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Digitalisation – Decarbonisation

REPORT FROM PEOPLE TECH MARITIME HAMBURG IN MAY

- Hellespont's CEO on AI, cybersecurity, software, sharing data
 - Could seafarers use AI based tools onboard?
 - Should we be sharing more data?
- LEO may be the future of satcom, but think about back-up
 - Tilla's software for crew change management
- How to persuade a shipowner to change crew software
- Using vessel performance sensors to cross check each other

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ARILD SKOGE
BUSINESS DEVELOPMENT MANAGER,
KONGSBERG (NORWAY)

ADEDOYIN AFUN
PARTNER, BLOOMFIELD LP (NIGERIA)

MICHAEL TOFTELUND
DIRECTOR, HEAD OF MARINE OPERATIONS,
NOBLE CORPORATION (DENMARK)

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Hellespont's CEO on AI, cybersecurity and software

Phrixos Papachristidis, CEO of Hellespont Group thinks AI needs to be addressed in a people-first way, cybersecurity risks are underestimated, and the maritime digital ecosystem has become unmanageable

Phrixos Papachristidis, CEO and owner of shipping company Hellespont Group believes that the idea of AI replacing people is dangerously wrong. He also believes that industry does not take cybersecurity risks seriously enough, and the maritime digital ecosystem has become unmanageable and expensive. Above all, technology needs to be viewed in a people-first way.

He was speaking at People Tech Maritime in Hamburg in May.

From a CEO's perspective, AI, cybersecurity

and software are not abstract concepts, "they are board level concepts that determine safety, efficiency and resilience," he said.

"None of these technologies will deliver value unless anchored in a simple truth, technology does not run ships, people run ships."

"Our responsibility as leaders is to ensure that every digital tool, every algorithm, every platform, every integration, serve the people who operate our vessels, who manage our fleets, who keep global trade moving.

"If we use technologies that empower

people, we will build safer, more efficient and more resilient organisations. If we use technology to replace our people we will fail."

"The future of maritime is not automated, it is augmented, and it is human."

"Our most precious asset is the loyalty and professionalism of our people."

Being competitive in shipping today is just as much about your people and the environment they work in, as it is about your choice of fuels and fleet renewal, he said.

Shipping companies need to find ways



Phrixos Papachristidis, CEO, Hellestont Group

to empower people with technology, while improving and protecting systems and procedures. And it needs to be done in a way that helps people have more clarity in how they tackle the challenges of running ships today, he said.

Hellestont group runs a fleet of 23 vessels and manages crewing. It has been in business for over 80 years, owning, managing and operating merchant vessels in the dry, wet, container and offshore sectors.

Mr Papachristidis' role is to oversee the business and "selectively look at new opportunities," he said.

AI

AI is "already shaping how we manage voyages, manage maintenance, analyse fuel consumption, train crews," he said.

"There is a dangerous misconception that AI is primarily a tool for replacing people. That mindset is not only wrong, it is suicidal."

The goal with AI is to improve the outcome of the work, not to (for example) enable a superintendent to manage twice as many ships.

"Shipping is a human centred industry. Ships do not run on algorithms.

They run on trust, judgment, and experience. AI should be used to augment those capabilities, not undermine them."

Mr Papachristidis has three principles for how AI should be used.

It should aim to reduce cognitive load

which the tasks demand from people, not remove human agency. For example, it may be able to automate a complex task of manually entering data into five different systems. The engineer determines what data to input and is accountable for this.

Second, AI should "democratise expertise," such as providing a junior superintendent with insights that previously might have taken 20 years of experience to develop. But while AI can compress learning curves, it cannot replace leadership, he said.

Third, AI must be explainable. If it recommends a route or a maintenance action, the human operator must understand why.

You cannot have a good maritime safety culture together with black box AI," he said. "A person must be accountable. Machines cannot be held responsible."

"The winning company will be one that uses AI to make their people more capable, more confident and more valuable. The losing companies will be those who look for ways to cut headcount and hope the software fills the gap."

"I love how Microsoft has named their AI CoPilot because that's what it is. Something that is there to help you but not decide for you," he said.

AI may be able to make it easier to manage communications between managers and owners. Owners often want information about a ship presented in different ways, he said. AI based tools could provide them with information in exactly the way they like it.

Cybersecurity

Meanwhile, the shipping industry does not take cybersecurity risks seriously enough, he said. The industry has ships all over the world, with thousands of internet connections, maintained by dozens of vendors, staffed by rotating crews, and reliant on digital systems never designed for today's age.

"If you were designing the perfect environment for cyber vulnerability, you would design shipping."

"Yet many organisations treat cybersecurity as an IT problem, because cyber risk is intangible. You can't see it, can't touch it, or easily quantify it," he said. "A corroded pipe is obvious. A compromised network is invisible, until it isn't."

"The consequences are very real. Navigation systems can be spoofed, cargo data can be manipulated, ransomware can immobilise entire fleets, port operations can be disrupted for days, sensitive commercial information can be stolen."

"The weakest link is almost always human behaviour, a crewmember clicking a phishing email, a superintendent using the same password everywhere, a vendor connecting an unpatched laptop to a vessel network."

