Container shipping giant CMA CGM has signed a strategic partnership with technology consulting firm Infosys, with the goal of transforming CMA CGM's IT applications and processes over a seven-year period.

As part of this partnership CMA CGM has asked Infosys to open a new centre for development and innovation in its home city of Marseilles, France, and to also take over control of the CMA CGM IT development centre in Dubai.

Infosys' expertise will be applied in helping CMA CGM to build up the skills necessary to maintain its applications and develop SAP projects, while Infosys will also provide the shipping company with new technologies to improve operations.

As part of its ongoing digital transformation, CMA CGM will use the Infosys Nia artificial intelligence platform and its scalable automation platform, AssistEdge, to improve a variety of company processes.

"Innovation and digitalisation are at the heart of our strategy. Our ambition is to create a competitive advantage by offering our customers state-of-the-art technologies," said Rodolphe Saadé, CEO, CMA CGM.

"The partnership with Infosys is key to attaining this objective. By setting up their Centre for Innovation in Marseille, CMA CGM, as well as the region, will benefit from both their expertise and their proximity."

**ERP roll-out**

One step that CMA CGM has already taken in its digitalisation process involves its CMA Ships division, which has agreed a deal to implement the PAL e3 maritime ERP (enterprise resource planning) software package from Singapore-based MariApps Marine Solutions across its fleet.

PAL e3 includes modules to cover various aspects of vessel management, including crewing, accounting, planned maintenance, chartering and voyage planning. The system will be implemented within the group during 2018.

“This is a real opportunity to improve the efficiency of these processes and achieve important cost savings. We are already seeing the results. We have reduced the number of hours spent on administrative processes by 30%,” said Jean-Baptiste Leguay, Director of Information Systems at CMA CGM Ships.
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Grieg Star ships to implement VSAT

Grieg Star, a shipping company headquartered in Bergen, Norway, is to roll-out a new VSAT system across its fleet of 33 General Cargo Open Hatch vessels, having agreed a deal with Marlink to implement its Sealink VSAT Premium service.

The package includes global VSAT services with unlimited L-band back up for a fixed monthly fee, and was agreed following the completion of three months of sea trials involving multiple service providers.

All Grieg Star vessels will also be supplied with the XChange centralised IT and communications management system under the deal, managed by Marlink to reduce the technical and administrative work required for officers on board and IT staff ashore.

As part of this new managed service approach for XChange, Marlink says it will provide additional consulting services advising on the integration of its technology into Grieg Star’s shipping and logistics operations, to assist the shipping company in creating operational efficiencies through the use of digital applications, in areas such as condition based maintenance and monitoring.

XChange will also act as the focal point for crew welfare services on board, via its Bring Your Own Device (BYOD) system which allows crew to access the internet and make calls via Wi-Fi from their own smartphones, tablets and laptops.

“We experience the ever growing need for connectivity on board both for crew initiatives and from an operational point of view, and now is the time to fully embrace digitalisation,” said Jan Øivind Svardal, COO, Grieg Star.

“Following extensive testing, we are confident that with Marlink as a partner, we can focus even more on digitalisation to ensure that our fleet operates as efficiently as possible.”

The announcement of this Grieg deal comes as Marlink has completed an upgrade to its Sealink C-band VSAT service, to more easily integrate with existing equipment.

www.marlink.com

Thenamaris in 90-vessel e-mail and data deal

Maritime technology company Dualog, headquartered in Tromsø, Norway, has agreed a deal to provide business e-mail and data management services to 90 vessels operated by Greece-based ship manager Thenamaris.

Thenamaris operates a fleet of tankers, LNG and LPG vessels, bulk carriers, and container ships. Dualog says that initial services associated with the contract, which will involve migration of existing data and implementation of the fleet’s new e-mail platform, were scheduled to be completed by the end of October.

“The key reason for choosing Dualog was the support services and experience that Dualog provides, and which were clearly demonstrated throughout the evaluation process,” said Konstantinos Stais, IT&T operations supervisor at Thenamaris.

“The response received from the Dualog team on all technical matters raised was strong, resulting in the Thenamaris team assessing this solution as the preferred option.”

www.dualog.com

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(On watch)

Setting the highest standard in satellite communications.

www.navarino.gr
Kymeta prepares for KĀLO service launch

www.kymeta.com

Flat panel antenna company Kymeta has formed a new KĀLO business unit in preparation for the launch of commercial availability of its new service, operating on the Intelsat satellite network.

The KĀLO service will use Kymeta’s KyWay terminals and mTennau7 antenna subsystem modules (ASMs) to provide Ku-band connectivity with ‘by-the-gigabyte’ pricing, leveraging the IntelsatOne Flex managed services platform.

Dushyant Sukhija, an ex-Cisco executive who joined Kymeta’s executive leadership team in July 2017, will lead the KĀLO business unit as general manager and spearhead the upcoming launch of the service.

“I’m excited to work with our partner, Intelsat, to build a global communication network,” said Mr Sukhija.

“I have worked with numerous telecommunications companies, that spanned 142 countries, over 65 telecommunications service providers, and more than 1.9 billion subscribers while I was at Cisco, I know the complexities of a solution like this.”

“This does with a global network that brings high-throughput internet access to a multitude of mobile platforms will dramatically expand the reach of satellite communications, while simplifying the buying process for everyone.”

Kymeta says that it will be targeting maritime as one of the industry segments it expects to connect with KĀLO services, alongside other mobility sectors such as buses, airplanes, trains, and automobiles, as well as remote fixed applications and IoT installations.

The company says it is also working on a range of pricing plans that it expects to be significantly different to most current satellite industry offerings.

“Satellite services today are expensive and difficult to buy,” said Mr Sukhija.

“Current satellite services customers often must predict their usage in advance. Imagine having to know exactly where you will be using your phone and how much data you will use three, six, or even 36 months from now. With KĀLO internet access services, we’re focused on taking the guesswork out of purchasing satellite services, and making it as easy as purchasing a cell phone data plan.”

KĀLO services are expected to be commercially available by the end of 2017, with Dr Nathan Kundtz, president and CEO of Kymeta, noting that the company’s ultimate goal was to make connecting to satellite internet “as easy as delivering a pizza.”

“All you need is our antenna, that is like a pizza box that delivers the internet. You can put it on anything that moves, even in the most remote locations, and it provides access to the internet,” he said.

Inmarsat and Samsung sign ‘smart ship’ MoU

www.inmarsat.com

Inmarsat has signed a Memorandum of Understanding (MoU) with Samsung Heavy Industries (SHI), under which the satellite operator’s Fleet Xpress service will be integrated into newbuild ‘smart ships’ from the vessel construction stage to provide connectivity for a range of digital processes.

The strategic agreement will see the South Korean yard installing Inmarsat-approved terminal hardware and providing the option to implement applications to cover remote machinery diagnostics and CCTV services, with access via the Fleet Xpress platform, from the moment the ship is delivered.

The new service, which has been christened ‘Smart Ship’ by SHI, will also allow owners to harvest data from hull monitors and equipment sensors onboard in real-time, utilising Inmarsat’s dedicated bandwidth for Certified Application Providers (CAPs).

“This agreement with SHI represents a new chapter in the story of smart shipping and the connected vessel,” said Ronald Spithou, Inmarsat Maritime president.

“The Fleet Xpress service allows SHI to build-in new levels of vessel efficiency. This agreement demonstrates that the most forward-looking shipbuilders recognise collaboration as the key to shipping’s exploitation of the Internet of Things. It is also further evidence that Inmarsat and its partners are driving shipping towards value-added applications that are set to digitalise the industry and modes of operation.”

Subject to a definitive agreement, SHI will retain remote connections to vessels, while Inmarsat will support SHI’s services through a dedicated Certified Application Provider subscription.

Inmarsat’s Certified Application Provider (CAP) programme aims to support products that can integrate into an eco-system of applications to derive value from the satellite connectivity it provides, in areas like real-time analysis of data for engine monitoring, weather information and fuel consumption.

“Samsung Heavy Industries considers itself to be a technology leader which has always worked closely with owners to deliver ships that are smart, safe, efficient and sustainable,” said Dr Boo-Ki Kim, director of the Central Research Institute, Samsung Heavy Industries & Construction Co.

“However, the smart ship of today demands intelligent solutions to cover remote operational management and equipment monitoring, and continuous lifecycle services to extend its life. As a global shipbuilder, SHI is partnering with Inmarsat in a mutual growth opportunity to deliver more competitive, next generation satellite-based vessel operations.”

In related news, Inmarsat has also recently announced a deal with Mitsubishi Heavy Industries (MHI) to act as the launch provider for the first satellite in the Inmarsat-6 fleet (I-6 F1), under construction by Airbus Defence and Space and scheduled for launch in 2020.

The I-6 satellites will be Inmarsat’s first to feature dual-payloads, supporting both L-band and Ka-band satellite services. The first satellite in the series will be launched using MHI’s H-IIA launch vehicle, the successor to which – the H-3 Launch Vehicle – is currently being developed by MHI and Japan Aerospace Exploration Agency (JAXA) to begin operations in 2020.

“Inmarsat is delighted to select MHI and its H-IIA launch vehicle for the first of our sixth generation satellites,” said Rupert Pearce, CEO of Inmarsat.

“Inmarsat is continually seeking to extend and diversify its ecosystem of partners, particularly in the strategically important area of launch providers. We believe that MHI and its H-IIA launch vehicle offers a world-class service.”

With the development of the new H3 launch vehicle, it is clear that MHI is committed to continuing innovation. These are attributes that we seek in our partners and we look forward to a long and fruitful relationship with MHI as one of our roster of launch partners.”

Inmarsat says it will make a decision on its launch partner for the second I-6 satellite in due course.

Globalstar adds solar-powered M2M satellite unit

www.globalstar.com

Globalstar has launched a new M2M/IoT satellite device, the SmartOne Solar, which can be used to provide remote monitoring and tracking over the Globalstar satellite network for movable assets like containers, powered by solar-rechargeable batteries.

The company says that the SmartOne Solar units can deliver over eight years of serviceable life as a result of their solar capabilities, while still able to operate continuously for months at a time reporting remote machinery diagnostics and continuous machinery monitoring, and it can be used to provide remote monitoring of equipment monitoring, and continuous lifecycle services to extend its life. As a global shipbuilder, SHI is partnering with Inmarsat in a mutual growth opportunity to deliver more competitive, next generation satellite-based vessel operations.”

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NEW FleetBroadband monthly plans
Get flexible access to high data without the commitment

Inmarsat’s proven and reliable maritime satellite service is now available monthly. Upgrade to a flexible 4GB or 8GB monthly plan* and experience the instant benefits of higher data on a month-by-month basis, without any long-term commitment.

Contact your existing provider for further details.

*Take advantage of this limited offer between 1/09/17 and 31/12/17. Offer only available to new and existing FleetBroadband customers currently on Standard, 75MB and 250MB plans.
**SATCOMS**

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**Speedcast adds maritime GSM data and TV services**

Speedcast has introduced a new global near-shore, data-only 4G/LTE GSM connectivity system called GO4SPEED, aimed at the maritime and energy markets, as well as a new at-sea television service called Speedcast TV On Demand.

GO4SPEED will provide flexible usage packages, with built-in cost control and overage protection, the company says, and can be configured to compliment other communication services such as VSAT and MSS.

“GO4SPEED enables cost-effective mobile data for the maritime industry, enhancing our global VSAT and MSS services,” said Dan Rooney, product director for commercial maritime, Speedcast.

“The maritime and energy sectors demand affordable, yet manageable, high-speed near-shore communications, and GO4SPEED delivers this. GO4SPEED provides high-speed access to internet and corporate VPN connections, creating a hybrid network with Speedcast’s VSAT and MSS services.”

GO4SPEED will offer download speeds up to 100Mbps, dependent upon access to a 4G/LTE carrier, and can receive a signal up to 15km offshore depending upon the vessel’s position, antenna and the cellular tower location. If a 4G/LTE signal is not available, the system automatically switches to 3G/HSPA+. Payment plans will be offered with a range of bundles up to 2TB per month, and can be pooled amongst a fleet. The service is supplied as a turnkey system, including antennas.

The company’s other new service, Speedcast TV On Demand, is comprised of a set-top box installed on board that offers instant access to a library of movies, TV shows, sports, news, games, music and other informational content.

The library can be updated using a Cloud-based login at any time, with the system also providing access to administrators to upload video content used for passenger and crew information, training, and safety.

“We are thrilled to bring the Speedcast TV On Demand solution to our customers,” said Steve Scraper, Speedcast’s product director for cruise and ferry.

“This product is innovative and incredibly simple to use for both administrators and end users, and it allows our customers to supply a wide variety of entertainment content that onboard users would typically access at home.”

“It is our goal to provide options for enriching the connectivity experience for everyone, and this product definitely achieves that, while also allowing companies to provide critical training and safety information to passengers and crew.”

Speedcast TV On Demand is the first component of the company’s new Speedcast Media Network, which is set to add additional applications in the coming months.

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**Non-satellite Arctic communications system trialled**

Fleetrange and KNL Networks have launched a new Arctic situational awareness system that combines Internet of Things (IoT), Cloud and 3G/HF hybrid telecommunications technology to provide ships with data on weather, ice conditions, and ship tracking, as well as offering access to e-mail.

The Fleetrange with KNL technology developed by the two companies has now completed a trial on board Salén Ship Management’s expedition cruiser Hebridean Sky during its Arctic voyages around Svalbard. This included testing of the Fleetrange IoT Cloud platform which uses KNL’s 3G/HF hybrid communications technology to transfer data.

The system was tested with KNL’s cognitive and software defined radio equipment and Fleetrange IoT units, which were systemically tested and monitored during the trial, as the ship travelled around Svalbard and all the way to the Arctic ice edge.

“Fleetrange and KNL has always been a big help on our entire stay in Svalbard, especially on those areas that we don’t get any signal at all with the VSAT, by receiving the updated ice charts and weather forecasts in GRIB files, it truly helped us,” said Dindo Talon, IT officer on the Hebridean Sky.

