A P. Moller-Maersk and IBM have announced a new joint venture that will see the companies collaborate in the development of a blockchain-based global trade digitisation platform, built on open standards and designed for use by the entire shipping ecosystem.

Maersk is joining forces with technology giant IBM to create a new joint venture company that will use blockchain technologies to drive efficiencies across the global supply chain.

The aim of the new venture is to provide more transparency and simplicity in the movement of goods across borders and trading zones through the use of blockchain technologies.

Maersk hopes that the application of blockchain across the supply chain will allow the cost of the trade documentation needed to process and administer goods transported by sea to be minimised. Currently, using existing processes, those costs can be as high as one-fifth of the actual physical transportation costs, the company says.

The new joint venture will initially focus on two core capabilities aimed at digitalising the global supply chain from end-to-end. The first of these will be built around the establishment of a shipping information pipeline to provide visibility of actions across the supply chain, enabling all actors to securely and seamlessly exchange information about shipment events in real time.

Secondly, the platform will look to facilitate paperless trade by digitalising and automating paperwork filings, allowing users to securely submit, validate and approve documents while working in different organisations. Blockchain-based smart contracts will be used to manage approvals, speeding up the process and reducing mistakes.

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Ultimately, Maersk says that the goal is to allow manufacturers, shipping lines, freight forwarders, port and terminal operators and customs authorities to mutually benefit from these new technologies, eventually passing some of those gains on to consumers.

"This new company marks a milestone in our strategic efforts to drive the digitisation of global trade. The potential from offering a neutral, open digital platform for safe and easy ways of exchanging information is huge, and all players across the supply chain stand to benefit," said Vincent Clerc, chief commercial officer at Maersk and proposed chairman.
MOL blockchain trials

IBM’s involvement in blockchain for the shipping industry does not end with this Maersk tie-up however, with the technology company’s Japanese division having recently begun a demonstration test with Mitsui O.S.K. and a host of other Japanese stakeholder organisations to examine the practical applicability of blockchain technology in streamlining cross-border trade operations.

In the demonstration test, which will run for a period of six months, participating companies will input information on the real-time progress of a sample shipment, using a blockchain-based application, to allow trade agreements and logistics/insurance documents to be digitised, recorded and shared among participants.

The results of this blockchain-backed process will be compared with current operations, to verify whether the blockchain technology is effective in reducing the time required to settle cross-border trade transactions, discrepancies among related documents and administrative costs.

Other partners in the trial include Sumitomo Mitsui Financial Group (SMFG), Sumitomo Mitsui Banking Corporation (SMBC), The Japan Research Institute (JRI), and Mitsui Sumitomo Insurance Company (MSI).

Shipping crypto currency development

Also looking for ways to apply blockchain to improve efficiency in the maritime industry is Hong Kong-based 300cubits, founder of the TEU cryptocurrency aimed at the global shipping sector that was launched in August 2017.

The company says that progress to date has been encouraging, and it now aims to begin distributing free crypto tokens to industry stakeholders from February 2018, as talks continue with major container lines.

“At the moment we’re running dialogue with 12 of the top 15 container liners, eight of the top 15 freight forwarders and a large number of shippers,” the company said.

“Sixteen of these industry participants have given us feedback after having tried our system prototype or attended our system prototype demo. We are also in discussion with shipment booking portals for potential product collaboration, which would allow users multiple options to place their token booking deposits.”

300cubits notes that its initial crypto coin offering has seen some two per cent of the supply of its TEU tokens sold, which it says has generated sufficient capital to continue development and get the project up and running.

The company says that it expects the window for registrations to continue development and get the project up and running.

“We have been suggesting to the industry participants that we may distribute the tokens based on each party’s market share of the global container shipment revenue,” the company said.

“While we tweak this idea to incentivise early participants, So early participants may pick up more tokens than their market share-based allocations. The quantity of tokens to be distributed will be limited and the distribution will be done on a first come first served basis.”