Cybersecurity should be seen to be related to safety, compliance, business continuity, reputation, and a leadership responsibility, he said. "We need a mindset shift."

"If CEOs don't understand their cyber risk exposure they cannot manage operational risk. If boards do not ask the right questions they cannot fulfil their fiduciary duty."

"The companies which survive the next decade are those which treat cyber resilience with the same seriousness as physical safety."

Software

Mr Papachristidis' view on today's maritime software is that the digital ecosystem has become unmanageable.

"There was a time when a company could run its operations on a single ERP. Today, a typical shipowner uses a planned maintenance system, a procurement system,

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Future Energy Publishing Ltd, 39-41 North Road, London N7 9DP
www.peopletechmaritime.com

EDITOR / PUBLISHER

Karl Jeffery
Tel: +44 (0)20 8150 5292
jeffery@d-e-j.com

ADVERTISING SALES

David Jeffries, Only Media Ltd
Tel: +44 (0)208 150 5293
djeffries@onlymedia.com

SUBSCRIPTION

1 year (4 issues) - £195
Subscription hotline:
Tel: +44 (0)20 8150 5292
sub@tankeroperator.com

a QHSE platform, a crewing system, a voyage optimisation tool, a fuel emissions monitoring tool, a document management system, a training platform, a cybersecurity monitoring tool.”

Added to these tools are many applications linked to products of specific vendors, each with their own license, interface, data structure, update cycle, and contract.

“This is not digitalisation, it is fragmentation, and fragmentation creates problems.”

It gets very expensive. “Software licensing has become a silent Opex expansion,” he said. Every new regulation seems to require a new tool, every new tool requires integration, every integration requires consultants, and suddenly your digital budget looks like a

second dry dock.”

It also makes for much more operational complexity. “Crew and shore staff are drowning in logins, dashboards and workflows. Instead of simplifying work, software is often adding friction.”

And data is stored in many different systems. “You don’t have data driven decision making, you have data chaos,” he said.

The future of maritime software should be based on interoperability, human centric design and cost transparency, he said.

“Vendors must stop building closed ecosystems. APIs should be open, interactions should be standardised and data should flow seamlessly. If your software

cannot talk to other software, it has no place onboard the vessel.”

“Software developers must have the end user in mind. We need tools designed for the realities of shipboard life, including limited connectivity, limited time, rotating crews and high stakes decisions.

The best software is invisible, or intuitive and easy to use. It supports work without getting in the way.”

“Shipowners should not be paying for overlapping features across multiple tools,” he said. “We need modular tools, and flexible pricing models that reflect actual usage.”

“If we get this right we can move from digital clutter to digital clarity.”



Empowering people with technology at Columbia

Good ship management is orientated around people who are trained and properly empowered by technology, supported by collaborative business practises and shared data. Arun Sankar explained how Columbia does it

Good ship management is about “getting the people in the centre, training them, sharing data, collaborating,” said Arun Sankar, Director of commercial and strategy development, Northern Europe, with Columbia Shipmanagement, one of the world’s largest ship management companies.

While digital tools give you speed and support, humans need to make the judgement, and success comes from bringing human experience and data together, including with shared data, he said.

“It’s not just technology alone, it is people empowered by technology.”

Data can provide insights which can be used to prevent future accidents.

“It is all about proactiveness,” he said. “Our industry has been reactive all the time.”

People can get over reliant on digital apps, he warned. Many crew have had situations where the chart system says they are safe, “you look out of the window, you [see] you are not safe.”

Similarly, some car drivers will assume Google Maps gives them real time updated data on the traffic situation, without realising it takes some time to update, he said.

Columbia brings its people-centric approach to other areas of its business. For example, it seeks to make its crewing process as human as possible. It rebranded

the crewing department as the “maritime HR department” and looks for people who understand seafarers to work there.

There are people available for a seafarer to call around the clock, such as if they miss a flight or lose their luggage.

Columbia has worked with Mental Health Support Solutions (MHSS), a seafarer specialist service, since 2017. “A crewmember can call a clinical psychologist from their mobile phone, confidentially. A Filipino can call a Filipino clinical psychologist.”

Columbia has programs to support seafarers’ families in the Philippines and India.

As a result of these programmes, “we saw our crew retention rates going up - crew were much happier and we saved money,” he said. “The ships are better maintained because people are motivated, and work with much more passion.”

Technology at Columbia

Columbia’s subsidiary company OneLink provides vessel performance management services. It has control rooms in Cyprus, India, and the Philippines. It offers services for vessel routing, performance analytics, predictive maintenance, engine health monitoring, fuel procurement, lubricant



Arun Sankar, Director of commercial and strategy development, Northern Europe, Columbia Shipmanagement

management, and training.

The services are used by Columbia’s fleet of 550 vessels and available to other companies.

Columbia employs a head of AI, who sends out information to the whole company every 2 weeks, helping people learn how to use it.

Columbia has a joint venture called SmartSea with aviation software company SITA, providing digital platforms and IT services to the shipping and ports sector.

SITA itself is owned by a number of airlines, who formed the company for projects involving shared airline data, such as for ticketing, electronic gates and border control.



