

Ship Concept 2035

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The smartest ships may look familiar from the quayside, but function entirely differently from within

The shipping industry is on the cusp of one of its most transformative decades. Driven by decarbonisation, digitalisation, and a shifting geopolitical landscape, the vessels that traverse our oceans in 2035 may look similar at first glance—but beneath the surface, they'll be smarter, cleaner, and more efficient, shaped by technological innovation and regulatory pressure.

While hull shapes may remain largely familiar, function is set to redefine the form.

"Externally, we need to expect evolutionary, rather than revolutionary, change," says Ajay Chaudhry, CEO of shipmanagement at Synergy Marine Group. "Constraints like port infrastructure and classification limits will inevitably curtail radical redesigns."

Chaudhry says to expect visible additions like wind-assisted propulsion systems, air lubrication systems, larger and repositioned fuel tanks and some modifications to superstructures to reduce wind resistance.

As Stamatis Tsantanis, chairman and

CEO of Greek owner Seanergy Maritime, puts it: "Function will still dictate form, though sustainability demands will reshape certain visible elements over time."

If the outside will evolve slowly, the inside will undergo a radical transformation, experts surveyed for this magazine suggest.

"In 10 years, the smartest ships may look familiar from the quayside, but function entirely differently from within," says Chaudhry.

Digital control rooms, sensor-integrated systems, and AI-assisted operations will be standard, according to Shah Irani, chief technology officer at Fleet Management, who predicts a convergence of artificial intelligence for predictive safety and operational decisions, internet of things to enable real-time monitoring and diagnostics, big data analytics for route optimisation and predictive maintenance, and finally blockchain to secure and streamline logistics and compliance. These tools, Irani says, will reshape everything from navigation to fuel efficiency.

The strongest tailwind in shipping's transformation is decarbonisation.

"The shipping industry stands at a pivotal transformative moment, driven by digitalisation and decarbonisation," says Nick Copley, co-CEO of Ocean Technologies Group. "First movers who embrace innovation stand to gain a clear and lasting competitive advantage."

"Economy of scale, engine optimisation, and environmental pressures have historically driven design," says Kristin Omholt-Jensen, the CEO of Maritime Optima, a shipping intelligence firm. "Now, carbon emissions will drive change—sails, propellers, dual fuels—all will influence the future."

"Vessel design will continue to evolve; to address regulatory requirements in particular around emissions and to promote improving operational efficiency," says Gareth Burton, senior vice president of global engineering at ABS.

Yet, challenges abound. As Dr Kanghyun Song, a senior vice president at Korean Register, points out, there are four key uncertainties, namely fuel

Free for all?

The so-called office onboard will be achieved by full broadband internet free for all for how much of the fleet by 2035?

Connected ships are all the rage these days, discussed at length at myriad shipping conferences and at boardrooms across the world. Improved bandwidth is changing the business of shipping and how vessels and crews operate far out at sea, all happening at astonishing speed and yet Splash readers do not believe this advance will spread across all ships in the years ahead. Just 10% of readers in our survey (see results on page 48) believe so-called office onboard will be achieved for 100% of the global merchant fleet by full free broadband internet by 2035.

It's unlikely that full internet broadband will be free for all onboard by 2035 or later, says Tore Morten Olsen, president of maritime at Marlink, a digital solutions provider.

"As we have seen in other areas of life and business, users pay one way or the other and remote communication at sea requires more than the average deployment of hardware and software," Olsen explains, predicting greater competition as new low Earth orbit (LEO) providers offer services and a tiered market in terms of solutions provided at multiple price points.

It's unlikely to be free for all anytime soon, concurs Andrew Airey, who heads up Thai shipmanager Highland Maritime,

thanks to the sheer growth in data collection, analysis, action, and CCTV monitoring and interaction requirements outstripping capacity growth.

More optimistic is Stamatis Tsantanis, chairman and CEO of Greek owner Seenergy Maritime.

"Thanks to falling satellite costs and rising demand for crew welfare and operational connectivity, a large portion – say 75% – of the fleet will likely have free, full broadband access—though full coverage across all vessels may take longer," Tsantanis tells Splash.