A further sale of another 18 million TEU tokens is planned from mid-March, while 300cubits is currently targeting a launch date in June for its token-based online Booking Deposit system. A beta version of this platform will give live in February to run TEU booking trials on live shipments.
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Marlink expands with M&A spree

Marlink has concluded a partnership agreement with Radio Holland whereby Marlink will take over all of Radio Holland’s satellite communications customers, taking its VSAT customer base to approximately 5,000 vessels, while the company also expanded its presence in the leisure market by acquiring OmniAccess and Livewire Connections.

Under the terms of the deal with Radio Holland the Netherlands-based company will become a preferred Marlink global sales and service partner, and offer Marlink’s satcom connectivity portfolio in combination with its maritime electronics systems. Radio Holland and the Marlink Group, including Telemar, will also work more closely together on NavCom sales and servicing following the agreement.

“The agreement is a win-win for all parties involved. Together, we will provide our customers with best-fit and future-proof connectivity solutions,” said Erik Ceuppens, CEO of the Marlink Group.

“Radio Holland’s customers will experience a seamless transition to Marlink’s network, where they will enjoy the best-in-class maritime VSAT service of the industry together with a rich solutions portfolio designed to support vessel operational efficiency, crew welfare, remote ICT management and security.”

Marlink is also set to extend its reach in the leisure market, following the announcement of definitive agreements to acquire a majority stake in OmniAccess as well as 100 per cent of the shares in Livewire Connections. Established in 2002 and headquartered on the island of Mallorca, OmniAccess provides satcom services to superyachts and specialised cruise lines. The company counts more than 300 of the world’s largest superyachts among its customers, in addition to ocean and river-cruise vessels.

The Spanish satcom provider operates a VSAT network with approximately 24 satellite-beams in both C- and Ku-band, uplinked from six teleport locations in Spain, Germany, Hawaii, Australia and the USA, alongside 4G and WiMax terrestrial connectivity services and other networking and IPTV systems.

OmniAccess will remain a standalone company following the acquisition, but with access to the various capabilities of the Marlink Group. The existing management team at OmniAccess will remain unchanged and continue to hold a significant shareholding in the company.

“We are very proud that OmniAccess is joining forces with Marlink,” said Mr Ceuppens.

“OmniAccess is a truly unique company with in-depth understanding, expertise and capabilities to serve the sophisticated superyacht segment better than anyone else. Together, we extend and strengthen the group’s global leadership position in the maritime broadband communication and IT market, with a unique position in all maritime segments.”

De Poli extends VSAT deal

De Poli Tankers first migrated to Marlink’s VSAT service from its existing L-band communications system in 2013. The Sealink Plus system is delivered using 1-metre Ku-band antennas and the latest generation of modern technologies, alongside Marlink’s VChange IT and communications management system.

The transaction remains subject to customary regulatory approval and is expected to close in the first half of 2018.

Livewire Connections meanwhile is a UK-headquartered satellite communications service provider with a focus on the superyacht sector. Following completion of the Livewire Connections share purchase the company will become part of the Marlink Group.

Headquartered in Chessington, Surrey, and with an office in Fort Lauderdale, Florida, Livewire Connections was established in 2004, providing satellite communications services and hardware alongside IT and networking installation support.

Leisure services to superyachts among its customers, in addition to ocean and river-cruise vessels.

The company is also a Cobham Satcom dealer, and serves a fleet of approximately 120 superyachts ranging from 30m to more than 140m across the world.

“Livewire Connections has consistently demonstrated to be at the forefront of satcom service provision for superyacht customers in Europe and the US, so we are delighted to have them on board as part of the Marlink Group,” said Mr Ceuppens.

“Just like OmniAccess, Livewire Connections is focused on leveraging cutting-edge technology, innovation and service excellence to deliver premium customer satisfaction. Together they will make a great fit and undoubtedly the most capable company to provide the best-in-class services for the sophisticated superyacht customers.”