You need systems people can work with - Synergy

Maritime systems can only work if people can work with them, said Synergy's Nikolaj von Wartburg. Software needs to reduce work, not create it. And if you don't trust your people, you can't trust your system

Synergy Ship Management wants to enable its crew and office staff to use their common sense, knowledge and education in their work, said Nikolaj von Wartburg, head of Europe with Synergy Ship Management, speaking at People Tech Maritime event in Hamburg in May.

"If you don't have the right people to do a task, there's no point in a system," he said. "The system can only work if the people are right."

If you don't trust your people, you cannot trust the data in the system that they work with, he said.

Often, maritime software creates more work, rather than making existing work easier. "Our seafarers [have] all kinds of work that has to be filled out. Before arrival in port, before inspection, filling in forms for the office who want to know where you are with inventory."

"It gives crew less time to focus on what really matters."

With cybersecurity issues, once you are aware of them, it is too late. There is no early warning of an impending problem, such as if you see something starting to rust on the deck, he said.

Mr von Wartburg likes that the conference was called People Tech Maritime not Tech People Maritime. "That is the exact order," he said.

He has a background in management roles at Hapag Lloyd, TORM And AP Moller, and working onboard Maersk vessels as an engineer, and as a submarine lieutenant in the Danish Navy.

Synergy was founded in 2007, and now has 700 ships under management, with 27 offices.

In-house AI

Synergy has an in-house software team developing AI support tools, to help staff work with the company's data.

It is designed as a co-pilot, which "works alongside you and doesn't take over, gives you support on what decision you need to take."

It speeds up decision making, helping people get in touch with the relevant experts quickly, and improves transparency, he said. "You can make sure you have the right dashboards in front of you to take decisions."

It is still being tested as of May 2026, and not yet available to everyone in the company. The intention is to make it available to the whole company, and also onboard ships, he said.

With Synergy managing so many vessels, having advanced systems for providing the right data is very helpful.

Over the long term, the company hopes to



Nikolaj von Wartburg, head of Europe, Synergy Ship Management

use it to improve workstreams, such as the tasks which superintendents need to do on a day to day basis. It could be used to give seafarers a better overview of all outstanding tasks, and prioritise the tasks which would have the biggest impact.

It could also support communications between owners and managers, updating shipowners in the way that they want to be updated.

Some shipowners don't want to be regularly updated about their vessels, but others "need to know exactly what we spend on what parts," he said.

Some owners want information sent to them manually, in which case they can receive noon report data. Others are happy with automatically logged data, he said.



AI and seafarers

Could seafarers use AI based tools onboard? Many are already using them, even if unauthorised, we heard. But when under stress, seafarers should not have to worry about whether the material they see is accurate

When seafarers are under stress, they don't have time to consider whether an AI based software tool is giving them the right answer, they need to get the ship out of the port, said Phrixos Papachristidis, CEO of Hellepont.

He was speaking at People Tech Maritime in Hamburg in April.

As a shipowner, Mr Papachristidis would prefer to employ seafarers who know

how to run ships without asking ChatGPT, he said. And he would prefer seafarers with a question to find the answer by another means, so they are not reliant on a computer.

As a manager, you don't necessarily want to make life too easy for crew, in case they stop thinking for themselves, he said.

People using these tools need to remember they may need to check its results, he said.

And AI tools do not necessarily reduce training, they can also increase it. "AI requires training in itself. The manuals are going to get bigger and bigger."

"I'd like to think [AI] is going to be easy, [but] I'll believe it when I see it."

Answering a question with large language models can turn out to be more time consuming than doing it the traditional way, he said.

In one example, he asked Copilot to



Phrixos Papachristidis, Hellespont, with Nikolaj von Wartburg, Synergy

make a cashflow model for a potential ship investment. He asked the model to be checked by a professional, who said it was "just wrong".

A friend working in real estate did something similar and used multiple AI tools to evaluate each other's results. He got a good answer in the end, but it "ended up being more work".

The biggest use of such tools may be in market research, where "sometimes it finds the corners of the internet a Google search won't."

Fabian Feldhaus, Flagship Founders

Many seafarers are already using large language model tools onboard via their mobile devices, including CoPilot and ChatGPT, said Fabian Feldhaus, managing director of maritime investment company Flagship Founders.

Shipping companies would have more control if it was done over company systems.

Most LLMs are programmed to always give you an answer, and never say that they don't know, he said. This is not what you want in a safety critical environment. Tools

for seafarer use would need to be trained to say when they do not have an answer.

However, Flagship Founders has invested in Sealenic, a company which makes a ChatGPT like tool designed specifically for seafarer use. The shipping company has full control of how the data is managed, he said.

The best way to get value out of a LLM is to ask it questions in natural language, such as "what are the biggest problems with port state control in Houston." Many people still use it like a search engine, entering terms such as "Houston port state control" and expecting a certain answer, he said.

"In the very near future the technical barrier to connecting to systems [onboard] will go down to almost zero," he said.

Natural language interfaces

Language model based tools could provide natural language interfaces to other software tools. This would make the interfaces more human, said Holger Ritter, managing partner with DRYNET, a maritime digital infrastructure company.

