Dolby Atmos can transform audio into an immersive, cinematic experience



▶ 3D audio is a trend that's here to stay – it's a must for lovers of action films

## Connectivity and audio

Network connectivity is a key focus of most upgraders, says Savage. "It was barely an afterthought a few years ago, but now, if an owner loses their internet, the captain loses his job. It's as important as air conditioning." Savage recommends a robust 4G system.

Maurizio Minossi, CEO of audiovisual and IT specialist Videoworks, agrees that the number-one upgrade on boats large and small is professional-grade internet connectivity, but points to 5G. It's also a fairly low-cost upgrade. That said, improved audio systems come a close second to improved broadband on the upgrade shopping list. "Most people on yachts want to party," he points out. "Ships may be delivered with external area audio, but it's usually not good enough to dance to."

Videoworks hopes to tempt owners to upgrade with its innovative Pop-Up Speaker. The retractable audio system is fully weatherproof, but is good-looking enough for internal duties too. It's customisable when it comes to materials and colour and requires only 75 centimetres to disappear from view. When integrated, there's no unsightly cabling to contend with either.

AV upgrades are also keeping refit specialist

Bond TM busy. Zeb Robin, the company's technical director, says yacht owners are increasingly keen to upgrade their cinema systems, thanks to growing interest in Dolby Atmos 3D Audio.

"Unlike the 3DTV fad of the last decade – which we steered our clients to avoid – we feel that the 3D sound experience provides a noticeable and fun improvement that can be heard and felt any time someone watches a modern action film. Many technologies offer only marginal improvements, or under-the-hood technical benefits which guests wouldn't notice, but we feel Dolby Atmos is special, and it's gaining traction."

An evolution of cinematic surround sound, Dolby Atmos adds extra height channel audio to the front left, centre, right and rear speaker array. This requires integrators to place dedicated speakers into the ceiling of the cinema or media room. The viewer is then fully immersed in movie sound effects, which come from every direction.

Below: Poppy collects and analyses air samples and pushes alerts to a dashboard on your smartphone



## Air sensors

Even air is getting an upgrade. Will Faimatea, founder of Bond TM, cites pathogen-detection devices, recently unveiled by healthcare startup Poppy, as one of the most exciting modern innovations. The technology is currently being rolled out in Europe and is specified on some new builds. "The ability to detect not only Covid-19, but any airborne particle with DNA, viruses, bacteria and mould, will add a new level of security from a health perspective," he suggests.

Perhaps surprisingly, pathogen detection isn't the preserve of larger vessels. "I expect us to have the lab test equipment to process the Poppy device by the end of February in our Monaco and Barcelona offices," says Faimatea. "This will be the size of a shoe box and will not need a lab technician to operate."

▶ Pathogen devices can detect everything from Covid-19 through to bacteria and mould – and they're the same size as a shoebox



Excelerate Marine's Excell 4G antenna ensures the best signal possible on a mobile network

PHOTOGRAPHY: OSKAWINE STUDIOS VIA GETTY IMAGES; GERRIT HAALAND YACHTFILM.TV

## TV viewing

One audiovisual innovation getting bigger and bigger comes in the form of direct MicroLED displays such as Samsung's The Wall. Using innovative modular MicroLED blocks, these screens are uniquely scalable and can typically reach diagonal widths of up to 292 inches.

"True 'absence of light' blacks, plus enough brightness to let you comfortably watch TV in a sunlit room – these are game-changers," enthuses Bond TM's Robin. "Once you see a MicroLED, it can become hard to enjoy conventional backlit TVs, which offer dark greys for blacks and brightness levels that struggle on sunny days."

Monster televisions aren't just for binging *Below Deck*. "Driving display sizes upwards is a growing desire to display art pieces, and create ambient experiences on board," Kris Hogg, Samsung's European business manager, Luxury Living, says. "The massive uptake in NFTs [non-fungible tokens], particularly in the luxury sector, has driven demand for dedicated screens for displaying [digital] art."