Cobham simplifies dual GX antenna installations

Cobham SATCOM has created an integrat-
ed Below Decks System to simplify Inmarsat Fleet Xpress installations that use dual Ka-band antennas to combat satellite blocking from the ship structure or other deck equipment.

The new system can integrate two SAILOR 100 GX antennas on a single SAILOR GX modem unit (GMU) and automatically switch between those antennas, rather than requiring the installation of two modem units alongside a mediator to manage switching. The GMU also controls failover to FleetBroadband when out of Ka-band coverage.

Cobham says that this set-up should significantly reduce the cost and complexity of dual antenna installations of this type, eliminating the need to add a 19-inch rack unit to house the below decks equipment previously needed to operate a multiple-antenna configuration.

The new system has already received Inmarsat type approval for use with GX satellite systems, and supports the single cable set-up used for SAILOR antennas.

“Multiple antenna installations can be complex to plan, install, commission and manage. While we have worked closely with the industry to simplify the process for existing satellite networks and frequencies, the same blocking issues persist for Global Xpress,” said Jens Ewerling, director, maritime broadband, Cobham SATCOM.

“The SAILOR GX Antenna Diversity Solution meets a specific demand in the market as it is a simple and highly cost-effective way for service providers to optimise Fleet Xpress and secure the most reliable service for the end-users.”

The new system can integrate two SAILOR 100 GX antennas on a single modem unit.
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Elizabeth Jackson has joined KVH as chief marketing officer and senior vice president for strategy. Ms Jackson has worked at a variety of companies including Proctor & Gamble, Campbell Soup Company, Summer Infant, and HookLogic, a Bain Capital Ventures portfolio company in ad tech performance marketing. Most recently, she was CMO at DOTS Technology Corp.

NSSGGlobal reports that it has formed a partnership with Wrights Technologies that will see Wrights sell NSSG’s range of maritime and land-based VSAT solutions in New Zealand, alongside third party solutions such as Iridium and Inmarsat’s L-Band and Global Xpress.

Intelsat has appointed Samer Halawi as chief commercial officer (CCO), a role created to accelerate the commercialisation of the Intelsat EpicNG high throughput fleet. Mr Halawi will also be responsible for engagement with partners such as OneWeb and Kymeta as well as distributors and VARs across sectors.

Kymeta flat panel broadband service commercially launched

Kymeta and Intelsat have announced the commercial launch of Kymeta’s KĀLO satellite internet service, powered by the IntelsatOne Flex network. KĀLO will provide broadband services via Kymeta’s flat panel, electronically-steered satellite terminals, as well as other satellite terminal systems, the companies said.

“With KĀLO, Kymeta delivers up to 4 Mbps mobile internet service in familiar by-the-gigabyte plans,” said Dushyant Sukhija, senior vice president and general manager, KĀLO business unit, Kymeta.

“With KĀLO, we’re changing how we think about satellite connectivity. It’s a next-generation service that can bring the internet anywhere and everywhere. KĀLO makes it easy to access the internet, even in challenging locations,” said Greg Buzzard, president and CEO of Kymeta.

Samer Halawi, new CCO at Intelsat

Fourth launch success for Iridium NEXT

Iridium has successfully launched the fourth set of 10 Iridium NEXT satellites into orbit, on board a SpaceX rocket from Vandenberg Air Force Base in California on December 22, 2017.

All satellites are functioning nominally and have begun the testing and validation process, the company said. “Similar to the first three launches, our team at the Satellite Network Operations Center immediately began running initial diagnostics as soon as the newly deployed satellites were captured by our network, just minutes after they were deployed,” said Scott Smith, chief operating officer at Iridium.

“This testing process has been running smoothly and will continue for several weeks, after which nine of the new satellites will begin their individual ascents to an operational orbit, replacing original vehicles. We’ll also be sending the tenth satellite to an adjacent orbital plane where it will go into service by summer 2018.”