They could also work in the seafarer's home language, and so reduce misunderstanding and errors, he said.

Some companies are developing agentic

tools which can sit on top of multiple software tools, so you have one interface customised to your company, said Fabian Feldhaus from Flagship Founders. "I think it's a very interesting approach."

Recruitment AI

Many shipping companies use AI based systems to manage job applications.

Many shipowners are flooded with CVs, and do not have time to go through them all, said Alexander Held, head of commercial with maritime human resources company TURTLE.

AI tools can extract data about good candidates into shipping company systems.

This means that seafarers can apply for roles just by providing their CV and answering some questions, rather than having to make many cumbersome applications, he said.

These systems are also screening and rejecting CVs. They could reject a CV from a good candidate, if they don't use the right key words on their CV, said Columbia's Arun Sankar.

To make sure its seafarer recruitment process has plenty of human input, Columbia has around 20 crewing officers worldwide supporting crew applications in person, he said.

AI in crew training

AI tools can help with seafarer training. You can ask them anything, including questions you might not be comfortable asking a superintendent, said Speros Stamatis of gas training company EduGas.

Training for senior officers is different to training for junior officers, because junior officers want to build up the knowledge, senior officers want to understand multiple different cases and scenarios. AI tools can customise the training to the needs of the student.

PTM

Should we be sharing more data?

Shipping companies may be able to find efficiencies in operation by sharing their data with others. But which data specifically? Where might you lose competitive advantage? Should safety data be shared?

"When you share data, you know more, what is happening in my world, your world, how all these points connect," said Arun Sankar, Director of commercial and strategy development, Northern Europe, with Columbia Shipmanagement, a large ship management company.

He was speaking at People Tech Maritime event in Hamburg in May.

Data sharing can lead to opportunities to improve profitability. Shipmanagement companies need to achieve a certain scale to survive, because the profit margin per ship is very low. But they may be able to improve profitability or reduce

costs through collaboration. This requires communication, which requires trust, he said.

An example of this is when Columbia made a partnership with its competitor Bernard Schulte Shipmanagement in 2018, to make an independent procurement company for consumables, GenPro.

The biggest reason not to collaborate are concerns about commercial risks, he said. But when companies look at the issues in detail, they may see there are very little risks, data sharing can be controlled, and there may be additional profit as a result of sharing.

An issue to consider is who benefits from the data sharing. An oil company chartering multiple tankers has an interest in encouraging the operators to share, and tanker operators have an interest in being in a good relationship with the oil company. But in other situations companies may not see there is enough benefit, he said.

Digital integration

A related topic is supporting integration of software systems in shipping. Mr Sankar sees the various maritime software packages like balls hanging on a Christmas tree. They all do something separate, but would benefit from a framework to connect them together, as the Christmas tree connects the baubles.

Once such a framework was established, other software tools could “plug and play” onto it, he said.

“The whole [maritime] industry is fragmented, compared to aviation, which is much more standardised.”

Nikolaj von Wartburg

When companies can share data openly with each other it will be a tipping point, agreed Nikolaj von Wartburg, Head of Europe with Synergy Marine Group, another large ship management company.

Companies might not want to collaborate because they are afraid of losing a competitive advantage they believe they have, such as having more effective operations than their competitor.

But if every management company thinks their operations are more effective than their competitors, it is clear that at least one of them is wrong, he said.

You can control which data you share, for example sharing operational data but not commercial data, he said.

“I think we need to get a bit more brave in the maritime industry and say, ‘these are the data sets we need to share,’” he said.

A challenge for ship managers is that their clients, the shipowners, do not always want to share data. “I see some owners that are willing to share, and some owners that are not willing to share,” he said.

Sharing incidents and defects

Shipping companies should share more data about incidents, Mr von Wartburg said. The tanker sector already does this, much more than other shipping sectors.

“When you share you get a data set 20 x as big as your own,” he said.

You see something that was not on your radar before. You see [other] people have had incidents [and think] ‘let’s make sure we don’t run into that.’”

One oil company analysis of incidents found that the biggest cause of injuries onboard ships was mooring incidents.

Another “top three” cause was lifeboat cables breaking during drills. As a result, Mr von Wartburg’s company at the time looked at all their lifeboat cables, and found many were worn beyond what they should be.

Shipping companies could also share information about defects (technical problems on a ship), he said. But here, there are concerns that being open about defects could lead to operational problems.

Some charterers may ask for the defect to be rectified at the next opportunity, but others may be much tougher and say the vessel cannot come into a certain terminal until it is fixed. “That’s a concern when you share, for sure.”

Mr Papachristidis from Hellespont added that in the tanker sector, companies are asked by some of their major customers, such as Shell, to come together and talk about safety related experiences. But it only happens because the customer pushed it, the shipping companies would not have done it otherwise.

In the tanker forums for sharing experiences, it is not specific data points which are shared, but the overall picture, he said.

It could be useful if the broader shipping industry had a place for collecting safety incident reports, without being pushed by oil company customers, even if anonymised, he said.

There are often many different elements leading to an incident, making it unique. It would be useful for the issues to be widely understood in the industry, he said.