“I am impressed with how useful the HF e-mail is when nothing else is available to connect and contact from the head office, supports, etc. And it enabled us to send reports despite the lost connection on our VSAT.”

KNL’s technology relies on an automated cognitive mesh-type radio network, where ships within 3G coverage act as base stations for ships further out at sea, and as such can operate independently of any satcom systems on board.

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**Decline expected in maritime L-band – report**

The market for maritime L-band services is set to decline over the next decade, and may force network operators to reposition their offerings to target smaller vessel customers and offshore, data-only 4G/LTE GSM connections technology to provide services and products to OET in exchange for feedback on various Kvh products.

For the first phase of the project, coinciding with OET’s 2017 expedition in the Eastern Pacific Ocean, a TracPhone V7-IP VSAT system has been installed on the 64-metre exploration vessel Nautilus, providing internet access and multicast daily news content for the 48 researchers and crew.

“It is an honour for Kvh to support the fascinating work of the Ocean Exploration Trust,” said Brent Bruun, Kvh’s chief operating officer.

“Dr Ballard and his team onboard the Nautilus represent not only the leading edge of scientific research, but also an incredible inspiration to students and adults alike who long to see and understand the ocean’s mysteries.”

The 2017 Nautilus expedition represents the third year of exploration in the Eastern Pacific Ocean, documenting and surveying unexplored regions from British Columbia, Canada, along the West Coast of the United States, to Baja California, Mexico.

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**Kvh to outfit exploration vessels**

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**Sea IT**

Sea IT has expanded its technical team with the addition of Adam Drechsel, who will work out of the Sea IT headquarters in Gothenburg, Sweden. Mr Drechsel has a background in system development and networking, and previously worked as a technical account manager and IT technician at Gotanet, an internet and telecommunications provider.

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Adam Drechsel, new at Sea IT

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www.otesat-maritel.com
Seanergy Maritime goes for Fleet Xpress

www.otesat-maritel.com

Greece-based maritime communications provider Otesat-Maritel has announced that it has agreed a new deal with Seanergy Maritime, covering the installation and provision of Inmarsat’s Fleet Xpress system on the shipping company’s vessels.

Seanergy Maritime Holdings is an owner and operator of dry bulk vessels. The company currently owns a fleet of eleven dry bulk carriers (Capesizes and Supramaxes) with a combined cargo-carrying capacity of approximately 1.7 million dwt.

In addition to the roll-out of Inmarsat’s Ka-band technology on the ships, Otesat-Maritel will also connect its s@tGate platform, which will be used to support business intelligence systems and provide additional crew welfare options.

s@tGate is a networking tool offering satellite bandwidth management and data transmission optimisation functions, while also providing a platform for onboard internet, e-mail, and voice calling.

NSSLGlobal introduces VSAT/GSM hybrid in single antenna dome

www.nsslglobal.com

NSSLGlobal has launched FusionIP, a hybrid product combining VSAT and GSM connectivity using one single 60cm SALOR dome that includes antennas for both services, allowing ships to automatically switch between 4G/3G and satellite networks.

The system provides a global ‘one SIM, one contract’ package, with speeds up to 100 Mbps possible when using the GSM part of the service. “We’ve seen a great deal of demand for this in the last few months,” said Sally-Anne Ray, CEO, NSSLGlobal.

“We felt, however, that we could deliver a better experience than what was already in the market. We’ve eliminated the need to wire-in and support multiple devices, or to spoil the aesthetics of a vessel with multiple antennas. We’ve also eliminated the need to use multiple SIMs.”

“Instead, we’ve provided a highly-optimised, convenient, aesthetically-pleasing solution that is easy to install and delivers entirely predictable, optimised pricing anywhere in the world, with no effort. It’s simply a case of ‘plug it in and go’.”

SES announces plans for multi-terabit satcom service

www.ses.com

SES has announced its intention to launch a new satellite service called O3b mPOWER, which it says will be capable of delivering multiple terabits of throughput globally to maritime and other satellite markets, starting in 2021.

SES says that it has already contracted with Boeing Satellite Systems to build the seven medium earth orbit (MEO) satellites to be used for the service. The constellation will have 30,000 fully-shapeable and steerable beams that can be shifted and switched in real time to provide coverage to an area of nearly 400 million square kilometres, four-fifths of the Earth’s surface.

SES already operates an existing satellite constellation of 12 MEO satellites following its acquisition of O3b Networks in 2016, and will be launching another eight MEO satellites in 2018 and 2019. For the O3b mPOWER service this satellite capacity will be complemented by an ecosystem of value-add service and technology partners from around the world, who will collaborate with SES to combine storage, computing and routing resources with software intelligence and application-specific capabilities.

This will also see the introduction of a new concept network endpoint for installation by the end user, called the O3b mPOWER Customer Edge Terminal.

“The launch of O3b mPOWER, SES is opening a new era of connectivity, fundamentally transforming the role and capabilities of satellite. O3b mPOWER is a unique system with exponentially more power, performance and flexibility which sets the technology at the highest level, offering a visionary roadmap for next generation technology,” said Karim Michael Sabbagh, president and CEO of SES.

“We are leveraging the pole position we hold today by relying and building on the strengths of our existing O3b Medium Earth Orbit constellation. We are taking a long-term strategic investment to further boost our capabilities, going beyond boundaries and redefining the frontiers of what satellite connectivity can accomplish.”

“O3b mPOWER will be instrumental in empowering customers to massively scale up their businesses and capture new growth. This will enable us to further execute on our differentiated service offering and deliver profitable growth in line with SES’s financial framework.”

NYK and Dualog begin IoT programme with NTT Group

www.dualog.com

The NYK Group and its Norwegian maritime IT partner Dualog have entered into a collaboration agreement with the NTT Group (Nippon Telegraph and Telephone Corporation), to work together on a proof-of-concept project to create a new shipboard Internet of Things (IoT) platform.

The project will focus on validation of these technologies when applied in the maritime environment, for processes such as gathering data from onboard sensors and monitoring equipment, remote distribution and management of onboard applications, and monitoring of equipment, event analyses and intelligent alerts.

The NYK Group says it aims to use the knowledge it has already gained through the development of its own ship information management system (SIMS) in the development of this on board IoT platform, and intends to share the outcomes of the project via an open platform with the maritime industry as a whole, in conjunction with Class NK, DNV GL, and ship machinery and equipment manufacturers.

Topaz to roll-out Maritime Connect service across its fleet

www.orange-business.com

Dubai-based Topaz Energy and Marine has signed an agreement with Orange Business Services to implement its Maritime Connect system, a hybrid satcom and wireless communications package, to communicate with its fleet at sea and support its shore-based corporate network.

Under a three-year agreement, Orange will initially connect 39 Topaz offshore support vessels, with the ultimate goal of rolling out the system across the entire fleet of more than 110 ships by the end of 2019.

The Orange Maritime Connect platform incorporates multiple connectivity options, including VSAT, L-band terminals, 3G/4G and Wi-Fi. Traffic is routed depending on the availability of the link and the quality of service level available.

The system includes maritime bandwidth management and optimisation features, managing voice, video and data traffic, while also providing defences against cyber-attacks with an integrated range of security features.

“The maritime industry is undergoing its own digital transformation, from digital ports to vessel management,” said René Kokof-Olsen, chief executive officer, Topaz.

“We operate in a unique context spanning ship to shore operations, with the majority of our people based offshore. By enhancing the communications capabilities of our vessels, we are able to synchronise and manage our integrated business operations more effectively and ensure our crew can easily access the internet for all their business communication needs, as well as connecting them to family and friends and transforming the onboard experience.”
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I n late 2016, major Japanese shipping company Kawasaki Kisen Kaisha, more commonly known as “K” Line, became one of the first Asian operators to implement Inmarsat’s newly launched flagship Fleet Xpress (FX) Ka-band service, the latest step in an ongoing pursuit of increased data connectivity between vessel and shore that has seen the company now add VSAT systems of various types on board the vast majority of its ships.

At the time of that first FX installation approximately 50 per cent of “K” Line vessels had VSAT equipment. At the end of the first half of 2017, with additional FX systems and other providers’ VSAT services being implemented at pace, that ratio had climbed to approximately 80 per cent.

This roll-out of VSAT services forms just a part of “K” Lines’ ongoing search for more efficient ways to transfer and use data, a process that stretches back 20 years to the company’s first introduction of e-mail services, on board and ashore. That ability to easily exchange basic digital data afforded by the e-mail system became a driving force in encouraging the earliest forms of digitalisation in company processes, as Shinta Masuyama, manager of the advanced technology group, energy and performance management team, at “K” Line explained during a presentation at the 2017 Digital Ship CIO Forum in Tokyo.

“In 1995, Windows 95 was first released, and then we started using e-mail on board. We were quite early adopters and then started using e-mail on board around 1997. Once you have e-mail then you can directly exchange data. We used to take Polaroid photos and then send them by fax, and just see a black blob on the page, but with the advent of e-mail we were able to get digital cameras so we could utilise those tools to send colour images to our colleagues,” he told us.

“When we started using e-mail I’m sure many people said ‘we already have fax, we already have telex, what do we need e-mail for? It doesn’t need to be that fast, does it?’ Some people are always resistant, but when we looked at the digital camera and the pictures it can provide, that was a big one.

“The pictures were clear and we didn’t have to wait to get mail when the ship arrives in port, if anything happened we could directly send a colour photo to the office. Before we knew it, that became the norm, and the people who said ‘we don’t need e-mail’ were now saying ‘of course we need e-mail’.

Building on these modest beginnings of replacing smudged faxes with digital images, “K” Line began to explore other potential areas of digitalisation that might make vessel information simpler to collect and process, providing new levels of operational decision support.

“One thing that came up was to manage the Abstract Log. We used to get one voyage-worth of data, put it together and send it all at once, but then we started keeping the log on board and sending it daily by e-mail,” said Mr Masuyama.

“Another thing we were able to do was to send the Engine Data Logger data directly to shore, so that all the engine data was available directly on land, all thanks to e-mail.”

To better organise its new sources of digital data, “K” Line created an in-house system called SPAS, or Ship Performance Analysing System, that was used to collate the Abstract Log (AB-LOG) data that would have previously been recorded on paper and make it available for digital transmission back to the office.

In April 2001, SPAS was implemented on the vessel Kumamogawa, before being adopted as the standard system on all vessels shortly afterwards. SPAS included an electronic logging system as well as visual performance analysis data.

“We used this to directly input voyage data to send it back to the company. Then we started doing this on all of our ships,” said Mr Masuyama.

“Previously, we had a legal-sized sheet of paper with spaces to track all of the voyage information on it, we tracked the weather, the daily speed and positions. We manually entered that information and once we arrived at shore we mailed it, by post, to our headquarters.”

“We developed the SPAS software to deal with this, and in 2001 we started sending this information by e-mail, because we had e-mail available by that time. You could input the AB-LOGs, there was a system for that, and then there was a separate system to analyse the data. We could examine the data by trip, but also look at it on a daily basis if we wanted.”

At this stage, “K” Line was very much operating with a siloed approach, with data about separate processes recorded in isolation – for example, SPAS would contain a record of AB-LOG data, while another newly developed digital engine performance monitoring system (EP-MONITOR) would collect data measuring the efficiency of vessel engines.

“The EP-MONITOR uses data from the engine data logger, the sensor data, and we wanted to simplify the process we had where the data logger originally gave us data six times a day, every four hours, in a batch. It would print out the data every four hours, on the ship,” said Mr Masuyama.

“So, instead of printing this we wanted to get the data and send it in e-mail format to our server. We were quite early adopters of this kind of technology, this was in November 2001 when we installed this on our first ships, on James River Bridge and Lions Gate Bridge.”

“This is quite a bit of work, so it took a while to roll out to all of the ships, but eventually it became the standard system for our owned vessels. So even before we started to adopt high-speed communications there were certain things that we could already handle. But once the high-speed era arrived we had to think of what we could do next.”

Broadband era

The next great leap forward in “K” Line’s digitalisation process came with its move to higher bandwidth communications systems, with lower data costs opening up new opportunities to integrate ship and shore operations.

“We’ve already talked about SPAS and the EP-MONITOR. We always had a system to collect and analyse data with these two systems, but by installing VSAT we were suddenly able to handle a big volume of data, so called ‘Big Data’, Mr Masuyama explained.

“We were able to merge these two systems, so our analysis was not only looking at engine data but we could also include VDR data and look at things like fuel consumption, all within the same system.”

These new capabilities form the backbone of “K” Line’s Kawasaki Integrated Maritime Solution (K-IMS), a system that draws real time data from SPAS and the EP-MONITOR to combine with navigational and operational information such as speed, fuel consumption and weather conditions, ultimately providing a centralised processing and display platform for a range of voyage data parameters.

“With the EP-MONITOR we were getting data six times per day, every four hours, and we changed that to getting it every 30 minutes. We then connected the system to SPAS, and we used the performance analysis in SPAS to link the data from the EP-MONITOR with the actual route data,” Mr Masuyama explained.

“Then this was filtered to make it possible to see specific trends in performance for the ships, this much data was enough for us to really use it to see something significant. These results are then used to help in our optimum routing system, and to make predictions for the future.”

“We also arranged the data to make it easier to look at on screens. I think previously we could only look at SPAS data once a day, but we changed it so that operators can now easily look at it on demand.”

The development of these systems has been driven by “K” Line’s first VSAT implementation project in 2011, when the company installed the equipment on four of its vessels. At the time it was decided to limit the project to those initial four ships so that the potential benefits of the technology – as well as any additional challenges – could be properly understood before introducing similar services on a wider portion of the fleet.

“We wanted to look at the communications environment it created, and wanted to spend our money on different things. Then from 2014 we started installing it on other ships as well, and by the end of 2015 about 40 per cent of our ships were connected using high-speed VSAT systems. If we keep going at this rate, during next
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we would have to go and explain this to various sales departments and we wanted to make sure that we can give the sales speech to every team we spoke to, that’s why we created the guidelines.