Peter Schellenberger, founder of Novomaxis, a shipping consultancy, sees a minimum of 95% having free full broadband in 10 years time, citing the 2027 launch of Amazon's Kuiper service as a "game changer".

"By 2035, full broadband will be a baseline expectation, especially for vessels over 20,000 dwt," argues Manish Singh, the head of Aboutships, a maritime advisory.

The bigger shift for Singh will be how this connectivity enables truly integrated fleet operations — where ship and shore are in constant sync, making decisions together in real time.

"The cost/benefit of equipping ships with terrestrial levels of connectivity is so attractive that laggards will find it difficult to compete with connected fleets," Singh maintains.

Turning to the office onboard part of the question posed to readers, Ajay Chaudhry, CEO of shipmanagement at Synergy Marine Group, says this will mean cultural and working practice shifts as it will involve more digital workflow, cross-functional meetings, and real-time owner access.

"Connectivity must be paired with capability—the ability to conduct critical operations, access documents, and interact with experts without bandwidth barriers," says Chaudhry, adding: "By 2035, this will be a standard expectation, rather than an innovation."

Pradeep Chawla, the founder of MarinePALS, a training specialist, concludes by telling Splash how he is very much against the whole office onboard thinking.

"Seafarers have reached their limits with the number of tasks that they have to do. Yes, we need to give broadband onboard, but not for pushing more tasks to the ship's staff," Chawla says. ■



We have to stop waving connectivity as a magic wand

“The work-life balance can make a career at sea more sustainable,” says Niraj Nanda, chief commercial officer of shipmanagement giant Anglo-Eastern.

“Connectivity helps facilitate meaningful social interaction with friends and family ashore and supports recreational engagement like browsing and streaming—both of which ease the psychological burden of long voyages,” says Ajay Chaudhry, CEO of shipmanagement at Synergy Marine Group.

“By prioritising safety, improved connectivity onboard can positively impact seafarers to extend their careers at sea,” Nanda says. “Better connectivity can help improve operational efficiency and the well-being of seafarers onboard, thereby contributing to a more fulfilling and secure work environment,” he says.

“Improved connectivity allows seafarers to access news, digital banking and services, entertainment, and

educational resources. Staying informed and entertained can make their time onboard more fulfilling,” says Shah Irani, chief technology officer at Fleet Management.

Moreover, as Nanda points out access to online medical and mental healthcare services, therapy, and video consultations by trained professionals can help reduce the distance between specialists and the seafarers who may require their services. This can positively impact the physical and psychological wellbeing of seafarers by improving medical care onboard, thus reducing the need for port visits, medical sign-offs and diversions, and the relevant costs.

With access to online courses and studies, seafarers can further their knowledge, training, and qualifications during their free time onboard. This enables seafarers to enhance their skills and advance in their careers in

the industry, which can be a strong motivator for extending their time at sea.

Manish Singh, a former seafarer and shipmanager who now runs advisory Aboutships, cautions readers that connectivity by itself is not a panacea to the seafarer shortage issue.

“We have to stop waving connectivity as a magic wand,” he says, predicting that even “laggard” fleets will have fast, reliable and cheap internet soon.

“Longer term crew retention has more to do with a sense of inclusion, purpose and through-career visibility,” Singh argues.

Better connectivity helps with wellbeing and continuity, he concedes, but retention also needs recognition, upskilling, and agency for colleagues onboard.

“I envisage seafarers will feel more connected into the overall workflow as we embrace a connected and data-driven ecosystem,” Singh concludes. ■

How the daily routines of seafarers will evolve

How much of daily manual operations at sea will be made redundant by 2035?

How has your job changed over the past 10 years? Is the workload similar? That's the kind of thoughts we asked Splash readers to contemplate in our survey with one of the key questions posed asking how much of daily manual operations at sea will be made redundant by 2035.

For all the hype about tech's ability to streamline every facet of work, most respondents felt that the vast majority of manual operations would still be performed by seafarers 10 years from now (see results on page 48).

"We see technology as an enabler that will remove a lot of the mundane repetitive tasks allowing maritime professionals at sea and ashore to focus on the parts of the operation where they can add more value," says Nick Copley, co-CEO of Ocean Technologies Group, a training specialist.