It can be helpful for seafarers to know about incidents happening in shipping companies around the world, so they are aware of the risks of what they are doing, he said, because incidents in any single ship or company can be very rare. “If they look at a checklist as [just] another piece of paper, that can have serious consequences.”

Columbia’s Mr Sankar added that shipping companies are required to learn from their own incidents, through updating their safety management systems. But this process can take weeks.

Protecting competitive advantage?

Ship management has become fairly standardised as a service, Mr Papachristidis said.

“Gone are the days when ship managers and owners could create their unique selling proposition, saying ‘we do this on our ships and they don’t’.”

This means that companies do not have any competitive advantage in the way they run their vessels, and so no reason not to share operational data. “I’m a believer in sharing data and collaborating with people,” he said.

It is too easy to talk in broad general terms about data sharing,” Mr Papachristidis said. “The question is what level of data, what are we talking about specifically. It is one thing to share data, another to share interpretation of the data.”

Other comments

Niklas Weidmann from crew change management software company Tilla would like to see passport data shared directly between software applications, rather than by e-mail.

It can be common for more and more people to be added to email chains. “This is not the safest way of sharing sensitive data,” he said.

Holger Ritter of maritime IT company DRYNET said he saw two cruise ship cybersecurity managers speak to each other for the first time at an event organised by his cyber maritime organisation.



Holger Ritter of maritime IT company DRYNET

“They found immediately there are so many joint topics they can talk about and work on without disclosing any company secrets,” he said.

“Hackers share, so we have to share too.”

LEO may be the future of satcom, but think about back-up

Low earth orbiting (LEO) satellites can offer much cheaper and faster communications, but do not expect global coverage from any network, and it is the back-ups that get expensive. Maximilian Heetel explained

Low earth orbit (LEO) satellite communications are “just state of the art technology”, said Maximilian Heetel, Team Lead Fleet IT, MaDaTec, speaking at People Tech Maritime in Hamburg. They make “quite a difference” to VSAT.

Mr Heetel has worked in vessel IT for 7 years, mostly as a technician, including 2 years as a VSAT engineer. “I know that from bottom to top,” he said. Before that, he spent 20 years doing IT administration on shore.

When Mr Heetel started working in the maritime sector, ships were only using data connectivity to send e-mails, or maintenance system updates. There was no ECDIS route plotting onshore.

But in the past 7 years he has seen ships move from Iridium and Inmarsat Fleet Broadband to VSAT, get wi-fi for the first time, move from metered connections to unlimited data, and see an increase in data speed.

Now we have a much bigger jump with LEO systems, which so far means Starlink and OneWeb. Companies see four times more bandwidth, a big reduction in latency (communication travel time), and some reduction in cost.

It means there is genuine real time connectivity between shore and ship. A route can be plotted on a shore office computer and received on the ECDIS unit on a ship seconds later.

Vessels are increasingly connecting to cloud-based data services. For example, sending performance data to the cloud, to run analytics to optimise route, speed, and fuel consumption. This all increases the demand on IT systems onboard, he said.



Maximilian Heetel, Team Lead Fleet IT, MaDaTec

Fixing VSAT and Fleet Broadband satellite communications systems on the monkey island of a ship used to be a very difficult job, requiring a crane, and a lot of cost, he said. But LEO antennas can be installed by just one person.

MaDaTec is a specialist service provider in vessel IT / connectivity and navigation system management. It is a joint venture of Hamburg shipping companies Hammonia and Nordic Hamburg. It serves 100 vessels.

MaDaTec was one of the first maritime companies to purchase Starlink antennas on a big scale for its customers. Now it also purchases OneWeb for many customers, he said.

Global availability

A 100 per cent global coverage with any single LEO network is never going to happen, he said.

Many shipping companies and crew do not yet realise that Starlink cannot be used everywhere. Mr Heetel hears complaints from vessels who do one trade a year in China and expect Starlink to be working from there.

As of July 2026, Starlink is not yet available but “coming soon” in India, Turkey, Thailand, all North African countries and South Africa, according to Starlink’s website. The non-availability is due to regulatory reasons not technical ones, with the relevant authorities not yet allowing it to be used. The duration of “soon” depends on the speed of the bureaucracy in those countries.

Starlink is not expected at all in China or Russia. China will only allow Chinese satcoms to be used in Chinese waters, with a number of Chinese LEO networks with a Chinese solution being developed. Shipping companies will be able to use this in China, but they may not be able to use it elsewhere. Also, they may need separate antennas for the Chinese service.

Starlink is currently not able to work without a GPS signal, he said.

This means it cannot be used if GPS spoofing or jamming is going on. This happens in Northeast Europe (Baltics) and the Middle East. OneWeb is able to “kind of” work without a GPS signal, but VSAT is

better, he said.

Amazon LEO satcom is likely to be the next one available.

Asked about how Starlink compares to OneWeb, Mr Heetel said that Starlink is better for performance and cost, but OneWeb has better coverage. As of May 2026, OneWeb is available in Turkey and Starlink is not. Starlink only recently became available in the UAE, OneWeb was available earlier.

Starlink is easier to set up, “you plug in the antenna and send them the terminal number.” With OneWeb, it “is a bit trickier setting it up.”