Connected environment

With “K” Line closing in on having its whole fleet broadband-ready, there are two major focus areas that will be at the forefront of the company IT department’s work going forward – maintaining security on the network, and finding new applications for its connectivity services.

On the security side, Mr Masuyama notes that the company has not only increased its awareness of cyber issues given its higher level of connectivity, and has implemented a RAID 5 redundancy system to make sure it has backups in place should an issue occur.

“We are doing this, of first all, to prohibit internet access using business PCs. We need to make sure that Windows and virus scanners are updated properly, and we don’t use any USB memory sticks. These are some of the common recommendations for security,” he said.

“This doesn’t apply to all “K” Line ships, but on some we have also installed thin clients connected over VPN to ensure security on board. There was talk of not using any PCs connected to the internet, but we felt we could handle this by separating the business LAN from the crew welfare LAN, by separating the networks we were able to have better security. The business PCs are connected with the shore office using a VPN.”

“For Windows updates, it sounds easy but in truth, VSAT is not that fast to be able to handle this easily. With five or six PCs on board there isn’t enough bandwidth to update them all. We’ve dealt with this by using thin clients, so all we need is to have one server updated and the other PCs are using that server. That’s how we do the Windows and virus updates.”

ECDS updates are also subject to the USB memory usage restriction, so “K” Line has implemented a chart update server setup on the ship that can only be accessed using specific drives that are locked down.

These and other policies for the development of the shipboard ICT networks will be managed by a special ICT working group that has been set up at “K” Line as it continues its digitalisation journey, a group that is also tasked with identifying new innovations that can be implemented to take advantage of its improved communications environment to promote safe navigation and more efficient voyages, particularly through the application of Big Data technologies.

Among the projects currently being explored are a video communication system with a web conference app; a live fore mast camera; a navigation assistance application; an engine room Wi-Fi trial; and a web portal specifically designed for the company’s seafarers.

“We have several people from the company involved, one team working on safe navigation and one team on voyage management,” said Mr Masuyama.

“We also have an office IT person involved as well, and we have a team that works specifically on satellite communications. So they’re all involved in the ICT working group.”

“They have a budget they work with to work on various projects. They try to get a consensus on ideas and then various projects will come out of that, they get an internal consensus first and then try to convince our directors and the other teams. The directors are interested in these ICT ideas, so it’s really important that we can communicate the project well and always make sure that “K” Line keeps up with the latest in communications.”

It has been a long journey from fax to FX, and from the company’s first e-mail systems to integrated real-time voyage data systems. But as “K” Line continues its technology research and development in the future, driven by its pursuit of an even greater level of digitalised operations, perhaps the greatest innovations are yet to come. Exciting times indeed for the “K” Line ICT team.

* Shinta Masuyama’s presentation at the 2017 Digital Ship CIO Forum in Tokyo was delivered in Japanese, with simultaneous translation into English. The quotes in this article are taken from that English translation.

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Phasor partners with OmniAccess on flat panel antenna launch

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www.phasorsolutions.com

Flat panel antenna company Phasor has announced an agreement with OmniAccess to become its first commercial launch partner in the maritime broadband market, initially aimed at serving super yachts, with beta trials of the electronically steerable antenna (ESA) systems planned for early 2018 ahead of its initial commercial product introduction.

“We are delighted to expand our relationship with OmniAccess, a recognised innovator and leader in maritime communications services,” said David Helfgott, CEO, Phasor.

“Over the past several quarters, Phasor has made great strides forward and are now at the stage to prepare full Field/Beta testing. With our partner, Phasor aims to provide the best technical solution to the super yacht market, one that is very low profile (2-inches high), bandwidth efficient, aesthetically attractive, and scalable to accommodate a range of connectivity requirements.”

Phasor says that it has already conducted extended trials of its equipment demonstrating broadband duplex satellite links reaching speeds of 24 Mbps from a single 71cm equivalent aperture, using an Intelsat Epic high throughput satellite, whilst mounted on a moving platform.

“We are excited about the excellent test results we have achieved together with Phasor, and are delighted that we are now one important step closer to making this radical new product available to our clients in the very near future,” said Bertrand Hartman, CEO of OmniAccess.

“The Phasor Maritime Quantum Aperture offers a unique combination of low profile and high performance, whilst offering unprecedented scalability and many other advanced features. It has the potential to become a real game-changer, particularly when used to provide demanding ultra-high bandwidth services such as those provided by OmniAccess.”

Latest Epic satellite launched successfully

www.intelsat.com

Intelsat has confirmed the successful launch of its Intelsat 37e satellite from the Guiana Space Center in Kourou, French Guiana, the latest addition to its EpicNG constellation of high throughput satellites.

Signal acquisition was subsequently confirmed, with the spacecraft now set to be moved into position at 342° East before being placed into service.

“Intelsat 37e is a powerful addition to our award-winning Intelsat EpicNG network. It brings new technology and resilience as we continue to develop the first all-digital high throughput satellite system,” said Stephen Spengler, Intelsat’s CEO.

“Intelsat 37e features enhanced power sharing technology and steerable beams, which bring additional flexibility to meeting regional and application requirements over the life of the satellite. Intelsat 37e reflects our multi-band, open architecture philosophy. Our overarching goal is to offer satellite services that unlock high-demand applications such as mobility and wireless infrastructure, supporting the growth of our customers.”

The satellite includes C-, Ku- and Ka-band payloads. The multi-spot Ku-band coverage, of most interest to the maritime sector, will offer coverage across Europe, Africa, South America and the East coast of the US.

The satellite is replacing Intelsat 901 at its orbital location, with the older satellite to be repositioned.

The Intelsat 37e satellite was launched from French Guiana

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Maritime cyber support portfolio expands

As the maritime industry slowly wakes up to the cyber threat facing modern businesses, the range of shipping-specific guidance and services available to assist in securing on shore and at sea networks is expanding.

After the wake-up call of Maersk’s NotPetya-induced commercial chaos in June of this year, magnified by the expected financial impact on the company of some $800 million, the maritime industry has no excuse when it comes to accepting the very real threat of cyber-attacks in modern business.

Thankfully, the range of guidance documents and support products available to shipping is also expanding significantly, to provide assistance to those looking to mitigate the risks they face.

Among the recently released guidance notes is a new ‘Cyber Security for Ships’ code of practice introduced by the UK Department for Transport, aimed at assisting maritime companies in developing cyber security assessment plans, devising appropriate mitigation measures, and making sure they have the necessary structures and processes in place to guard against attack.

The Department commissioned the Institution of Engineering and Technology (IET) to produce the code of practice, with input from the Maritime Coastguard Agency, Maritime Accident and Investigation Branch, the Ministry of Defence Science and Technology Laboratory, and the National Cyber Security Centre.

The UK’s guidance is being released to complement the work being done by the International Maritime Organisation (IMO) to raise awareness of cyber threats and vulnerabilities, and is intended to be used as an integral part of a risk management system to ensure that cyber security is delivered cost effectively as part of mainstream business.

“Cyber security is not just about preventing hackers gaining access to systems and information. It’s also about protecting digital assets and information, ensuring business continuity, and making sure the maritime industry is resilient to outside threats,” said UK Transport Minister Lord Callanan, speaking at the launch of the cyber guidance.

“That means not only keeping ship systems safe from physical attack, but also ensuring that supporting systems are robust, so that in the event of an incident, appropriate practices and technologies are in place to limit any damage.”

“There is also the need for personnel security — guarding against the possible threat from insiders, either shore or shipboard-based. Ship owners and operators need to understand cyber security and promote awareness of the subject to their staff and business partners.”

The guidance document, in PDF format, can be downloaded from http://bit.ly/2tx6p3W

Staying in the UK, classification society Lloyd’s Register’s (LR) has also recently released details of its new type approval process for cyber enabled components on board ships, with the aim of offering an assurance system to provide confidence in the market for the supply of cyber enabled components.

LR’s ‘Type Approval Requirements for components within Cyber Enabled Systems on board Ships’ procedure for Network and Network-related devices’, will also incorporate consideration of the functioning of a cyber enabled system, including elements like cyber security, in addition to the traditional type approval of equipment.

The procedure will address production quality assessment in the supply chain, marine environment testing for cyber enabled components, as well as verification of their cyber functions, such as communication and cyber security.

“Type approval will bring together with LR’s Cyber Enabled ShipRight document, providing type approved components to use in cyber systems, such as predictive maintenance and performance optimisation,” said LR Marine & Offshore innovation strategy and research director, Luis Benito.

“Together this offers the complete cyber solution for the future, from components to systems to functions.”

LR already issued its first guidance note on cyber enabled ships in February 2016, ‘Deploying Information and Communications Technology in Shipping — Lloyd’s Register’s Approach to Assurance’. This identified the elements that constitute a cyber enabled ship and the activities that need to take place to ensure that cyber technology does not introduce a safety risk.

This was followed by the introduction of the ShipRight procedure, which details LR’s framework for accepting cyber technology at varying levels of autonomy – from ships with the most basic decision support tools to vessels that are fully autonomous – identifying the assessments, processes and considerations that need to be followed.

Cyber security is addressed as one of the six risk areas studied for connected ships, and requirements are included within the ShipRight Procedure. The first ships to be classed with LR’s cyber notations were delivered in May this year.

Cyprus

Moving from the UK to Southern Europe, maritime association the Cyprus Shipping Chamber has also developed its own cyber security guidance document, in response to an increasing level of concern among its members with regard to digital vulnerabilities in the maritime industry.

The document is presented in the form of a case study examining the progress of a real life Cyprus Shipping Chamber (CSC) member company, a ship owner, technical operations manager and crew manager, in implementing a cyber security programme for their ships with internet access.

The shipping company, which is not named in the case study, was asked a series of questions related to their IT implementation and policies, with the answers recorded in the document.

Each of the replies is then supplemented with further information derived from best practice recommendations from various sources, including BIMCO, the US Coast Guard and ABS, to provide a more complete picture of the suggested course of action in each situation.

“Cyber threats are one of the most serious economic and international security challenges facing the maritime industry today,” says the CSC, in its introduction to the report.

“The need for protection and security enforcements to mitigate the threats is more important today than ever. Guidelines to support secure cyber operations and contingency plans to be followed in a case of cyber incident have become necessary.”

“The Cyprus Shipping Chamber, recognising the increasing concern of its members with regards to cyber security and their protection, developed this document with the intention to create awareness of the threat and provide guidance to its members.”

CSC notes that this first version of the case study should not be considered an all-inclusive guide to cyber security, and says that it is intended to be a dynamic
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SATCOMS

Next launch brings total to 30

www.iridium.com

Iridium has completed the successful launch of its third group of 10 Iridium NEXT satellites, with all satellites now safely deployed, the company said.

The satellites were delivered into low-Earth orbit approximately one hour after their SpaceX Falcon 9 launch vehicle lifted off from Vandenberg Air Force Base in California. The launch was a few days behind schedule, having been pushed back from its previously announced October 3 date by SpaceX on a couple of occasions before being completed on October 9th.

With two previous launches having already been completed this year, this third batch brings the total number of Iridium NEXT satellites in orbit to 30, nearly half the 66 required for the full Iridium NEXT operational constellation.

"Each successful launch brings us one step closer to both a technological and financial transformation," said Iridium CEO, Matt Desch.

"One of our core strategies is to offer new services that are either flat out impossible or not easily replicated by more traditional 'bent pipe' and geostationary systems. Satellite Time & Location, Short Burst Data and Iridium PTT are just a few examples of global services only possible on our network."

"For us and our partners, Iridium NEXT is an engine for innovation, and services like these are just the start. Moreover, we're on track to completion in 2018."

Iridium and SpaceX are partnered for a series of eight launches, seven deploying 10 Iridium NEXT satellites at a time and one deploying five.

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Regular readers of this publication will know that the maritime industry is waking up to the cyber threat. Barely a day goes by without us spitting out our cornflakes over some new hi-tech way our systems could be infiltrated.

Guidance and positioning systems disabled? Check. Email management system compromised? Check. Pirates steering the ship via small Wi-Fi enabled drones? Surely only a matter of time they say. This is all true.

It is indeed possible that these extreme threats could happen and could cause huge disruption to your business. The fact is, however, that at the moment these threats are more hypothetical than real. I don’t doubt that this sort of intelligence horizon scanning is useful and is something to bear in mind, but with increasing pressures on company profit margins, political shifts such as Brexit and the ever increasing physical threat from terrorism, maritime companies already have their plates well and truly full.

This is why I think the most valuable thing for the maritime sector right now is to focus on the threats that we are seeing every day. The ones your company is most likely to face.

In the majority of cases, attacks by cybercriminals are indiscriminate. They don’t care if you are a shipping company or a shopping mall, if you have money and you have internet connected devices then you are a target. This article will talk about three of the most likely, real world threats to be aware of at the moment, how to reduce your risk of being compromised and what to do if you do find yourself becoming a victim.

Ransomware

This threat probably needs little introduction. WannaCry, for example, was a wide-ly reported recent ransomware attack that indiscriminately targeted companies of all shapes, sizes and locations. So what is it?

Ransomware is an extremely aggressive and confrontational piece of malware designed to extort money out of its victim. It is not a new threat but is becoming increasingly popular due to its low cost, low risk, high reward profile. You can buy it and deploy it yourself (requiring some small degree of knowledge) or you can simply sign up to a service that will do it all for you for a cut.

It will get onto your devices through e-mail, USB and forum links and then proceed to encrypt everything it can ‘see’. This means that you lose access to those files. The best situation to be in at this point is to have full, tested backups, that way an IT professional can ‘clean’ the machine and then restore your backup. Sure you will suffer some downtime while this happens but you get to walk away with some lessons to learn.

If you do not have a backup, or your backups are old or incomplete then you have two options – pay the ransom to the criminals, or refuse and lose your files.