Kymeta flat panel broadband service commercially launched

Kymeta reports that it has added new Tapnet 4G LTE services in the Gulf of Mexico, which will allow customers of its Sealink multi-band network to make use of GSM data connectivity alongside the VSAT, L-band satcom and Wi-Fi services it already provides in the region.

The satellite services provider had previously integrated Tapnet connectivity into its Sealink network in the North Sea in 2016, where it is currently being used by a range of vessels in the offshore sector.

“Tapnet 4G LTE has been tried and tested in the North Sea and the Gulf of Mexico with focus on fixed installations, but by integrating it with our Sealink network we are making communications even more flexible to support the safety and operational efficiency of mobile assets like offshore support vessels,” said Tore Morten Olsen, president maritime, Marlink.

“Tapnet serves to strengthen Marlink’s already extensive capacity dedicated to offshore operations in the Gulf, helping to ensure that operators seeking an edge by using digital applications can be confident in an always available and cost-effective link to the internet.”

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NSSSLGlobal acquires SatLink

NSSSLGlobal Technologies, a fully owned subsidiary of NSSSLGlobal, reports that it has acquired the range of communications technologies developed by SatLink, taking full ownership of SatLink’s VSAT modem and Hub product families while also retaining SatLink’s software engineering team.

NSSSLGlobal will also now take control of SatLink’s next-generation product roadmap, and says it will focus “significant engineering R&D” towards meeting the ongoing needs of its clients.

“SatLink has been a key strategic partner of ours for over a decade, and its products already form part of the core technology underpinning our fully owned and controlled VSAT network,” said Sally-Anne Ray, group CEO of NSSSLGlobal.

We therefore have full confidence in the technology and the team we bring in to the NSSSLGlobal family and with our experience, investment and energy behind it we believe we are well positioned to push the next generation of SatLink mobility products forward.”

“This acquisition is in line with NSSSLGlobal’s ambition to become an engineering powerhouse, particularly for our government and maritime customers and their highly-sophisticated communication needs. By taking full ownership and control of the SatLink portfolio and its roadmap we can align future R&D directly to the needs our customers. This is sure to become a core source of differentiation for NSSSLGlobal that sets us apart from many of our competitors.”

MSC Seaside smashes vessel bandwidth record with 580 Mbps link

MSC Cruises’ new Seaside class cruise ship has set what is thought to be a new maritime VSAT throughput record, achieving bandwidth speeds of more than half a gigabit per second via its Marlink Sealink VSAT system at its service launch ceremony in Montalcino, Italy, at the end of November.

The ship was officially named at a naming ceremony in Miami, Florida, on 21 December 2017, and was provided with similar levels of throughput on the satellite system for its maiden voyage, Marlink says.

The 580 Mbps link on MSC Seaside is faster than the existing bandwidth record held by another MSC Cruises vessel, recent addition to the fleet MSC Meraviglia, which managed a then-record-breaking 300 Mbps service for its maiden voyage in July of 2017.

Marlink provides connectivity services for MSC Cruises’ entire fleet, which between them have access to a dedicated ‘cloud of bandwidth’, the full extent of which can be shared among whichever vessels require connectivity at any particular time. Connections are established via Inmarsat’s EpicNG High Throughput Satellites, in combination with the latest modern technology.

The half a gigabit link was a temporary facility to meet extra demand from media and guests connecting to the internet on board as MSC Seaside headed to the Caribbean for its first journey, Marlink says. On completion of the maiden voyage, MSC Seaside reverted to the ‘cloud of bandwidth’ through the Sealink network alongside the rest of the MSC fleet.

“Working closely with our partners we achieved milestone throughput earlier this year for the MSC Meraviglia maiden voyage, but reflecting the potential in our Sealink VSAT services, we have been able to almost double the previous record for the introduction of MSC Seaside,” said Tore Morten Olsen, president maritime, Marlink.