Keeping options open

Shipping companies are unlikely to be able to run their satcoms with just one system, as they could in the past, with VSAT and Iridium.

Inmarsat is a provider offering for example VSAT and Fleet Broadband (FBB). FBB is the backup for VSAT, so the vessels never just used one system.

There are some vessels active only in Northern Europe, such as feeder vessels, which have removed Iridium/Fleet Broadband and “sometimes even VSAT”, relying solely on OneWeb and Starlink.

But otherwise, it pays to keep your options open, he said.

Keeping VSAT on standby can be an option to optimize costs while keeping options open.

For example, vessels in the Middle East often have Starlink, OneWeb and VSAT, with VSAT mainly as a standby option, he said.

It is important that shipping companies let their communications service providers know where the vessel is going to be, he said. If they are planning to sail outside a Starlink or OneWeb coverage area, their provider can make sure they have an alternative.

It is only possible to rely heavily on OneWeb and Starlink as carriers with no other backup, if the vessel stays in areas reliably supporting both carriers.

MaDaTec itself decided not to be a satcom reseller in order to maintain

flexibility, with no-one knowing which systems will be dominant in future. For example, nobody yet knows what Amazon's LEO offer will look like, he said.

Crew satcom

Expectations from crew about communications are rising. Some seafarers have mistakenly made official MLC complaints when communication through Starlink was not available. They expect to be able to make video calls and considered being online via VSAT as being offline, he said.

But it is easily possible to enable

videocalls, when shipping companies can buy 1 TB of satcom at a price they previously paid for 1 GB.

An audience discussion revealed that some shipping companies still only buy 100 GB a month per ship and might give individual crewmembers 5 GB. Another company buys a terabyte per month for the ship and gives each crewmember 1.5 GB per day. This also ensures they do not inadvertently use all their allowance in the first weeks of the month. This is still not enough to stream movies to the ship.

An audience member said that shipping companies typically pay around \$1000 per

month for 1TB with Starlink.

Some shipowners specify how much satcom they want each crewmember to have; others set the overall communications budget for the ship and say the manager can allocate it as they see fit but try to "make the crew happy". Ship managers may try to keep 20% of the Starlink allocation for business use.

An attendee from satcom company Inmarsat noted that Inmarsat currently provides ships with unlimited data in a package. This means that there is no need to manage or police crew consumption.



Tilla's software for crew change management

Crew change management software from Tilla is now used on more than 600 vessels, typically saving 14% of flight costs. 113 users in Stolt saved 550 hours of work in the first month.

Managing director Niklas Weidmann explained

Tilla of Berlin makes software for managing crew changes, particularly flights. Its software is now used on more than 600 vessels, including operators such as Peter Döhle Schiffahrts, Exmar, Essberger, Wilson, Stolt Tankers and Stödig Ship Management.

It is used to make 100,000 flight bookings a year. Clients typically see 14 per cent reduction in flight costs, said Niklas Weidmann, Co-Founder and Managing Director, Tilla, speaking at People Tech Maritime Hamburg in May.

Stolt Tankers is using the software to manage crew changes on its entire owned fleet of 100 chemical parcel tankers.

In 2025, the company was given financial backing from Motion Ventures and Exmar.

The platform brings together multiple pieces of data, including ship schedules, crewing data, port agency information and real-time flight data.

Crewing teams can use the software to make flight bookings and inform all the relevant parties.

If a crewmember misses a flight connection, all of the rescheduling can be done by the crewing manager in minutes from a smart phone.

Crew travel is often not something companies think about very much, because they assume the way they do it is the best and only way, Mr Weidmann said.

Crewing managers typically decide what flights they want and ask a travel agent to book the flight and send the ticket to the seafarer.

But the workload quickly builds if a seafarer misses a flight or a connection. Someone needs to book a new flight, change the car pick-up at the airport, and inform the master. This may happen in the middle of the night in the crewing manager's time zone.

And flights often change in price. Seafarers have the luxury of being able to rebook flights. But normally nobody bothers if a flight becomes available at a lower price, because of the hassle involved. Tilla makes this much easier.

The software records all decisions made, so you can later see which decisions were made and by who. This means you have a starting point for improving the process.

It also helps people keep records of why they made a certain decision in case they need to justify it later. For example, choosing a more expensive flight so that a crewmember is better rested when joining the vessel.

Mr Weidmann suggests that companies



Niklas Weidmann, Co-Founder and Managing Director, Tilla

think of “crew change management” as a major company activity and cost, and track how much time and money they spend on it, then see how much using software like Tilla can help them.

If you need persuading of the benefits of the system, consider how many e-mails were generated in your company for crew changes over the past month, how often there was a competitive tendering for a rebooking, and how often a travel agent informed you about a cheaper flight, he said.

Stolt Tankers

Stolt Tankers, using the software for its fleet of 100 chemical parcel tankers, reported that its 113 users of the software together saved 550 hours of work in the first month, roughly 5 hours per person. 101 of these users were captains and chief engineers onboard.

It chose to implement the software after 2 pilot projects, Mr Weidmann said. Stolt spends \$10m every year on crew travel, with over 1,000 flights a month.