As I work for law enforcement I would never advocate paying the ransom. However if you do decide to pay be aware that you still may not get your files. They may be true to their word and give you the decryption key, but the aggressive encryption process which locked your files in the first place can also make them corrupt and irretrievable.

It is also the case that companies that do pay a ransom are increasingly finding themselves on lists of ‘companies that pay’, increasing the chance of them being hit again, which companies often are.

There are technical solutions that are always being brought out claiming they can effectively help you defend against ransomware. By far the best way to mitigate the risk is to stop it coming in in the first place. A lot of this rests with your staff, operators, contractors and seafarers.

Microsoft has a saying “backup early, backup often”. This is the best insurance against ransomware that you have. If you have a backup that was done only a few days ago then, at worst you have lost a few days of data. Ransomware then becomes more of an irritant.

Insiders and Social Engineering

I always prefix ‘insiders’ with either accidental or malicious. The reason for this is that both are insiders but they are very different in terms of motivation. Accidental insiders are individuals who and Intrusion Detection Systems get better it is easier for attackers to target human frailty. Why waste weeks or months trying to get around a firewall when you can send a phishing e-mail and get in straight away? For an attacker the ROI is clearly better.

Staff training is one of the best defences you have here. There are other defences such as e-mail sandboxing and implementing the DMARC (Domain-based Message Authentication, Reporting & Conformance) protocol. It is always best not to let malicious e-mails get as far as employee inboxes.

The second type of insider is the malicious insider. These are rare despite the horror stories certain companies will try to sell you.

This group includes staff that may be disgruntled or may have been bribed by a competitor. They access the information they need from the inside. They can place Logic Bombs on your system so that a number of days after they have left your company it sets off some malware.

Defending against these people is hard. It starts with robust vetting procedures. You should also encourage all your staff to report any odd behaviour by other employees.

You should ensure all staff can only access the things they need to do their job and you should monitor their accounts to see what they are accessing and when.

Rob never works on Sunday so why is he in the office? – having a culture that encourages staff to report unusual behaviour is a key defence.

Trojans

Trojans such as Dridex, Zeus and Trickbot are small programs that are usually spread through infected e-mails sent to targets with an infected office file as an attachment. On attempting to open the file, the victim is often prompted to enable macros or click some other box to view the contents. If the victim complies, the macro – a small embedded program – then has permission to download and install the rest of the program, opening the computer up to exploitation.

Once installed on your computer these programs allow the attacker free reign to copy or delete any information. This can quickly spread to other computers in your network. There are unlikely to be any signs that this infection has occurred.

Banking Trojans have added functionality to monitor and extract banking information and assist the attacker in piggybacking on an internet banking session to transfer money to other accounts.

Like many forms of malware that come onto a system via e-mail, prevention is the key.

Don’t open documents you aren’t expecting and if you do, leave Protected View on. A request to “enable macros” should be treated as a red flag in most cases. If you are not sure about an e-mail attachment call the sender to confirm they have sent it. If you don’t need to edit or print a document resist the temptation to enable editing. It could save your company.

With these threats in mind, it is important to remember to focus on the risks you can mitigate. Cybercrime is rapidly evolving. It is important companies focus on the threats that we are seeing now.

We can’t fight everything, time and money won’t allow that. Think about what you have in place to defend your company, vessels and assets against these three threats and what you could do to improve these defences. You will never stop an attacker who really wants in to your network, but by making things more challenging most attackers will move on to an easier target!
“Reliable, always-on connectivity, IT network stability and appropriate crew communication facilities are the most important factors for us to ensure our fleet operates efficiently and economically. With Sealink VSAT, Marlink has provided us with a complete connectivity solution that provides high performance and a stable foundation for our business going forward.”

Kostas Tsalikis, IT Manager, Sun Enterprises Ltd. / Livanos Group of Companies

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SOFTWARE

Data platform for engines launched

www.wingd.com

Winterthur Gas & Diesel (WingD) and partner Enamar Ltd of Gdynia, Poland, have jointly launched a new data collection and monitoring (DCM) platform, developed under a collaboration agreement between the companies signed earlier this year.

This first version of the DCM hardware, with monitoring software, has been tailored to work with WingD’s engine and ship-specific software, the companies said, including the diagnostic software WingD is currently developing with Propulsion Analytics of Piraeus, Greece.

“The collaboration with Enamar is the next step in our plan to lead innovation in the field of shipping digitalisation,” said Dominik Schneiter, vice president of research & development at WingD.

The DCM platform will provide engine owners and operators with an advanced tool aboard ships that collects, stores, visualises and post-processes all engine data, as well as relevant ship information and other machinery data.

“This comprehensive fund of data will be the foundation of our digital solution portfolio, enabling value-adding analyses and remote support. It is the starting point of a game-changing product that will provide optimum customer value.”

The onboard DCM platform will also transmit its data to shore to be analysed by the ship owner and by WingD to support performance optimisation.

“The WingD DCM platform is the gateway to engine, ship and ship machinery data, creating an IoT (Internet of Things) network with most of the analytical done on the edge, i.e. on the vessel,” added Mr Schneiter.

“This platform will allow us to fully leverage the capabilities of the WingD Engine Diagnostic System (EDS) developed with Propulsion Analytics and provide maximum benefits for our customers. The combination of EDS and DCM enables WingD to offer not only insights into operational parameters of vessel, main engine and other vital ship systems but also analytical tools for the ship’s crew and personnel ashore.”

“It will also offer WingD, as an engine developer, key insights of the sort that have not been available thus far for the further improvement of our products and services.”

ClassNK expands e-Certificate programme

www.classnk.or.jp

ClassNK reports that it has expanded its electronic certificate service for classification and statutory certificates to include the flag states of Panama, Singapore, and the Marshall Islands.

The service, ClassNK e-Certificate, was previously only available to Liberian-flagged vessels. Expanding the programme to all ClassNK-registered vessels from these three additional flag states will mean that approximately 60 per cent of vessels on the ClassNK register will now be covered.

The e-Certificate is the result of a project aimed at reducing the workload on board and at shore offices by using digital documents to minimise clerical errors and time lost on paperwork.

Based on the standards stipulated in IMO’s Guidelines For The Use Of Electronic Certificates, released in April 2016, the system enables secure transmission of certificates from ship to shore, and includes an online function to determine the validity of certificates and whether they have been falsified or tampered with.

The Liberian Registry was the first to confirm that the ClassNK e-Certificate could be used to meet the requirements of the IMO Guidelines, and granted the Japanese society authorisation to become the first Recognised Organisation to issue electronic certificates to Liberian-flagged vessels on its behalf.

In addition to the new flag states listed above, ClassNK says that approval may also soon be forthcoming for vessels registered with the flag states of Norway, the Netherlands, and Vanuatu as part of ClassNK’s Recognised Organisation status in those jurisdictions, while the society will continue working with other flag states, port authorities, PSC’s and other industry stakeholders to expand the availability of its e-Certificates further.

OSM Maritime agrees CFM deal

www.hanseaticsoft.com

Ship management company OSM Maritime Group has agreed a deal to implement the Cloud Fleet Manager (CFM) software system from Hamburg-based Hanseaticsoft to support digitalisation of company processes and management of organisational data.

OSM Maritime plans to use the CFM portal as a central data and information platform, replacing other currently used technologies at the company, including its existing decentralised data storage system.

This single Cloud-based centralised information platform will then be used to facilitate information access and exchange across the company, with data from various external applications aggregated in the CFM portal and made available to OSM’s more than 11,000 global employees.

The shipping company will also introduce a CFM Partner Portal to integrate better with its own customers, providing those parties with access to relevant information such as fleet schedules.

In addition to the Cloud portal, OSM will also have access to Hanseaticsoft’s Inspection Report App, used to complete the entire vessel inspection process digitally, on a smartphone or tablet, with questionnaires created and filled directly on the device and then synchronised with the office.

“Many shipping companies have been stuck in the past due to their adherence to antiquated processes and software solutions. With increasing digitalisation it is important to adapt to changing events and market requirements and not only to react but also to develop innovations together with partners,” said Bjoern Sprotte, managing director of the technical management & services division at OSM.

“I am delighted we have found a strong strategic partner in Hanseaticsoft, which supports us with innovative and market-leading software applications to optimise everyday processes and make them more efficient.”

“We particularly appreciate the fact that as a customer we are in close contact with the developers, our requirements and wishes are addressed and we are actively involved in future developments and extensions of the applications.”

Logimatic reports that it has formed an alliance with Eiger Marine to market Logimatic’s Sertica fleet management system to the shipping industry in Greece and Cyprus.

MacGregor, part of Cargotec, has established its new head office in Singapore, ending a period of more than three years with a ‘virtual’ head office.

Michel van Roozendaal, president, MacGregor will relocate to Singapore, where finance and sourcing operations will be led.

K VH Videotel has named Capt. Milind Karkhanis as its new sales director for the Middle East, based in Dubai. Capt Karkhanis has spent 15 years at sea on tankers, bulk carriers, and container ships, and has worked on shore in Mumbai and Hong Kong in ship manning and operations roles.

Orient够will again eContainers reports that it has appointed Carlos del Corral as director of sales and operations of its Barcelona office. Mr del Corral previously worked at UTI Worldwide and was founder of Solinetworks.

ShipServ has appointed Henrik Hyldahn to the position of senior vice president, business development, based in the company’s Copenhagen office. Before joining ShipServ, Mr Hyldahn was chief information officer at global maritime services group Seven Seas, before which he held the role of managing director at technical and strategic consultancy CUBISOL.

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ShipServ agrees MarTrust partnership

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ShipServ reports that it has entered into a partnership with MarTrust, a Marcura Group company, to facilitate the vetting of suppliers and the completion of international payments by its ship operator and manager customers.

MarTrust is a global payments provider focused on the maritime industry, able to provide independent compliance checks, bank account vetting and validation, as well as payments processing for the benefit of the 65,000 suppliers trading on the ShipServ platform.

“By collaborating with MarTrust, ShipServ is confident the required operational and financial due diligence checks are undertaken by trusted, independent maritime industry specialists that understand the pressures placed on owners and operators, and their need to make efficient, reliable and secure transactions worldwide,” said Kim Skaarup, chief executive officer, ShipServ.

“ShipServ’s overall objective is to reduce OpEx for shipowners and managers, and this new solution fits perfectly with that. In working together, we can now offer transaction efficiencies, as well as monitoring and analytics, through the entire end-to-end purchasing and procurement process. This solution is available now, and in the future the partnership will look into developing additional advanced payment tools.”

MarTrust is an independent financial services provider but works in partnership with financial institutions to make cross-border payments, to make these processes more accessible to the maritime industry.

“The problem for ship owners and managers is that their banks often do not have a thorough understanding of the maritime industry, or access to the relevant information or contacts to complete compliance checks quickly and accurately,” said Domenico Carlucci, managing director, MarTrust.

“As a result, these processes can end up being burdensome and costly for both the banks and more importantly for ship operators and ship management companies, which need to move quickly and take advantage of the most suitable offers from suppliers to manage operating costs.”

“The truth is that the problems are not with the banks, but the banks do find it extremely hard to manage the cost of compliance in the maritime space.”

Mr Skaarup has recently been officially appointed ShipServ’s permanent CEO, having served as acting chief executive alongside his existing role as chief operating officer of the company since founder Paul Østergaard stepped down from the CEO role in 2016.

“ShipServ is in a great place at the moment. We brought digitisation to procurement 17 years ago and today, the digital revolution in maritime is a very hot topic,” said Mr Skaarup.

“We’ve made it a priority to get even closer to our customers and partners to ensure we are serving them, and delivering new solutions which exactly fit their requirements. We’ve some exciting new product developments in the pipeline.”

In addition to Mr Skaarup’s confirmation as CEO, long-time board member Herman Marks has become chairman of the board, replacing Donald Anderson, who has stepped down. Mr Marks is also commercial director at Vroon Group.

“I would like to express my appreciation for the work Donald has done in the last two years. Being in high demand from other shipping organisations, we had to make the most of the time that Donald was at ShipServ and we have certainly made real progress. On a personal note, I have learned a lot by working so closely with Donald,” said Mr Skaarup.

ABB adds to digital maintenance management options

www.abb.com

ABB has added a ‘Fleet Intelligence’ module to its ABB Ability Collaborative Operations software, to provide marine customers with an integrated overview of their ship system maintenance requirements in place of separate reports, and consequently improve the efficiency of maintenance programmes.

The Fleet Intelligence software incorporates equipment condition monitoring, including analysis and visualisation of defined performance parameters. In addition, condition monitoring can be supported by remote diagnostics services, including preventive maintenance recommendations or predictive edge analytics.

Building upon ABB’s Asset Health Centre (AHC) software, the system is also able to collect data from third party applications to create an integrated system that should allow for more precise inspection scheduling, better spare parts availability, and prolonged equipment service life.

“Moving away from theoretical maintenance based on supplier manuals means that the customer can create work orders that feed into a planned maintenance system based on actual need rather than service manual generalities. Closing the loop on maintenance assessment, equipment monitoring and analytics gives customers the application they need to fully digitalise vessel operations,” said Kenneth Nakken, ABB Marine & Ports head of digital service.

“Typically, condition monitoring systems are not based on specific failure modes and services are delivered by multiple providers. Data-driven services use different delivery methods; standalone web-applications and reports make it difficult for operators to get a full overview of their actual maintenance needs and plan for them.”

“When developing this solution, we looked at how the airline industry has digitalised its maintenance strategy. Assessing maintenance activities using a Reliability Centred Maintenance (RCM) approach and creating a Failure-mode, Effects and Criticality Analysis (FMECA) allowed us to focus on optimising maintenance by identifying and reducing the risk to the assets onboard a ship.”

StormGeo launches cyclone routing

www.stormgeo.com

StormGeo’s shipping division (formerly AWI), has launched the TCMM (Track Support to TCMM) Multi-Model System

StormGeo’s shipping division (formerly AWI), has launched the TCMM (Track Support to TCMM) Multi-Model System to support board decision making in relation to routes that may be affected by tropical cyclones.