“We believe the latest record breaking figures show what is possible with cutting-edge satellite technology, it’s important to remember that our network continuously delivers the highest throughput services for cruise ships on a daily basis.”

“The cruise industry will soon expect throughput in gigabits and not megabits, which is why we are pushing the borders of what the current technology can offer our cruise customers.”

KVH to bring PBA basketball to vessels

KVH has agreed a deal with Pilipinas Global Network Limited (PGNL) to bring coverage of full games from the Philippine Basketball Association (PBA) to merchant ships, via its mini-VSAT and IP-MobileCast service.

Under the terms of the agreement, KVH will distribute PBA men’s professional basketball league games for the 43rd and 44th PBA seasons, which began with the Philippine Cup on December 17, 2017.

The PBA games will be delivered via satellite to vessels subscribed to KVH’s SPORTSlink and IP-MobileCast content delivery service, and can be accessed by seafarers on mobile devices, desktops, and televisions.

“PGNL is devoted to bringing the PBA closer to every Filipino overseas. This partnership with KVH is a step toward reaching out to seafarers who would want to experience the PBA while they’re away from home,” said Ernesto D. Sta. Maria, Jr., PGNL president and CEO.

“We are committed to providing content experiences that will boost morale and help seafarers feel more connected to home. This is the first opportunity crew will have to really engage with the PBA. Professional basketball is a popular sport among seafarers, and we are confident that watching the games will enhance their time at sea.”

MOL tests real-time shore access to VDR data

Mitsui O.S.K. Lines (MOL), in collaboration with Japan Radio Co (JRC) and JSAT MOBILE Communications, reports that it has successfully tested a new system to share shipboard data contained in the Voyage Data Recorder (VDR) with shore-based offices, connecting the ship with shore via Inmarsat Fleet Xpress.

MOL conducted the test using one of its operated vessels, and was able to receive and monitor information collected by the VDR on shore, including data from a variety of onboard systems, engine performance data, and vessel positioning data using the ECDIS.

The Japanese shipping company says that any past data stored on the VDR can also be accessed and transferred to shore as required using the vessel satellite communications system.

MOL expects to use this new facility to enhance safety by providing decision support from shore, and to improve incident response by being able to reproduce a vessel’s movements prior to an incident in a land-based ECDIS, alongside its voice transmissions and radar images.

The company has now set its sights on expanding use of this new system to every MOL-operated vessel, and refining the concept even further. In the longer term, MOL says it sees the project as a major step forward in its goal to introduce remote vessel operation technologies.
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Inmarsat has launched SafetyNET II, a service for Maritime Safety Information Providers (MSIs) that forms part of an upgrade programme for the Global Maritime Distress and Safety System (GMDSS).

The new broadcast and automatic reception service for Maritime Safety Information (MSI), extensively tested with six host countries before launch, enables MSIs to transition their communications to web-based messaging.

As a web-based service, SafetyNET II will allow for broadcast scheduling, continual monitoring, message cancellation, multiple text input methods, and other usability improvements.

Also included are read-receipts, to allow Search and Rescue (SAR) personnel to know whether messages responding to distress calls have been picked up.

“SafetyNET II is an important and highly effective, next generation safety service,” said Peter Broadhurst, senior vice president, safety & security, Inmarsat Maritime.

“Direct input from MRCCs and other MSI providers was instrumental in developing and refining the solution to fit end-user requirements.”

“Most MSIs are familiar with web-based interfaces which means the training requirement is lower. They can focus on new functionalities, such as the ability to schedule navigational warning repeat messages.”

SafetyNET II is supported from two custom-built and synced data centres, one in London, UK, and the other in Bursum, the Netherlands.