Stolt was previously managing crew changes the same way most companies do, outsourcing various tasks to travel agents and port agents.

After it introduced Tilla, travel for crew signing off vessels was managed by shore teams; travel for crew signing onto vessels was managed by the vessel master.

The seafarers themselves are not users, but interact by receiving an e-mail or WhatsApp message when their travel is booked.

Complexity of crew flights

To consider how complex crew flight management can be, consider what happens if your own flight gets cancelled on a business trip. You need to rebook it, and maybe also book a hotel. It is a hassle, but there is only one decision maker (you), only one time zone and only one airline involved, Mr Wiedmann said.

But crewing managers may have to change crew travel every time there is a change to the vessel schedule, such as a different port or arrival at a different time. “What was planned weeks ago is now wrong. You have manning agencies, masters, seafarers, who all need to know about the change,” he said.

“You have an operator in Europe, a manning agency in Bulgaria, a travel agency in India, a seafarer in the Philippines, a vessel trading somewhere off Asia.”

“What might have taken 10, 20 or 30 minutes if everyone was in the same room, now takes a day.”

It normally involves a great deal of manual communications between travel agencies, port agencies, operators, vessel master and crew.

And crewing managers do not have much control over the flight cost, beyond their initial selection of the best quote. This is the second biggest cost of crewing after wages, he said.

On an organisation level, the crewing manager may be managing the organisation across multiple offices. They don't know which operators are making which decisions and why, and whether people in different offices are following company policy. “An organisation that can't see its own decisions can't improve them, enforce policy, or replicate what's working.”

Saving on flight costs

When booking flights, a crewing manager will normally make some effort to get the best price, such as sending the request for the flight to a few travel agencies and taking the best quote.

But when a flight needs to be rebooked, the same travel agent has no incentive to look for the best price. The commission is already earned; the incentive is just to minimise the work involved.

But flight prices continually change. They can be \$1000 on Tuesday, \$1200 on Wednesday and \$800 on Thursday. No human being can monitor all the flight price changes, he said.

And perhaps flight prices have changed so that it becomes cheaper to exchange crew at a different port, or for the seafarer to travel via a different route. There is no system to change the planning.

With Tilla, after the initial booking is made the system continuously checks whether a cheaper option is available. If it is, it can rebook automatically.

PTM

Persuading a shipowner to change crew software

Changing software for crew is always expensive, with training and documentation costs. You need a company willing to change, show quick benefits, and get crew buy-in, we heard at People Tech Maritime Hamburg

To convince a shipping company to buy new software to support crew, a first stage is often convincing them they need to change something, said Niklas Weidmann, managing director of Tilla, a company which provides software for crew change management.

He was speaking at People Tech Maritime Hamburg in April.

It makes sense that senior managers are cautious about digital tools, but perhaps

they show too much caution or resistance, he said. There are also costs to not doing something.

Shipping companies also do not have many project managers who can get software tools implemented, he said.

It can be very hard for shipping companies to calculate the value software is providing. They need to define a baseline, to compare the current and future state. But many companies do not know their current cost of operating on a

daily basis.

As well as the headline benefit, digital tools have other compounding value to a shipping company, such as from having their data more structured, he said. But this is not often recognised.

Training cost

From a shipowner perspective, changing any software is a process which needs to be managed and comes at a cost, said

Phrixos Papachristidis, CEO of shipping company Hellespont.

This includes the cost of training people to use it, and creating documentation for it.

Sometimes training is required by customers, for example when oil company charterers demand that tanker crew have training for the specific electronic chart display system (ECDIS) they are working on, he said.

Shipowners can get frustrated about software company sales staff who don't appear to understand reality of life onboard, he said. They often don't appear to understand the importance of being able to move data between systems.

To justify the cost of implementing new software, the benefit ideally needs to be large and quickly realised, he said.

Crew and owner acceptance

Providing someone with a software tool to reduce fuel consumption, does not automatically mean you reduce fuel consumption, said Arun Sankar, Director, Commercial & Strategy Development, Northern Europe with Columbia Shipmanagement. Crew need to accept the software and its advice.

When Columbia does a pilot of a software program, it makes sure crew are aware that it is their choice whether they accept it.

"A tool has got to get buy-in from people onboard, otherwise there's always a push back," he said. "We experienced that in Columbia."

The best way to convince a ship manager could be to offer a free pilot project so they can see if it works, he said. They can get bombarded by software



Arun Sankar, Columbia; Speros Stamatis, Edugas; Niklas Weidmann, Tilla

companies with products.

Digital seafarer training

With digital seafarer training products, one of the best ways to encourage a company to buy is by solving a problem they know they have, said Speros Stamatis of gas training company EduGas.

For example, one company had a specific problem with deepwell pumps constantly failing, and so it wanted to have a training focus on that. Edugas provided video training tools for deepwell pumps. Consequently, the number of incidents reduced from 10 a year to zero, he said.

Edugas is a maritime training and consulting company specializing in gas operations, founded by LPG experts, including Mr Stamatis. The founders saw a growing demand for training crew to work

on gas carriers. The first customer was Navigator Gas.