Advancements in automation will change the way work is performed, and possibly where those jobs are performed, according to Copley, but seafaring knowledge and skills will still be needed to ensure safe, reliable and responsible shipping for many years to come.

"Enhanced connectivity facilitates

training, remote support, and real-time data exchange, contributing to better decision-making and operational competence," says Masaki Matsunaga, executive vice president at ClassNK, who, like Copley, sees seafarers continuing to carry out the majority of manual operations.

Routine monitoring, reporting, and maintenance diagnostics will be automated or shifted ashore by 2035, predicts Ajay Chaudhry, who heads up shipmanagement at Synergy Marine Group.

"We anticipate up to 40% automation of current manual tasks over the next decade, but also a commensurate rise in new skill demands for those going out to sea," Chaudhry tells Splash.

However, tasks requiring immediate judgment, evaluation, or coordination, and any form of emergency response, will always need people onboard, he stresses. As an example, Chaudhry cites how the first law of the sea is to help those in peril, saying it is hard to see how an autonomous vessel could undertake even the most basic of the search and rescue operations that seafarers perform every

day.

That said, Chaudhry does admit machinery reliability also needs to evolve.

"Systems such as ballast water treatment and exhaust scrubbers continue to demand significant manual intervention across the fleet—highlighting that automation must be paired with robust design and ongoing technical support," he points out.

Manish Singh, who leads Aboutships, a UK maritime advisory, sees up to half of repetitive tasks disappearing from seafarer daily routines come 2035.

"Some maintenance activities will shift from done while at sea to done while in port and involve in-port crew," he says.

Retained roles will focus on watchkeeping, critical safety and compliance, mooring, cargo care, repairs and maintenance, Singh reckons while a lot of the onboard workflow will be digitally assisted in areas such as reporting, routing, and documentation.

"With better connectivity and extensive sensors onboard, decision support systems, and AI tools, much of the manual monitoring and form-filling will go," Singh predicts. ■



Coming to a shipyard near you soon?

Some yards are pushing the innovation envelope. Most are not

Supporting jeans and a rollneck rather than the standard overalls and helmet of his peers, Kisun Chung, the third generation of the Chung family at the helm of HD Hyundai, South Korea's largest shipbuilder, has for the past few years trekked out to Nevada once a year to speak and exhibit at CES, a high-profile Las Vegas tech event where his company likes to pitch itself as a "future builder".

The yard is one of shipping's leaders when it comes to artificial intelligence and autonomous technology. It is far ahead of most of its competitors around the world in developing a smart shipyard.

As a very visible sign of how the business of shipbuilding is changing, HD Hyundai has just signed a deal with an American company to get humanoids welding, helping to alleviate ongoing workforce shortages.

Senior vice president Dong-ju Lee said: "Our goal is a smart shipyard where humans and intelligent robots collaborate seamlessly."

However, it is important to bear in

mind, HD Hyundai is a bit of an outlier, few yards match it in the world for its appetite for innovation.

In Splash's poll for this magazine, most readers felt shipyards could be doing more to foster innovation and new designs.

Andrew Airey, who heads up Thai shipmanager Highland Maritime, says simple immediate things yards could address include improving the steelwork and paint protection systems to significantly reduce lifetime steelwork maintenance as well as improving machinery design and reliability to significantly reduce the lifetime maintenance requirements necessary for semi/fully autonomous vessels.

Craig Tulk, a product business analyst at the Sustainable Shipping Initiative, tells Splash: "Our industry is conservative, and owners will always be the ones who drive the latest innovations in vessel design."

However, Tulk did say that increasingly, shipyards are working with owners as partners to achieve "loftier" goals.

Progress is visible, but again it is not standard across the industry, according to Ajay Chaudhry, the CEO of shipmanagement at Synergy Marine Group.

"While a few advanced shipbuilding nations are pushing boundaries—particularly in areas like LNG, ammonia, and dual-fuel readiness—design cycles remain heavily owner-driven," Chaudhry says.

For real innovation, he is calling for tighter shipyard-designer-operator loops, and stronger incentives.

"A shared commitment to lifecycle outcomes—and specifically addressing fuel flexibility, emissions profile, and digital readiness—can turn yards into innovation partners, rather than just builders," Chaudhry says.

Design cycles remain heavily owner-driven