The Tropical Cyclone Multi-Model (TCMM) track technology analyses a range of available data to narrow the ‘cone of uncertainty’ resulting from this kind of severe weather system – the area extending out a storm on a forecasting map that projects the cyclone’s path.

“The ‘cone of uncertainty’ concept was developed by The National Hurricane Center (NHC) in the US, using historical data to demonstrate forecast error. However, StormGeo says that this method is limited in its ability to display multiple possible tracks because the cone dimensions do not vary based on forecast uncertainty or confidence level.

As such, the TCMM system aims to improve on traditional results by incorporating existing StormGeo voyage routing support technologies to indicate the most likely path of the tropical cyclone and providing a range of possible alternate routes.

“Understanding the likelihood of encountering a tropical cyclone on a given shipping route days in advance of the occurrence and having the benefit of time necessary to navigate away from the dangerous situation are vital for safe operations,” said Richard Brown, StormGeo ship operations director.

“With our new technology, captains have information to help them make better decisions in the face of inherently erratic weather conditions.”

“Our customers rely on StormGeo for the most innovative products in the industry, and our new technology delivers on our promise. The data on which the system is built was collected from four major weather agencies’ ensembles, and 94 algorithms were created to parse the data into one multi-model ensemble. This is a leading edge, advanced weather and navigational achievement with great potential for improving shipping safety.”

The new track technology is included in the latest versions of StormGeo’s onboard BVS and Routing Advisory Service. Clients will also receive colour-coded graphics, four times a day, to help them to assess where the most likely tracks will occur.

The system combines relevant data from various sources into a single overview.

The new technology aims to track the likely path of a tropical cyclone and offer captains a choice of alternate routes.
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Maritime technology start-up We4Sea, developers of a Cloud platform focussed on increasing fuel efficiency and lowering emissions, has been certified by Verifavia for use as an EU MRV emissions monitoring system.

The We4Sea system collects a range of operational data from a ship, such as position, speed, heading and engine data. This data is sent to shore, where it is combined with other data sources such as weather conditions, wave heights, currents and wind.

The company’s own algorithms and energy models then translate this Big Data into actionable information on how to optimise the operation and configuration of a ship. In pilot projects, We4Sea says that the application of this data analysis has been able to cut fuel costs by up to 20 per cent.

We4Sea has now added a new software module in response to the European regulations on emissions monitoring reporting and verification (MRV) by ships, which has been confirmed as compliant with the requirements of the regulations by Verifavia’s MRV reviewers.

The module captures the required MRV data within standard vessel forms, as part of the normal workflow for arrival, departure, and noon reporting. The collected data feeds into standardised reporting templates that can be submitted for MRV verification at the end of the monitoring period.

Users can also continuously monitor their fuel consumption and CO2 emissions in real-time via the online dashboard.

“We are very happy to be officially certified by Verifavia. We4Sea now offers the maritime industry a full range of digital services, focussed on sustainable shipping and reduction of CO2 emissions. For the cost equivalence of two cups of coffee a day, we make EU MRV compliance easy for our customers,” said Dan Veen, CEO of We4Sea.

International Union of Marine Insurance (IUMI) president Dieter Berg has predicted a shake-up in marine insurance as a result of the introduction of disruptive technologies across the maritime sector, with potentially positive results for insurers if the process is approached in a responsible manner.

Speaking at the recent IUMI annual conference in Tokyo, Mr Berg noted that innovation is already impacting activities such as electronic navigation and smart port logistics, and is driving new initiatives including autonomous shipping and intelligent containers. Blockchain technology and the Internet Of Things were two other technological advances identified as likely to drive further industry disruption.

However, although these technologies will inevitably lead to changes in marine insurance, Mr Berg believes that the effect can be positive as long as the industry embraces the transformation of traditional processes.

“We need to inhale innovation. Digitalisation will change the way our clients operate and we, as marine insurers, must follow suit,” he said.

“In the future, insurance will be placed on electronic platforms as our next generation of clients will want 24/7 access to insurance products and instant responses. The insurance value-chain will shrink and the role of the broker will inevitably be impacted as well. Because of this, it is likely that global premium income will continue to reduce and this means that we, as marine insurers, need to change our game and find additional streams of revenue.”

“Although the next generation of clients will demand a more rapid and responsive marine insurance sector, they will also require more customised solutions and that represents a significant opportunity for us. I predict a much greater future need for consultancy, claims management and loss prevention advice and the income we can derive from those activities will address the shortfall in future premium income. Digital innovation does not have to destroy value in our market.”

The Cloud-based software platform provides access to the crew’s latest training records from any web-enabled device, with interactive, dynamically rendered reports and dashboards displayed to offer specific data about crew performance, skill levels, strengths, weaknesses, and training schedules.

“We are launching now because we recognise that our customers’ business environment is rapidly changing. There is a constant need to improve process efficiency and create cost saving in the intensely competitive shipping markets.”

Other features include the ability to connect and negotiate with physical bunker suppliers in major ports worldwide, and a monitoring tool to keep track of global ports’ bunker delivered prices. Access to a voyage planner to optimise routes and reduce bunker fuel costs is also available within the application.

The new platform is the result of a year-long collaboration between commercial and IT development teams from Brightoil’s Singapore and Shenzhen offices, with more than 60 dedicated staff involved, the company says.

Bunker trader and supplier Brightoil has launched a set of online tools to assist global bunker buyers, allowing them to lock-in costs for up to nine months forward and reduce their exposure to price swings.

“We are taking a strategic step in this uncertain environment by putting significant resource and financial investment into this online platform,” said Brightoil International Trading and Bunkering chief operating officer, Stephen Qi Jun.

“We are launching now because we recognise that our customers’ business environment is rapidly changing. There is a constant need to improve process efficiency and create cost saving in the intensely competitive shipping markets.”

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New IACS chairman prioritises support for digitalisation

Knut Ørbeck-Nilssen, CEO of DNV GL Maritime and the newly appointed chairman of IACS (International Association of Classification Societies), has announced a series of initiatives outlining IACS’ intention to support its stakeholders in taking advantage of the rapid digitalisation of shipbuilding.

“As the digital transformation of the industry accelerates, IACS must continue to remain a synonym for quality. We must uphold the high standards we have set, but make sure that we are providing the support the industry needs to respond to the challenges of today and of the future,” said Mr Ørbeck-Nilssen.

“Our industry is becoming more complex. Digitalisation is changing not only the way the shipping business is being conducted, but also the way the systems and the people interact together.”

“Because of this, Class needs to be adaptable and flexible in our delivery and thinking. IACS members should be enabled to provide the services that our stakeholders require in the digital age, as these are essential for competitive and safe operations.”

During his time as chairman, Mr Ørbeck-Nilssen will also be initiating a review of IACS Resolutions to identify and remove elements hindering the development of new technologies, including research into autonomous ships.

In addition, IACS intends to work on developing procedures relating to the deployment of electronic certificates, while continuing to support the IMO’s work in promoting their use throughout the industry.

“Modernising survey procedures and enabling the use of new technologies will be another focus area, with Mr Ørbeck-Nilssen overseeing the development of a newly established working group reviewing the implications of new survey technologies and techniques, including CBM (condition based monitoring) and RMD (remote monitoring and diagnosis), with a view to developing IACS guidelines and recommendations that enable the data from these new techniques to be used more widely in the survey process.”

“To help the shipping industry continue to play its vital role in world trade, we need to work on initiatives that enhance the ability of IACS members to offer innovative, relevant and efficient services,” said Mr Ørbeck-Nilssen.

“By doing so we can leverage the unique technical capabilities of our members and work with regulators and stakeholders, to ensure that shipping continues to advance in terms of safety, efficiency, and environmental responsibility.”

Incoming IACS chairman, Knut Ørbeck-Nilssen

Rotterdam launches blockchain development lab

The Municipality of Rotterdam and the Port of Rotterdam Authority have jointly launched a seed lab for the development and testing of applications based on blockchain technology. The new applied research lab has been christened ‘Blocklab’.

The Municipality of Rotterdam will also be financing the project, with additional support coming from the regional development corporation InnovationQuarter.

“Thank you for coming, and making the opening of the centre a blockchain application for stock financing in the port logistics sector, which was developed in partnership with Exact and ABN AMRO.”

Henrik Nygaard, development manager at Logimatic, notes that the service is useful for customers looking to remove issues stemming from common problems like server errors or missing upgrades.

“We understand how important reliability is to our customers. That is why we now offer a hosted solution, so our customers no longer need to worry about servers, installations and configurations. Our customers have access to data in real-time whenever they need it,” he said.

Bunker pricing information from ClearLynx will now be integrated with Q88’s voyage management software

Bunker pricing information from ClearLynx will now be integrated with Q88’s voyage management software.

Q88 completes ClearLynx integration

Q88 has announced the completion of an integration project to connect its software platform with the ClearLynx bunker procurement application, to allow customers to create requisitions in ClearLynx automatically from Q88’s Cloud-based voyage management system, Q88VMS.

ClearLynx is an online marketplace connecting buyers and sellers in marine fuel procurement, accessible via a web browser or mobile app. The system offers historical data alongside real-time pricing, with live reporting for users based on its incorporated business intelligence tools.

“We are very excited about the integration with ClearLynx and the value it will bring to our customers,” said Gabriel Reiter, Q88VMS product manager.

“We continuously aim to automate processes for our customer and deliver unmatched user experience. Integrating our system with young and innovative companies like ClearLynx is yet another step in this direction.”

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Q88 completes ClearLynx integration

Incumbent IACS chairman, Knut Ørbeck-Nilssen

Hosting services added for SERTICA

Logimatic reports that it has added hosting services to its maritime technology portfolio, alongside its SERTICA software package.

As part of the hosting service, SERTICA IT staff will manage system installation through to configuration.

“The main reason for choosing a hosted solution is that we no longer use servers in our company,” said Jan Hauberg Jørgensen, marine engineer at Molslinjen, an existing SERTICA customer that has added the hosting service.

“All of our IT is hosted. We were, therefore, looking for a hosted fleet management solution so that we only need to be in contact with the supplier and not the hosting company. In other words, a more simple solution for us.”

Engine data system upgraded

Icon Research and CENSIS, the Scottish Innovation Centre for Sensor and Imaging Systems, have developed a new algorithm which they claim can increase the efficiency of ship diesel engines by more accurately tracking data relating to the position of pistons within the engine’s cylinders.

“The project has been focused on improving Icon Research’s Portable Cylinder Pressure Analysis system, known as ‘Doctor Diesel’, to be able to automatically synchronise combustion pressure to top dead centre of the crankshaft to within 0.1 degrees of accuracy. Existing technologies typically deliver readings within 1 degree of accuracy, the companies said. Engines that are tuned just 1 degree late can intensify exhaust temperatures by as much as 10 degrees Celsius, resulting in an increase in fuel consumption of up to 2 per cent.

“Ocean-going vessels measure fuel in tonnes and burn tens-of-thousands of dollars’ worth of it every day. By optimising the combustion cycle in each cylinder, significant cost savings can be made, as well as lowering emissions to help the environment. Asynchronous processes can have a major impact on efficiency, which makes alignment absolutely imperative,” said Jim Edgar, managing director of Icon Research.

“Previous engine analysers used angular resolutions accurate to 1 degree, but we are now looking for accuracies of 30 times better. This is a key challenge for the industry, with advances in technology opening up a lot more variations in engines – not least the introduction of gas engines to once again reduce emissions. More accurate readings also help crews to operate engines more reliably, by reducing vibration and detecting cylinder problems before they become catastrophic.”

“We want to focus on creating efficient solutions, and in doing so we make the project a bit more complex, because we are trying to create a generic tool that can be used on any of our customers’ engines,” said Reiter, Q88VMS product manager.

Bizview in Eiger Marine partnership

BizView Systems, a developer of planning and analysis software, has agreed a partnership with Eiger Marine to extend its reach into the shipping and oil & gas industries.

Eiger Marine specialises in offering financial software to the maritime sector, with systems based on Microsoft’s Power BI (business intelligence) platform.

“Eiger Marine will offer a comprehensive planning and performance management solution to the maritime business community,” said Sotiris Drekos, managing partner, Eiger Marine.

“Capitalising on our experience with Microsoft’s Power BI, Eiger Marine will offer Bizview to those interested to extend Microsoft’s Power BI by expanding its capabilities with a planning and performance management complement.”

“The Power BI users have for a long time expressed their desire to expand Power BI’s planning and performance capabilities with an on premises (or online) tool. It seems BizView is perfectly suitable for that.”

Bizview in Eiger Marine partnership

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Online brokerage to assist SMEs in bunker procurement

UK-based OilFront has launched a new technology-based bunker brokerage system, which it says could save small and medium-sized companies that can’t afford a dedicated bunker buying team up to $3 per metric ton when buying fuel. OilFront is headed up by ex-BP executive Danny Soos, and Neil Lamerton, who has previously worked at Gulf Petrochem and KPI Bridge Oil. The OilFront software is accessible via a web portal, containing data on fuel markets around the world to assist in bunker procurement planning. The system aims to aggregate orders from a range of users to give smaller shipping companies more buying power, with all quotes shown in real-time as they are negotiated by OilFront’s own buyers on behalf of the users. “OilFront enables small and medium sized companies to gain access to the best deals,” said Mr Soos. “There are no upfront fees for our technology and our commission is pre-agreed with clients. If our data-driven approach was adopted industry-wide it could save at least US$4 billion a year.”

Fuel efficiency system completes TOTAL proof of concept

France-based company Opsealog has announced the completion of Proof of Concept (POC) testing of its maritime fuel efficiency analytics platform in partnership with TOTAL E&P Angola, reporting an 11.5 per cent reduction in fuel consumed over a 6-month period across the fleet of 15 vessels included in the trial. Fuel reduction targets for the ships, which included PSVs, AHTS, Tugs and FSVs, had initially been set at 8 per cent, which Opsealog says were exceeded during testing. The actual 11.5 per cent saving is the equivalent of $836,000 in fuel saved over the six months. “We are proud of this first success obtained thanks to the partnership with TOTAL E&P Angola and hope it can lead to further collaboration. Our first solution, ‘Marine Logistics’, includes other valuable topics where data analytics, as a key element, can improve efficiency and generate additional cost savings,” said Arnaud Dianoux, managing director of Opsealog.