Its e-learning tools include animations of accidents showing how they happened, and animations about specific problems.

Training for gas carriers is complex, with many hazards people need to watch out for. Ammonia is particularly difficult, as a cargo or fuel, he said.

A common challenge with implementing any new software tool is that there may be only one person in the company implementing new software projects, who has another 50 projects on the go, he said. They don't have enough time to make them all successful.

And when it comes to persuading companies to pay for digital training tools, you find that some companies don't care much about training at all.

PTM

Using sensors to cross check each other

But you can map their data together to identify faulty data, and then go on to see if a problem is due to engine or hull. Bestship explained

When ships fit sensors for vessel performance data, they typically fit a fuel flowmeter, an engine torque meter, and a sensor to measure revs per minute (RPM) of the engine.

The readings from the sensors should be correlated, because the vessel's speed can be estimated from both the fuel flow and

the torque, if you know the RPM.

But the relationship is not direct, because changes in fuel flow will not immediately change RPM, for example.

Faulty data can be detected by looking for data which is outside an expected range, based on readings from the other sensors.

If all the sensors are working correctly, then you can determine if any loss of performance is due to the engine or the hull.

Kyungrok Kim, Vessel Performance Manager with Bestship, explained how to do it, speaking at People Tech Maritime event in Hamburg in May.

Bestship is a Hamburg-based company providing vessel performance management and regulatory compliance solutions, jointly owned by Wilhelmssen Group and MPC Capital.

Mr Kim is a former project engineer in the vessel performance centre of NSB Group, Hamburg, and a former marine engineer for Hanaro Shipping Company in Seoul. He has an MSc in maritime energy management from the World Maritime University.

Faulty sensor data

If you have faulty sensor data, you can end up with your vessel appearing to be in the wrong CII band, with commercial implications.

You may take rectification actions you do not need, such as unnecessary hull cleaning. You may also find you cannot respond easily to claims about fuel consumption and speed from the charterer, Mr Kim said.

Even if you have sensors which have passed ISO stability tests, ISO stability tests validate sensor repeatability in isolation, not cross-instrument agreement. You can have sensors which comply with regulations but are still providing incorrect data.

With better methods to identify faulty sensor data, you can build trust in the data, so seafarers no longer feel they should make separate calculations about fuel consumption for their noon day reports, he said.

It means you are only doing analysis on data which is good enough to be used in defence against potential technical and commercial claims.

Having high quality performance data would also make a better basis for AI analysis, he said.

Bestship's method has four stages. The data is first validated, then given a stability analysis, visualised and then used to make a decision.

In a typical example from an actual vessel, Bestship had 166,000 raw high frequency data samples (RPM, flowmeter, torquemeter), of which only 38,000 passed the sensor cross check for validation. Of those 38,000 samples, only 13,000 data samples passed the stability check. So 92% of the data was rejected.

Bestship analyses sensor data at a granularity level of 60 second blocks, which gives higher resolution results than the 10 minute blocks recommended in ISO 19030.

Data validation

The first step of Bestship's method is data validation. Data is taken from the three sensors, flowmeter, torquemeter and RPM. You make a calculation of the vessel's power and speed through water, based on the flowmeter data and separately with the torque meter data, both based on the RPM.

The calculation method looks for the coefficient of variation (CV) between the calculation of power based on the flowmeter and torquemeter readings, assuming the RPM is correct.

If the CV is under 0.2 on 90 per cent of samples, that is an indication that both torque and flowmeter data can be trusted.

In another example, the CV was over 0.6, which is too high. It was clear from looking at the data that there is high

noise in the fuel flowmeter reading. This suggested the right approach here was to reject the fuel flow meter reading and use the torque meter.

Bestship suggests that a CV above 0.2 means sensors should be taken as being in disagreement, and some recalibration is needed. It means your data about speed through water is affected.

Data stability analysis

The second stage is to analyse the data to see if it is stable. There is no value of using performance data from times the vessel operations are not in steady state, such as in manoeuvring or drifting.

Two methods to do this are ISO 19030 and a method from Dalheim and Steen.

Bestship advises to use both methods, and to reject any data where either method shows the ship was not in steady state at that time.

Data visualisation

With data which is both validated and stable, you can create a data visualisation, which helps identify the cause of any loss of performance.

For example if the engine is consuming more fuel than you expect for a given RPM, but you get the speed through water you expect for that RPM, that indicates engine wear, he said.

The parameter could be that the consumption is more than 5 per cent than at the shop test stage.

If it is giving higher power than expected for a given speed, but at the expected RPM, that indicates hull fouling. You should do something if the added resistance is calculated to be over 30 per cent, he said.

Decision

If you know you have engine wear or hull fouling, a next step is to do something about it.

For example, owners can do an underwater inspection.

Mr Kim showed data from an underwater inspection of a container ship, after the system identified high levels of hull fouling. The bow area, bow thruster, and sea chest gratings were 70 per cent covered in barnacles. The flat bottom, bilge keels, vertical sides and propeller were 80 per cent covered in barnacles. The propeller was also covered with slime and algae.



Kyungrok Kim, Vessel Performance Manager, Bestship