Vessel Performance Optimisation

While installation of the SAILOR 6000 GMDSS equipment was fast and straightforward, the cadets also reported that it was basically “too easy to use,” said Ufuk Tuncer, master of the SAMSUN and previously general manager of vessel owners Demirci Turizm.

“The simplicity of operation enables us to really focus on the foundations of navigation and communication, giving us the opportunity to deliver even higher quality training because we are not spending too much time on the technicalities of the system.”

Speedcast launches crew GSM service

Speedcast has announced the release of CrewReach, a new global prepaid mobile SIM card designed to be used by ships’ crew members for cost-effective access to 4G and 3G data.

“Weeks and months at sea without being connected to family and friends can lead to feelings of isolation and depression for the thousands of commercial maritime sailors who are responsible for the transportation of goods around the globe,” said Dan Rooney, commercial maritime product director, Speedcast.

“CrewReach provides cost-effective prepaid mobile data access to terrestrial mobile networks, enabling crew to reach out via social apps and reducing isolation from their families and friends.”

“CrewReach also gives subscribers a limited amount of free access to the popular chat apps WhatsApp and WeChat, making social connectivity even more cost-effective.”

CrewReach is available for all unlocked smartphones and is managed via a mobile app on iOS and Android devices. The app allows subscribers to control their spending, showing data costs in each country and the amount of data consumed.

Users can purchase additional credit either via a credit card or prepaid voucher, Speedcast says.

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VPO aims to provide a focal point for news and expert analysis from around the world, specialising in marine technologies and strategies designed to optimise ship performance. VPO will report on the events impacting this sector, and lead discussions on how different areas of vessel performance can be leveraged to maximise energy efficiency, cut fuel costs and reduce emissions in this fast-moving modern market.

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Clarksons confirms cyber breach

Another high-profile breach has once again highlighted the potential cyber vulnerability of modern maritime businesses, as global shipping associations urge the industry to improve cyber resilience at the ship design stage

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K-based shipping services company Clarksons has emerged as the latest maritime business to be hit by a cyber-attack, with the company confirming that it had suffered a breach involving unauthorised access to its computer systems.

Clarksons’ says that it took immediate steps to respond to and manage the incident as soon as it was discovered, with initial investigations suggesting that the unauthorised access was gained via a single isolated user account, which was subsequently disabled.

The company notified the relevant regulatory bodies, and notes that it has now put in place additional security measures to try and prevent a similar incident happening in the future, as it works with data security specialists to investigate further.

“Clarksons would like to reassure clients and shareholders that this incident has not, and does not, affect its ability to do business,” the company said, in a statement.

“(The) person or persons behind the incident may release some data. As a responsible global business, Clarksons has been working with the police in relation to this incident. In addition, the data at issue is confidential and lawyers are on standby wherever needed to take all necessary steps to preserve the confidentiality in the information.”

Clarksons says it began the process of contacting potentially affected individuals directly after the incident, and will continue with a wider review of its cyber security that began earlier in 2017, which will be expanded to include an accelerated rollout of additional IT security measures.

“Issues of cyber security are at the forefront of many business agendas in today’s digital and commercial landscape and, despite our extensive efforts, we have suffered this criminal attack,” added Andi Case, CEO of Clarksons.

“As you would rightly expect, we are working closely with specialist police teams and data security experts to do all we can to best understand the incident and what we can do to protect our clients now and in the future. We hope that, in time, we can share the lessons learned with our clients to help stop them from becoming victims themselves.”

“In the meantime, I hope our clients understand that we would not be held to ransom by criminals, and I would like to sincerely apologise for any concern this incident may have understandably raised.”

Tripartite Shipbuilding Forum

As Clarksons continues its recovery from this breach, cyber security, alongside carbon emissions and safety, has been identified as one of the top line agenda issues for the recently concluded annual Tripartite Shipbuilding Forum, supported by a range of shipping organisations including BIMCO, ICS, INTERTANKO, OCIMF, and IACS.