Opsealog is a data analytics platform offering decision making tools for performance management in the offshore oil and gas supply chain, with the Marine Logistics system including modules covering fuel efficiency, fleet utilisation, and cost control. Dashboards display KPIs, notifications and recommendations, and a Self Service Analysis option provides direct access to the database through Excel or any other data visualisation tool as required. “Working with start-ups like Opsealog can help TOTAL control and reduce logistics costs. It is a right move and a step forward to our digital transformation,” said Laurent Pottier, marine specialist at TOTAL. “Their dashboards allow our teams to identify areas with room for improvement. This was highlighted with the successful proof of concept on fuel efficiency carried out in Angola where tangible savings were generated. Opsealog goes to show that there are new solutions to be found to improve our fleet’s efficiency and we’re open to them.”

Rolls-Royce energy management software to connect to Fleet Xpress

Rolls-Royce and Immarsat have signed a Letter of Intent (LOI) providing an option to make the Rolls-Royce Energy Management system available via Immarsat Maritime’s Fleet Xpress network. The Rolls-Royce application collects data from the ship’s control system and a range of sensors on the vessel, logged at pre-set intervals and processed in real time. Data sources include the engines, propulsion system, automation system, deck machinery and other equipment. Selected information is displayed graphically, to be used to support decision-making in optimising energy usage and fuel consumption, and also allows for the presentation of required data in compliance with EU Monitoring Reporting and Verification regulations and the IMO Ship Energy Efficiency Management Plan. “Monitoring ship fuel consumption and emissions is required by law in some areas and is also increasingly used in vessel selection criteria by charters,” said Marco Camporeale, Rolls-Royce vice president intelligent asset management solutions. “Our Energy Management software quantifies the effects of optimising operational efficiency on costs and the true impact of enhancements as they are phased in. Fleet Xpress always-on connectivity and the potential for application-triggered bandwidth mean that data can be logged in real time, optimising the verifiable reporting capability already built into Rolls-Royce Energy Management System software.” Following this new agreement between the two companies, vessels equipped with the Rolls-Royce software will be able to operate within the Immarsat Certified Application Provider (CAP) programme, connected via Fleet Xpress and hosted on the Immarsat Gateway platform. The Immarsat Gateway offers Application Programming Interfaces (APIs) to allow selected developers to create application-triggered requests for bandwidth via the satellite system. Application-triggered bandwidth usage offers a choice to dedicate part of a vessel’s bandwidth allocation to specific processes, or for the app itself to trigger bandwidth ‘dynamically’ by the hour. “(The CAP programme) allows third parties to work with Immarsat to develop content-rich applications to populate the digital maritime world enabled by Fleet Xpress. The combined Rolls-Royce and Immarsat technological capabilities will deliver proven energy management software to shipowners with always-on connectivity,” said Stein Ode, vice president sales, Immarsat Maritime. “In the case of Rolls-Royce, the LOI envisages remote monitoring to document environmental compliance, but new digital services can also be delivered to the maritime industry that create efficiencies for users and new revenue streams for voyage optimizers. Application-triggered bandwidth pricing means this can be completely transparent.”

Marcura Group acquires software and data companies

The Dubai-based Marcura Group has announced the acquisition of the UK-based companies G-Ports (UK) Ltd and Falmor Ltd, with the aim of expanding its digital services for chartering customers. G-Ports specialises in port, congestion and commodity tracking data, while Falmor offers a Cloud platform for laytime/demurrage management and collaboration.

Simon Francis, the founder and CEO of the two acquired companies, will now become group director for business development of Marcura’s Digital Chartering Services department following the deal. The acquisitions are intended to support Marcura’s ability to provide relevant software and data-driven systems to its chartering customers, and will link with the company’s recently released online fixture collaboration tool, MarDocs DRY.

“Marcura’s acquisition of G-Ports and Falmor fits our strategy perfectly. By working with our customers and other partners, Marcura raises industry standards,” said Jens Lorenz Poulsen, co-founder and group CEO of Marcura. “We are not just about improving processes but also providing information that is very relevant to the respective digital journey of industry participants. We view our role as that of a large-scale utility service provider, keeping our customers' voyage management systems updated in a reliable manner.”

“This has required us to build a compelling Maritime Master Data Environment and a Maritime Benchmarking Database, which, when combined with external data sources, allows us to generate high-quality decision support data for universal use by our customers in planning and operations. This latest acquisition greatly enhances the value-add that we can provide the shipping industry.”

VAF system MRV approved

VAF Instruments’ IVY propulsion performance management system has been granted certification for use in compliance with the European Union’s Monitoring Reporting and Verification (MRV) regulations.

The IVY system, designed to automatically monitor and report voyages, has been approved by verification company Verifavia for use in compliance with both EU MRV and upcoming IMO DCS (Data Collection System) processes. In addition to reporting for these programmes, the technology can also be used to monitor the performance of a ship’s hull, propeller, and engine, using inbuilt sensors and fuel oil flowmeters.

“We’re proud to have been able to optimise IVY to monitor propulsion systems but also provide information that can improve efficiency and generate savings. It is a right move and a step forward in an overall reduction in operational expenditure,” said Erik van Ballegooijen, R&D team coordinator and technical consultant for hydromechanics, VAF Instruments.

To achieve MRV certification, the IVY system had to undergo a review against the requirements of EU MRV Regulation 2015/755. In addition, VAF Instruments had to demonstrate that the MRV data collection requirements and follows the best practices set by ISO standard 22051 on software engineering.

www.marcura.com

www.opsealog.com

www.rolling-royce.com

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For the latest updates on all of our events visit www.thedigitalship.com
Blockchain technology has been getting an ever-increasing amount of media attention over the course of 2017, in maritime just as in most other sectors, with the majority of the coverage to date pointing to the potential of blockchain-based systems to change the way global businesses operate and interact with each other.

While shipping is often seen as a technologically conservative industry and slow to adopt new trends, in blockchain maritime projects are among the most cutting edge examples of how these systems could be integrated into future operations, with real world implementation of pilot programmes already demonstrating the potential benefits.

Among these breakthrough projects is one conducted by Hyundai Merchant Marine (HMM), which recently successfully completed its first pilot programme using blockchain technology to manage collection and dissemination of all related shipping and logistics data for a vessel voyage from Korea to China.

The process was managed in collaboration with other members of the Korean shipping and logistics blockchain consortium, established in May and backed by the Korean government, which includes logistics companies and a state-run research centre.

The consortium has been performing various studies on the use of blockchain technology in the sector since that time, culminating in this first live test. The pilot voyage featured a HMM reefer container vessel travelling from Busan to Qingdao between August 24th and September 4th.

The blockchain technology was applied to processes from shipment booking to vessel travelling from Busan to Qingdao voyage featured a HMM reefer container technology in the sector since that time, various studies on the use of blockchain research centre.

HMM says it is planning on a second pilot voyage in October with dry containers, expanding its blockchain technology procedures and use of IoT across the logistics chains in diverse destinations such as India, China, and Thailand. The company hopes to refine and improve its blockchain systems with the ultimate goal of being ready to formally adopt the technology at the end of the year.

“We are reviewing various ways to improve our service and its quality through adopting IT technologies,” said HMM, in a statement.

“By adopting the high-end IT technologies such as blockchain and IoT in shipping and logistics, we will become one of the pioneers of the Fourth Industrial Revolution within the industry.”

Insurance and supply chains

Also among the early maritime blockchain adapters is Maersk, which is working with a group of global partners, including financial services firm EY and software giant Microsoft, to launch a new blockchain platform for the marine insurance sector. The technology is planned to be implemented in 2018 having recently completed a 20-week Proof of Concept phase.

The blockchain platform is built on Microsoft’s Azure Cloud technology in collaboration with EY partner and blockchain technology specialist Guardtime, and aims to connect marine insurance customers with brokers and third parties via distributed common ledgers to share relevant data, and integrate that information with subsequent insurance contracts.

“Blockchain’s potential to transform the insurance ecosystem has always been clear. What we have done is to move forward from potential to reality,” said Shaun Crawford, EY’s global insurance leader.

“This solution is the first to apply blockchain’s transparency, security and standardisation to marine insurance and is ready for commercial use. We look forward to deploying this technology across the marine insurance industry and are exploring how these findings and insights will be applied to other specialty insurance markets and beyond.”

Maersk’s involvement in the project is driven by a desire to increase the efficiency of its interactions with insurance industry stakeholders, to make the process more convenient and less costly on all sides.

The blockchain platform should support this by making it more straightforward to manage this complex international ecosystem, which currently involves multiple parties, long paper chains and duplication, high transaction volumes and significant levels of reconciliation. Potentially, the new supply chain solutions being co-ordinated by the party involved to connect their disparate data sets and processes to mitigate these issues.

“It is a priority for us to leverage technology to streamline and automate our interaction with the insurance market,” said Lars Henneberg, A.P. Møller-Maersk’s head of risk and insurance.

“Insurance transactions are currently far too tedious and frictional. The distance between risk and capital is simply too far. Blockchain technology has the potential to facilitate the desired development that is long overdue.”

Other partners in the marine insurance blockchain project include ACORD, MS Amlin, Willis Towers Watson and XL Catlin.

Moving from insurance to supply chain management, logistics technology company Marine Transport International (MTI) has also announced that it has successfully completed its own pilot project to improve supply chain efficiency through the deployment of blockchain technologies.

MTI, in conjunction with Agility Sciences, has released a whitepaper detailing the deployment of the ‘Container Streams’ system in a supply chain environment, with the results of the pilot having now been verified by scientists at the University of Copenhagen and maritime technology leads at Blockchain Labs for Open Collaboration (BLOC).

The project connected supplier, shipper, load point, customs and terminal stakeholders in the supply chain to a shared blockchain ledger, allowing for automated data flows between participants by facilitating complete interoperability of data sources, including separate legacy systems.

“The results of this successful pilot demonstrate the strengths of blockchain technology when deployed to link the various actors in the supply chain. We are confident that firms throughout the logistics industry will see a broad spectrum of benefits stemming from blockchain deployment,” said Jody Cleworth, CEO of Marine Transport International.

“The blockchain has proven to be an

Software

Blockchain in maritime – pilot projects begin

Chatter about the potential of blockchain technologies is incessant in every type of future business forum – but the maritime industry, more than most, is looking ahead of the curve with a range of pilot projects already putting theory into practice.

Lars Henneberg, head of risk and insurance at Maersk

Hyundai used blockchain technologies to securely share data across the supply chain for a voyage from Busan to Qingdao

"By adopting the high-end IT technologies such as blockchain and IoT in shipping and logistics, we will become one of the pioneers of the Fourth Industrial Revolution within the industry."
excellent way of connecting the different parties involved in any supply chain environment due to the transparency and security-by-design of the technology. In recent months the shipping industry has fallen victim to industrial-scale cyber-attacks which have left large shipping lines, such as Maersk, paralysed and unable to serve clients.”

“A blockchain-enabled supply chain is highly resilient to cyber-attack. A copy of the essential shipping data is stored on each node on a decentralised network, meaning that even if one node is compromised, the data is safe nevertheless.”

MTI believes that cost savings as high as 90 per cent may eventually be achievable as a result of substantially streamlined processes in the supply chain, supported by the fact that the interface is adaptable to existing systems and therefore carries a very low barrier to entry.

Deanna MacDonald, CEO of Blockchain Labs for Open Collaboration, commented, “We have documented the first phase of this use case, its implications for the maritime industry and the resulting development of a turn-key application ecosystem for global supply chain logistics.”

“However, the future potential of this ecosystem platform will rest upon collaboration from the different actors in these supply chains in order to clearly identify the problems and co-create applications that solve for the collective challenges they are facing today.”

Certificates
One of the more simple, but likely very effective, applications of blockchain technology in maritime has been demonstrated by DNV GL, which has confirmed that it has transferred all of its 90,000 certificates to a private blockchain, with every certificate digitally tagged and traceable within the system.

Organising this data within the blockchain should allow companies to communicate their certification in a transparent and secure way while also providing a defence against the use of counterfeit certificates, the class society says.

The blockchain system was developed in partnership with the Deloitte EMEA Blockchain Lab, and works by digitising the data created when a certificate is issued. The certificate and the data within are then assigned a specific digital identity when sent to the blockchain.

All certificates are uniquely tagged and traceable, with the original stored in a network of computers instead of a central repository, in accordance with the decentralised philosophy of blockchain technologies. By scanning a QR code on the certificate anyone can, through the blockchain, verify that a company is certified, making it easier to identify potential fraud.

“Putting our certificates in the blockchain is the first step towards building a new digital assurance concept. Our objective is to use blockchain and other disruptive technologies to provide new services and continue to create value for our customers,” said Renato Grottola, global digital transformation director, DNV GL - Business Assurance.

The introduction of the certificates blockchain comes as DNV GL prepares to launch a new specialised Digital Solutions organisation within the company, consisting of 1,000 ‘digital experts’. This will include reorganising existing parts of the business to more clearly focus on opportunities in data sharing, advanced analytics, automation, and machine learning as well as addressing challenges related to data quality and security.

“Data is the raw material of the 21st century. It is the foundation and driver of the digital transformation and forms the basis of value creation. To serve our customers in a better way and to stimulate innovation, we are consolidating our digital assets and resources in our new Digital Solutions organisation,” said Remi Eriksen, group president and CEO of DNV GL.

The new Digital Solutions organisation will absorb DNV GL - Software and take over the running of the recently launched Veracity data management platform.

Elisabeth Heggelund Torstad will head up the Digital Solutions unit, having previously held the position of CEO for DNV GL’s Oil & Gas business. Ms Torstad will be based at the DNV GL headquarters in Høvik, Norway, and be a member of the executive committee for the DNV GL Group.