Hogg says Samsung has installed screens in stairwells, lift shafts and ceilings to create such ambient spaces. "We've also installed The Wall into cinema rooms, saloon decks and even a kids games room on board. It's worth stressing that The Wall has been designed and tested with superyacht applications in mind. It's an important market for us and we wanted to ensure we provide the best product on the market, as well as being fit for purpose."

▶ **MicroLED screens are ideal for watching movies in a sunlit room or displaying NFT artworks**



Left and right: C SEED's 201-inch folding TV can stow itself into a 33-inch compartment at the touch of a button. Below: the screen brightness on Samsung's Neo QLED is self-adjusting, based on environment factors while in operation

Samsung's innovations don't stop at The Wall. "We installed a 40-metre curved ceiling screen on a cruise liner in 2019, which shows what we are capable of delivering on a superyacht," says Hogg.

C SEED by Porsche Design is also renowned for its spectacular displays. The company has been installing its Supermarine unfolding TVs and retractable speakers on yachts for two years, and EMEA sales director James Common says he expects the technology to become standard on 40-metre-plus superyachts.

"Not only does C SEED have the wow factor, but it's also practical," he says. "We can fit a 144- or 201-inch unfolding screen into a depth of 600mm. For example, by installing our retractable TV and speakers around a helipad, it makes great use of the space as an entertainment area but can retract in 90 seconds, allowing a helicopter to land."

Typical C SEED screen applications include big cinematic experiences, sporting events and digital art. There's a full-blown party mode, complete with moving images to match the music, too.

The company has also adopted MicroLED technology for both external and internal screens. "MicroLED gives the viewer a more realistic experience when compared to a conventional TV or projector by increasing brightness and colour vividness and giving deeper blacks," says Common.

While conventional TVs have a peak

**"Imagine a pool on one side and dining on the other. The TV can be in the middle and rotate between them"**

brightness between 400 and 1500 nits, C SEED is up to 10 times brighter. "This enables some of our clients to watch TV from a beach," he claims.

A C SEED TV isn't just larger than conventional screens, which typically max out at 100 inches. "It can rotate up to 180 degrees for use between different areas or decks. Imagine a swimming or spa pool on

one side and dining or seating on the other. The TV can be positioned in the middle and rotate between areas," he says. "Most of the yacht projects we work on require customisations to the TV to make it fit, and we're happy to do this."

One clear upgrade trend, says Robin, is in event systems – the kind of jaw-dropping light, sound and sometimes stage additions that make a yacht ready for live performances, DJ sets or outdoor cinema experiences.

"By integrating these technologies directly into a vessel, as opposed to renting hardware for a specific event, it allows for an impressive and polished party experience, able to be deployed at short notice and without the mess of temporary cabling and tripods everywhere."

Of course, not all AV upgrades need to be so extravagant. "If the customer wants a 3DS Max cinema, that's fine – but it's not the norm," says Excelerate's Savage. "It's nothing more than having really good TVs on board. That said, I'm not even sure how many people watch TV in their guest cabins these days."



Far left: Bilgin Yachts' 80m Tatiana uses the Savant automation system on board. Left: Sky Glass's baked-in AI responds to spoken instructions

## User interfaces

The art of control continues to evolve, as yacht owners look to replicate and improve the kind of user experience that charter customers and guests will already be familiar with. Videoworks aims to embrace two different approaches, says Minossi: "Owner-families will have full control of lighting, shading and entertainment systems with their personal smartphones, so that ship control is like any other app they are used to, while the second direction allows them the option to control all

their experiences with a Smart TV interface and original TV remote control."

When it comes to improving the everyday experience, AI's influence is growing, he adds. "Putting AV light curtain control into an AI engine, so it's better able to customize actions according to guests' behaviours, makes sense."