A chief digital transformation officer for the DNV GL group will also be recruited at a later date, the company said.
Bureau Veritas joins survey drone project

Bureau Veritas has joined RECOMMS (Remote Evaluation of Coatings / Corrosion on Offshore Machinery and Marine Structures / Ships), a joint investment project (JIP) to develop drones with the capability to inspect steel structures in enclosed spaces for use in ship surveys.

The JIP’s primary objectives are to develop a drone capable of following programmable flight paths, either pre-determined by 3D imagery software or flown by a pilot, using 3D simulator ship specific training programmes developed alongside the drone design.

Investment partners include Akzo Nobel, Barrier Group, Bureau Veritas, Drone Ops, Hempel Paints, and Marine Technical Limits, as well as an unnamed oil company. Coatings firm Safinah is the RECOMM project manager.

In the first phase of development, the drone will be designed to carry an unobstructed HD camera as well as lighting and batteries to perform visual and coating inspections within a ballast tank.

“The end goal is to be able to survey cargo spaces, ballast tanks and confined spaces remotely and effectively,” said Jean-François Segretain, technical director, Bureau Veritas Marine & Offshore.

“If we can do this with drones we can help reduce risks to our surveyors and ship crews by minimising the need, for example, to erect expensive staging whilst covering the survey scope, which would otherwise require surveyors to work at height or perform tank inspections by means of rafting.”

“While a lot of work has been done with drones nothing yet released has led to drones meeting specific requirements for marine classification close up surveys. This project addresses the specific needs of our survey requirements and other inspections.”

Once tank inspection objectives have been met, the drone will be designed with a payload carrying capacity capable of adding other sensors, with the end goal of performing paint and coating application analysis as well as steel thickness measurement.

Zeatec Group buys Adveto

Adveto will move its head office from Spånga to Landskrona as a result of the deal. The office in Spånga will continue to be operated by Kent Sylven, the founder of Adveto, and the head office will be operated by the new managing director, Peter Nilsson.

The companies say that the purchase will not result in any major initial changes in operations, with the focus to remain on support and production of ECDIS systems. The sale of Adveto products will continue as before, through its existing sales and support network with representatives in Sweden and other Nordic countries.

“It will be a very interesting task for us in Zeatec Group to manufacture ECDIS systems in our premises in the Maritime Centre at Oresund Dry Docks in Landskrona,” said Mr Nilsson.

“Adveto is just now part of a very interesting EU evaluation project called STM. STM is managed by the Swedish Maritime Administration to get a safer, more efficient and environmentally friendly maritime sector.”

SRT to launch vessel monitoring satellites

SRT Marine Systems has announced its intention to build and launch its own maritime monitoring satellite constellation, to be called OCEAN-SCAN, which will provide global vessel detection and tracking.

The system will be targeted at maritime domain awareness (MDA) customers, and is expected to initially comprise six low earth orbiting (LEO) satellites, operating in a combination of equatorial and polar orbits to provide global coverage. Enhanced coverage will be added in equatorial and border regions due to expected high demand, the company said.

The OCEAN-SCAN system will host a combination of sensor technologies, including AIS, to enable tracking of all vessels, with or without an AIS transceiver. The network is expected to be fully operational in 2019, with additional satellites beyond the initial six expected to also be added in the future.

SRT has entered into an initial agreement with Clyde Space in Edinburgh, UK, to use its micro-satellite platform to assist in delivering the OCEAN-SCAN system within the required timescale.

“This is a natural and major strategic initiative for SRT that will deliver significant benefits for authorities seeking to secure and manage their maritime domain, as well as a new and recurring revenue stream for SRT through the sale of data to our system project customers,” said Simon Tucker, CEO of SRT Marine Systems.

“OCEAN-SCAN is fully funded via forecasted trading cash flow and further supported by our new working capital facility. Subject to the usual risks associated with launching satellites, we expect OCEAN-SCAN to be fully operational before the end of 2019.”

“The new technologies and innovative system architecture of the OCEAN-SCAN satellite system, combined with our SAT- Trak vessel transceiver technology, and GeoVS intelligent monitoring and analytics system will deliver an unmatched level of fully integrated vessel tracking, identification and management capability to our customers.”

IMC 2030 outlines Singapore hub plan

The International Maritime Centre (IMC) 2030 Advisory Committee, established by the Maritime and Port Authority of Singapore (MPA) in August 2016, has submitted its IMC 2030 Strategic Review report to the Singapore government, outlining the city-state’s vision to create a Global Maritime Hub for connectivity, innovation and talent.

The Committee is chaired by Andreas Sohmen-Pao, chairman of BW Group, and comprises 21 other experts from diverse sectors such as maritime, finance, commodities trading, logistics and technology.

The report notes that it expects Singapore’s global hub port and international maritime centre to remain as complementing twin engines of growth, with the country’s positioning in the global maritime industry key in driving inflows of finance, people, data, and information.

“The successful growth of Singapore’s maritime sector over the past decade has been founded on a clear strategy, effective implementation, and strong alignment between the government and the maritime community,” said Mr Sohmen-Pao.

“These factors are even more relevant at a time where the outlook is less certain and where the emphasis is shifting from physical to virtual flows. Connectivity, innovation and talent are seen as the best ways to remain responsive to changing conditions, and the report provides action-oriented recommendations to be ready for future challenges and opportunities.”

Part of the proposed future strategy outlined in the report includes a renewed focus on innovation in maritime, particularly the development of future capabilities and systems building on emerging technologies, such as autonomous systems, robotics, data analytics and artificial intelligence.

The Committee says that it will support the cultivation of an environment that would catalyse innovation, as well as encouraging closer alignment of public and private sector R&D efforts.

The report outlines future focus areas for Singapore’s development as a maritime hub.
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Autonomous vessel boom continues unabated

New technologies, new partnerships, new funding and new test vessels – enthusiasm for the development of autonomous vessel technologies is continuing to build across the maritime industry

While the debate over the legal, regulatory and moral issues of unmanned ships will no doubt continue for many years to come, technological development in this leading-edge sector is not waiting around for permission to proceed, as new partnerships, funding and systems tests continue to be reported by multiple projects.

One of the most vociferous proponents of autonomous vessel development, Rolls-Royce, is looking to Silicon Valley for inspiration in its quest to develop an unmanned ship, having recently announced a deal that will see the engine manufacturer deploy Google technologies in its research into intelligent awareness systems.

The agreement was signed at the Google Cloud Summit in Sweden, and allows Rolls-Royce to use Google’s Cloud Machine Learning Engine to further train its artificial intelligence (AI) based object recognition and tracking the objects a vessel can encounter at sea.

The Google Cloud Machine Learning Engine uses the same neural net-based machine intelligence software which powers many of Google’s products, including image and voice search.

Machine learning involves the application of algorithms, tools and techniques that mimic human learning to solve specific problems. Methods include analysis of existing data sets with the objective of learning to recognise patterns in that training data, and making predictions from previously unseen data.

The bigger the data set, the more complex the patterns the model can recognise and the more accurate the predictions it makes will be.

Rolls-Royce will use Google Cloud’s software to create bespoke machine learning models which can interpret large and diverse marine data sets created by the engine manufacturer. Rolls-Royce’s domain specific maritime knowledge will be used to prepare the data to train models, ensuring that it is relevant and in sufficient quantity to create statistical significance.

As part of the machine learning process, the models’ predictions will be evaluated in practical marine applications, allowing them to be further refined.

By accessing this software through the Cloud, the models can be developed from anywhere in the world and be immediately accessible at any location. Models can therefore be trained on large quantities of data, in the terabytes range, which Rolls-Royce sees as essential in autonomous ship development.

In the longer term, Rolls-Royce and Google intend to undertake joint research on unsupervised and multimodal learning, and will also test whether speech recognition and synthesis are viable solutions for human-machine interfaces in marine applications.

Other joint goals include work on optimising the performance of local neural network computing on board ships using open source machine intelligence software libraries, such as Google’s TensorFlow.

“While intelligent awareness systems will help to facilitate an autonomous future, they can benefit maritime businesses right now making vessels and their crews safer and more efficient. By working with Google Cloud we can make these systems better faster, saving lives,” said Kari Tenovuo, Rolls-Royce SVP of ship intelligence.

Project testing
Rolls-Royce is, of course, not the only game in town when it comes to unmanned ship development, with a number of other projects currently trialling their own autonomous technologies as progress continues towards full voyage automation.

In Norway, testing has already commenced on a 2.4-ton scale model of an autonomous container vessel, with the country’s government affirming its support for the project by making a NOK 133 million (approximately $16.5 million) financial contribution to its further development.

The six-metre model of the fully electric Yara Birkeland was revealed at SINTEF Ocean’s 80 metre test tank facility in Trondheim. The full-sized ship is expected to be delivered and begin tests and operations early in 2019, with fully autonomous operations to follow in 2020.

“To succeed with a project like this we rely on collaboration with leading maritime competence hubs and technology companies, like Kongsberg on autonomous technology, Marin Teknikk on ship design and SINTEF for testing of the model,” said Yara president and CEO, Svein Tore Holsether.

“It was a special moment when we were joined by our partners in Trondheim (to witness) the design and demonstration of a miniature Yara Birkeland for the first time.”

The model is based on the final design for the actual ship, and also includes the technology expected to be installed on the full-scale version. Following testing, the decision of where the vessel is to be built will be taken, the partners said, with an announcement expected by the end of 2017.

Yara Birkeland is a collaboration between Norwegian agricultural company Yara, Kongsberg, DNV GL, Marin Teknikk, SINTEF Ocean and Norwegian maritime authorities. ENOVA, a Norwegian government enterprise responsible for the promotion of environmentally friendly production and consumption, has provided the state financial contribution.

In addition to working on the Yara project, Kongsberg has also recently signed a Research & Innovation (R&I) contract with the PILOT-E programme for the development of zero emission, full-electric, autonomous ferry concepts in line with Norway’s integrated zero emissions national transportation plan.

The PILOT-E programme is a collaboration between the Norwegian Research Council, Innovation Norge and Enova, which aims to accelerate time to market for new technology concepts, while at the same time ensuring that the solutions produced are viable and sustainable.

For Kongsberg, the R&I contract provides partial funding to develop new autonomous technologies in areas such as Auto Docking and Auto Sailing, to add to its existing work on autonomous functionality for commercial vessels.

As part of its project with PILOT-E, Kongsberg will head up a consortium that also includes: Grenland Energy, to work on marine battery technology; Fjellstrand shipyard, to cover vessel design; Grønn Kontakt, to investigate the charging of electric cars both quay-side and on board; and NTNU, to perform research on autonomy and energy management.

“The stakes are high and the autonomy vision is materialising as we speak. The PILOT-E Autonomous Ferry project intro-
Gulfmark Offshore, with the US-based operator of Dynamic Positioning (DP) and sequence of manoeuvres using a combination of DP and manual joystick control.

Remote control
Moving from Norway to nearby neighbours, Finland, Helsinki-based maritime technology company Wärtsilä has also recently announced the completion of a successful test of a remotely controlled ship, operating the vessel from shore while on a different continent through a successful test of a remotely controlled vessel in the North Sea, navigation was remotely controlled from Wärtsilä’s office in San Diego, California, some 8,000 km away.

Wärtsilä’s Dynamic Positioning unit has had remote control capabilities built-in since 2016, but this was the first test carried out on an offshore vessel. The vessel is already also fitted with a Wärtsilä Nacos Platinum package for Navigation, Automation and Dynamic Positioning systems, as well as a Wärtsilä drives package.

For the test, additional software was temporarily added to the DP system in order to route data over the vessel’s satellite link to the onshore work station in California.

During the 4-hour test the vessel was taken through a series of manoeuvres at both high and low speeds, controlled using the standard onboard satellite communication bandwidth available, with no other land-based technology used for communication between the vessel and the remote operator work station.

“One of the first and most critical hurdles to overcome along the path to the enablement of intelligent shipping is to develop efficient and reliable remote control and monitoring capabilities, taking factors such as bandwidth limitations and cyber security into consideration,” said Andrea Morgante, head of digital, Wärtsilä Marine Solutions.

“This test provides a clear indication that we are well on the way to achieving this. The fact that the ship was enabled for remote operation in only a few hours is a strong endorsement of Wärtsilä’s position at the forefront of marine technology development.”


Kelvin Hughes launches new ECDIS

Kelvin Hughes has announced the launch of its latest ECDIS unit, type approved to meet the recently updated IHO and IMO standards.

Designed for both commercial ships and naval and coastguard patrol vessels, the new ECDIS includes an optional mil-spec processor with LED display hardware in an integrated console package. It is available as a standalone ECDIS or as part of a multifunction bridge display network with multiple operator positions.

The LED widescreen display is available in 22” and 26” sizes with an integrated 5th generation processor and 64-bit operating system.

The ECDIS uses the latest IHO standards, specifically the most recent presentation library, version 4 within 5-32. This contains instructions for the drawing engine within the ECDIS on how to display symbols, colours and line styles on the screen, with the aim of creating greater consistency in the display of ENC data while reducing alarm fatigue.

Kelvin Hughes says that it has also improved its ECDIS software architecture to reduce the waiting time for the user when loading ENC cells, with ENC installation now completed in half the previous time taken and chart redraw happening almost instantaneously when altering the zoom level.

Transas introduces Survival Craft Simulator

Transas has introduced a new Survival Craft Simulator (SCS) to prepare crew for the possible scenarios that can occur during lifeboat drills and to improve safety in an area that is a persistent source of accidents in shipping.

The SCS allows training to be conducted either at a training centre or on board ship, allowing trainees to learn essential procedures, such as the preparation of a survival craft, its launch and boarding, without any risk.

The simulator includes a detailed virtual model of an enclosed davit-launched, self-righting lifeboat. It is supported by a functional model to simulate the hook-release gear, wire lashings and grips, and securing a boat onto a davit. Instruction on using the release handle, a safety pin, and hydrostatic interlock level can be delivered either virtually or with a physical device connected to the simulator.