Smart ambient light sensors could be used to trigger shading in lounge areas, or lighting could dim whenever a Cinema preset is selected on a control pad. Entertainment systems increasingly

▶ **Whether your yacht is large or small, upgrading internet connectivity to 5G is a no-brainer for owners**



## Planning your next upgrade

When it comes to budgeting time in the yard, don't always expect a quick turnaround, says Zeb Robin. "For the technologies we manage [AV, IT, sat coms, security, UHF, nav coms, HVAC and lighting] I don't think any truly meaningful improvements are possible in two or three weeks of downtime," he cautions. "That said, our Support Services division routinely helps solve problems during these short downtime windows. A brief refit is a great opportunity to get in and do tightly focused repairs and upgrades, provided the planning starts three to six months before the yacht ends up in the yard. To do things bigger or with less lead time can be very risky."

➤ Turn your helipad into an onboard cinema with a retractable television and speakers



### Lighting

Upgrading lighting on your yacht can be as simple as swapping halogen light bulbs for their LED equivalents. The fuel savings from reduced power draw and HVAC loads are tangible and worthwhile. But that's not the same as upgrading lighting design.

"Aesthetic impact is much harder to judge as the quality of the light and the emission patterns of LEDs are different," explains Robin. "There is a lot of art and science to good lighting design, which takes into account the nature of light being created by the fixtures. This side of things is not simple."

Robin also notes a sound of caution on long-term stability. "Not all LED products last as long as one would expect due to manufacturing errors or cost-cutting. For example, special care with rope lighting is needed, as when cheap products are used, you could see individual LEDs fail even after just one year, creating a gap in the line of lights. Replacing a whole LED rope can be a very tricky and time-consuming job depending on how it was fitted. I think most electrical crews will have horror stories about dealing with linear LED products."



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➤ Switching halogen bulbs to LED is a quick fix and saves energy, but for an entirely different look you'll need to revisit your yacht's original lighting design

➤ Want to make your superyacht a party yacht? Installing a specialist event system is a sleeker solution than the cables, tripods and clutter that come with hired-in kit

### Bespoke upgrades for owners, charters and explorers

There are, unsurprisingly, significant differences when it comes to upgrading different vessels, be they owner/drivers, charters or explorers. "Private yachts tend to have very focused needs tailored to the demands of the client," says Robin. "No effort is given to technologies the clients are not interested in. Charter vessels, on the other hand, tend to need a much more flexible system to handle a wide variety of guests' needs - for example, the inclusion of a cinema system that the owner may personally have little interest in. "Charter vessels need to be better prepared to entertain guests. Explorer vessels aren't a

separate category in our experience as they are sometimes private, sometimes charter. They are, however, more likely to have other interesting capabilities to integrate, such as remotely operated vehicles or submarines, which both can have interesting AV/IT implications." Integration of smartphones and personal devices into marine systems has become commonplace. "It would be strange to see a new system, from a new build or recent refit, which

did not have Airplay and Chromecast capabilities ready to go," says Robin. "Streaming TV is perhaps even a counter-example, where yachts have actually lagged behind the rest of the world due to the high cost and poor speed of past marine internet options. Only in the last five to ten years have internet speeds become sufficiently fast and cheap enough to allow Netflix and Apple TV to become a standard capability."

When it comes to innovations for explorer yachts, owners should keep their eyes on the sky, says Minossi. "Be ready in 2023 when the first low Earth orbit [LEO] VSAT services will be ready for the market," he says.

Looking into the future, Bond TM's Robin also cites LEO satellites as a potential game-changer. "LEO internet will soon hit the marine market and it will significantly disrupt the status quo. No exact timing for the market exists yet, but we have been able to speak to both major service operators who are bringing new constellations online in the very near future."

Talking to experts in the field, it soon becomes clear that there's no limit to the variety of upgrades now available, whatever the vintage of your vessels. The big difference is owners no longer have to choose between practicality or the wow factor - you can have both. ▣

The tech-packed 108m Benetti Luminosity has 74 televisions on board - and 500 kilometres of concealed cable



➤ Keep an eye out for low Earth orbit satellites - they'll transform superyacht connectivity as soon as the technology is available

Redesigning your yacht's entire lighting scheme is a straightforward way to instantly modernise. Videoworks customers are able to envisage what their final design will look like and tweak accordingly using Oculus 2 viewers