“No one doubts the importance of effective survival craft training,” said Frank Coles, Transas chief executive officer.

“Guidance issued by insurers reaffirms that crew should be capable of operating lifeboat systems and understanding the mechanics and procedures, but training itself cannot be the source of risk.”

“The majority of the maritime industry stakeholders still have some way to go to fully embrace the use of simulation to enhance and improve competency in shipboard operations. This tool is further evidence that competence can be raised safely and efficiently without endangering lives. The time for platitudes is over; resources and recurrent training save lives and enhance safety.”
FEBRUARY/MARCH
APM, 14-16 March
Cyber APM, 15 March
CMA, 12-14 March
DS Cyber Rotterdam, 27 March
Satellite 2018, 12-15 March

AUGUST/SEPTEMBER
SMM, 4-7 September
DS Cyber Challenge @ SMM, 5 September
CIO Rotterdam, 27 September

APRIL/MAY
Sea Japan, 11-13 April
VPO @ Sea Japan, 11-13 April
Danish Maritime Fair, 2-4 May
CIO Hamburg, 24 April
DS Big Data Oslo, 29 May

OCTOBER
DS Athens, 7-8 November
CIO Singapore, 10 October
ShippingInsight Connecticut, mid October (TBC)
VPO Copenhagen, end October (TBC)

JUNE/JULY
Posidonia, 4-8 June
DS Cyber Challenge @ Posidonia, 6 June
CIO Supply Chain London, 21 June
CIO Tokyo, 29 August

NOVEMBER
CIO Shanghai, 28 November
CIO Bergen, 22 November

DECEMBER/JANUARY 2019
International Workboat Show, (TBC)
DS Cyber Challenge London, 4 December

* This calendar is a guide and is subject to change without notice
G

iven the media focus on autonomous cars you would be
forgiven for thinking that we are more likely to see self-driving vehicles on
our roads before they reach the high seas.

The reality is quite the reverse. Automation, robotics and artificial intelli-
gence are already transforming most sectors.

Technical feasibility combined with compelling economic advantages, such as
improved efficiency, reduced operating and labour costs, is driving adoption espe-
cially in aviation, engineering and con-
struction companies, manufacturers and
healthcare providers who are all investing
heavily.

Autonomous technology is poised to
reshape the maritime sector with crewless
vessels; small craft are already developed and in service with larger vessels under
development.

It is time for the maritime industry to
accept autonomy is coming, and to under-
stand how autonomy will shape future
industry and how best to exploit it.

The growth in Maritime Autonomous Systems over the period since the publica-
tion of our Global Marine Technology Trends 2030 report in 2015 has exceeded our
expectations. Major initiatives by organisa-
tions, such as Rolls Royce, Japanese ship-
builders, and Norway-based Kongsberg (in partnership with Yara, a Norwegian
chemical company) have all revealed plans to
develop all-electric and autonomous container ships by 2020. There is a fierce
race to be first across the finish line.

Other organisations throughout the
world are developing complementary,
even competing concepts and systems to
support unmanned operations, coupled with infrastructure initiatives, including
autonomous ports and high bandwidth
communications.

Labour and costs are key factors driving
this pace of change in maritime. A shortage of skilled people is accelerating the move
to unmanned and autonomous-ships.

Navies world-wide are investigating how to substitute labour with autonomous
technology in the face of significant budget cuts. Where labour costs are low, for exam-
ple shipping containers, technology that
requires substantial upfront investment will be less attractive.

Each sector will need to review whether autonomous systems will prove to be an
economical choice, though the cost/benefit ratio will shift as technology becomes
cheaper and more widely used.

There are growing numbers of small-
scale autonomous vessels being operated
across a wide range of applications, such as
Ocean science, Naval operations, and
Surveying and exploration.

Such vessels, operated in small fleets (swarms, although there is an argument that suggest they should be called pods), are now routinely employed by the
National Oceanography Centre (Southampton, UK). Their MASSMO (Marine Autonomous Systems in Support of Marine Observations) events bring
together the largest fleet of marine robotic vehicles simultaneously deployed in UK
waters, operating together to collect a
range of environmental data.

The Royal Navy also conducted Unmanned Warrior 16. This event success-
fully demonstrated the latest unmanned system technologies, including air, surface
and sub-surface vehicles and sensors, from
a wide range of nations and technology
providers. Key applications included
Mine Countermeasures and GEOINT (Geospatial Intelligence).

Autonomous systems will expose the
constraints of current instruments and
highlight potential future areas where
additional, proactive regulation and gover-
ance will be beneficial.

So we see 2017 and 2018 as the turning point in the maturity of maritime autono-
my and unmanned vessels. However, reg-
ulation and legal aspects of autonomous
marine systems (AMS) will present sig-
nificant challenges.

Autonomous systems will expose the
constraints of current instruments and
highlight potential future areas where
additional, proactive regulation and gover-
ance will be beneficial.

Regulation can take the form of legal pro-
visions or it can be based on the industrial
codes of practice and general principles of
operation, in other words, self-regulation.

Both are important for the development
and the sustainability of new technology.

The regulatory approach can be precau-
tionary, aiming at the avoidance or risk, or
it can be preventative, focusing on risk
management.

However, the mismatch between the
time taken to develop and exploit technol-
ogy and the ability of regulators to develop
codes and practices gives rise to vulnera-
bilities. We need to readdress approaches
to regulation in order to fully exploit the
benefits of emerging technology whilst
taking a considered approach.

In addition to factual information and
test results, public perception is an impor-
tant parameter influencing the selected
regulatory attitude.

Public perception is influenced by sev-
eral factors. It is more likely to be positive
if the benefits are clearly demonstrable and
the change is gradual, and more likely to
be negative when catastrophic regulatory
failures happen or a perception is devel-
oped that the emerging technology is not
compliant with existing regulations.

Marine autonomy disrupts the way exist-

Autonomous vessels
– regulatory and legal issues

The next twelve months could be a turning point in the maturity of maritime autonomy and unmanned vessels, however there are still many regulatory and legal issues to be resolved, according to the Global Marine Technology Trends 2030 – Autonomous Systems report

The timing and the type of regulatory intervention can accelerate, retard or pre-
vent the adoption of new technology. We
need to understand how technology and
regulation can mutually influence each
other.

Regulation of emergent
technology

Emergent technology and its application provide significant challenges to current reg-
ulatory practice and the legal environment. Test results are showing a race to develop unmanned vessels being operated outside of highly regulated sectors such as maritime and, as a consequence, technologies are being adopted without an in-depth examination of regulations and related legal aspects. The benefits offered by the technologies are such that business-
eses are eager to exploit them with a view to increasing business performance, reducing costs and increasing safety.

The potential impact that a malfunctioning autonomous system will have on people and the marine environment will vary for each system depending on its design, size, the density of sea traffic and whether it oper-
ates at the surface or underwater.

A supportive regulatory environment will need to reflect this diversity. In addi-
tion, the regulatory arrangements should be able to distinguish between the nature of new technology and its operational use.

Thus the mixture of self-regulation and legal regulation, as well as its timing,
needs to vary between systems and evolve with them as they mature.

International regulations are necessary for systems operating between states or
operating in the sea bed areas beyond national jurisdiction. In addition, interna-
tional design and production standards will be needed to facilitate the export of
autonomous systems.

International regulation develops and changes much slower than national regula-
tion. However, it is important to under-
stand that permitting national regulation to
develop and then trying to unify these
potentially diverse regimes probably has
more risk than developing broad interna-
tional standards based on those regulating
non-autonomous systems.

The psychology of
regulation

The lack of a specific regulatory regime
does not mean that an activity is illegal, forbidden or restricted. It is permissible and lawful to engage with new activities and technology subject to the general requirements imposed by law.

It is also incorrect to think that the lack of regulation means that autonomous sys-
tems and those developing them are
beyond the power of law. General legal requirements concerning criminal and civil liability will apply to all activities.

In the absence of specific regulations, public and governmental bodies, with
powers to oversee the safety of marine activities, in addition to powers to prevent
or to have quantifiable regulatory risks. This is more attractive to investors rather
than exposure to the potentially more extensive general liability regime, with unspecified liabilities, that may prohibit the sale and use of their products.

Furthermore, developing regulatory standards is seen as ring-fencing their stake and reduces the entry of low-cost/low-quality competition. Application of effective risk management is the best way of advancing new technology.

Thus an objective, realistic and open assessment of the risks involved will help companies to operate safely, and the pub-
ic to overcome the reliance upon the need for formal regulation. This will permit the use of innovative systems without delay, in an optimum way, and will support the evolution of technology.

There is also a need to move regulators away from a mind-set of risk avoidance to a mind-set of risk management, iden-
tifying and mitigating risks alongside the technology development.

This may require the sector to develop innovative approaches to safety manage-
ment and regulation, enabling business to thrive whilst understanding the levels of risk they are taking. Other sectors, such as automotive, are already making progress in these areas.

Legal responsibilities

The use of any system, of whatever charac-
ter, should be safe for the other users of the sea and the marine environment. This basic principle applies to all safety aspects and includes considerations of cyber-
attacks leading to programming or loss of control of an autonomous system.

Regulations flesh this obligation out and provide standards that need to be dis-
charged concerning the construction and operation of systems. Regulations further decide who will be liable under criminal and administrative liability and who, when, and how much will have to be paid to compensate the victims of accidents.

The regulations may operate in addition or in substitution of the general legal obli-
gations. This depends on the wording of the regulation.

In a non-regulated environment it is easier to argue, in case of accident, that appropriate measures have not been taken and therefore the standard protected by general law has not been reached.

Self-regulation, involving risk assess-
ment and management, in addition to the development of codes of conduct and best practice guidelines, can go a long way in demonstrating that the safety of operation has been dealt with even if in a particular circumstance a failure has occurred.

The development of autonomy does not affect the aforementioned general legal framework. It does however pose some difficult questions.

In particular the responsibility for the consequences of failure of an autonomous system is problematic. In non-autonomous systems the presence of a person in charge, the Master, provides the necessary legal and enforcement link between the wrong-
doer and their employer, who has the financial ability to pay for compensation.

For an autonomous system there would be a question on what data was responsible for the damage. The answer may point to a person who is not an employee of the owner of the platform but, instead, the Design Authority, a software developer, or a techn-
ician employed by the manufacturer, or a contractor.

It is then problematic to whom criminal and administrative responsibility will be attributed and who will be liable for the damages caused. It follows that the signifi-
cance of product liability (i.e. the liability a producer has for damages caused by the product) will increase.

This creates a further problem. Product liability is not harmonised between states and it can make significant difference if the industry assumes strict voluntary, rather than fault-based, liability. If the applicable standard is based on negligence, the demonstration of fault may be very diffi-
cult for complex systems consisting of sev-
eral hardware components as well as con-
tity updated software.

This could be seen as a way the industry avoids responsibility by diffusing it amongst the component manufacturers who will be distributed around the world.

Strict liability would, by contrast provide security for third parties affected by the autonomous system and confidence that the industry readily accepts responsibility.

However, strict liability may pose sig-
nificant obstacles to the operation of autonomous systems depending on the cost of obtaining insurance. As other sec-
cors will be addressing similar issues, a cross sector approach may be beneficial.

Insurance

Perhaps the best way of supporting the development and use of new technology is by ensuring that insurance cover is available so that recovery of damages will not depend on any company’s financial situation.

Coupled with strict liability, such an insurance arrangement provides the best arrangement for potential claimants, and the best defence for the autonomous indus-
try, provided it is seen to have in place the required financial tools for its operation.

Insurance plays an additional role in enforcing the safety perspective. The pre-
mium paid will depend on both the behaviour of a specific system and the risks that may materialise with respect to each type of autonomous maritime sys-

The financial incentive is crucial in encouraging a sector to become safer, through an understanding of the specific risks involved, at the point a new technol-
gy becomes operational - along with prov-
ing a level of insurance cover at an appropriate price. Shipping currently employs a system of strict, but limited lia-
Bility with compulsory insurance and direct action against the insurer in a very successful manner.

Ethical perspectives

Autonomy may facilitate or replace the involvement of seafarers in maritime oper-
ants. The acceptable safety standards need to be compared with the existing safety standards and/or by reference to equivalent human factors standards. How this equivalence is to be determined will need to be resolved.

One problem is that not all people per-
form activities in the same way and, as a result, what is an equivalent for an autonomous system may vary, given there may be a range of acceptable solutions. Assuming that, overall, autonomous mar-
itime systems are involved in fewer acci-
dents than non-autonomous systems is also problematic.

Key questions should include ‘How much safer should it be?’, as well as ‘Which type of accidents and criteria are included in such statistics?’. These will need to be detailed as part of an overall safety perspective.

To pose the questions correctly it has to be determined whether the statistic is to be evaluated in the context of autonomous operations in an exclusively autonomous system environment or in a mixed envi-
ronment involving autonomous and non-
autonomous systems.

It could also be argued that autonomous systems may yet be riskier because they do not currently consider the difference in the seriousness of damages caused by follow-
ing one or another way of reaction to a risk.

This is an important design considera-
tion; this will also need to address specific biases introduced by the designer(s). Developing decision making for autonomous systems (a kind of ‘machine morality’) or a way of referencing, or pass-
ting tasks to, human operators in difficult situations is a paradox to be discussed and developed if we are to avoid unintended consequences.

Maritime Cloud becomes Maritime Connectivity Platform

The Maritime Connectivity Platform, previously the Maritime Cloud, is used to share e-Navigation data among stakeholders.

This article is the first of a two-part series of abridged extracts from the Global Marine Technology Trends 2030 – Autonomous Systems report, published by Lloyd’s Register, Qinetic and the Universi-
ty of Southampton. The second article, cov-
ering autonomous technology develop-
ment, will appear in the December/Jan-
uary issue of Digital Ship. The complete unabridged report can be downloaded at www.lr.org/GMTT2030
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