At the meeting in Nantong, China, hosted by China Classification Society, the forum reached several conclusions on ship design and technology, including a general agreement on the need to adopt new methods and standards to create more resilient digital systems on board during the ship design and construction phase to combat cyber-attacks.

A more layered approach to a ship’s digital system and the use of greater segregation were recommended, to increase safety by preventing a single attack from easily spreading to IT and other systems both on board the ship and ashore.

The Tripartite group agreed that it will work together to develop new design standards in this area, with the aim of raising the resilience of ships’ digital systems and making them more resistant to possible cyber-attacks.

Innovation in emissions reduction was also a priority during discussions, with the group in agreement that the shipping industry needs to use all available technology to a much greater extent, and increase its support for technological innovation to reduce CO2 emissions to the degree required by the international community.

It was said that the shipping industry “urgently” needs new ship designs, equipment, propulsion systems and alternative fuels to achieve the CO2 reduction goals established by the Paris Agreement on climate change, and the specific objectives to be established for international shipping by the IMO as part of its GHG reduction strategy.

Maritime cyber reporting portal

On the technology side, efforts to promote data sharing in the industry as well as wider reporting of cyber-attacks have been boosted by satellite provider Navarino’s decision to join the CSO Alliance, with the aim of assisting in promoting cyber awareness and supporting the development of the CSO maritime cyber-crime reporting portal.

In its pilot phase, this new portal allows for cyber-crime to be anonymously reported and pooled with other incidents to promote further analysis within a secure, vetted online community, where cyber breaches can be anonymously discussed and ideas and strategies for combating them shared.

“Navarino says it has already supported a series of workshops in Antwerp, London, Rotterdam, Paris and Hamburg to promote the introduction of the new platform.”

“Cyber-crime is unfortunately a fact of life today for many in the maritime sector. By partnering with the CSO Alliance, Navarino is proactively helping to build awareness of the threat but also offering our customers tools to combat it, alongside our existing cyber security solutions portfolio,” said Navarino CEO, Dimitris Tsikopoulos.

“We are proud to be working with the maritime industry’s community in this way and we want to do all we can to strengthen and protect our industry’s cyber resilience.”

“Issues of cyber security are at the forefront of many business agendas in today’s digital and commercial landscape ...”

- Andi Case, CEO, Clarksons

Clarksons has confirmed a systems breach, whereby a company user account was accessed without authorisation.
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Rolls-Royce opens ship intelligence centre in Norway

Rolls-Royce has opened what it says will be the first in a series of “ship intelligence experience spaces” in Alesand, Norway, to demonstrate how the company can apply digital technologies to optimising vessel performance.

These Intelligent Asset Management (IAM) spaces will provide an area for customers to validate the benefits that can be derived from such systems, including Rolls-Royce’s Energy Management (EM) and Equipment Health Management (EHM) portals, in real-time operational environments.

“It is often difficult to convey the many commercial and operational benefits of new cloud-based digital technologies. But now, with the opening of this, the first in a number of planned Ship Intelligence Experience Spaces around the world, we can fully demonstrate for our customers the very tangible benefits of what is often considered an intangible technology,” said Mikael Makinen, Rolls-Royce president – marine.

The IAM space is split into two areas, an Intelligent Analytics Centre Collaborative Canvas area and a ‘Fleet Management Command Centre’. The facility also provides a workspace in which Rolls-Royce and its customers can tweak existing digital systems and collaborate on the development of new tools to meet specific requirements.

The Intelligent Analytics Centre Collaborative Canvas space aims to assist visitors in visualising the data that can be generated by maritime operations, which can then be applied to the development of product features in collaboration with the users themselves, to maximise their benefit.

The Fleet Management Command Centre area, meanwhile, is a proof-of-concept for a future Rolls-Royce product that will provide a centralised point of access for fleet information, controlled via a touch interface and incorporating a floor-to-ceiling, six-metre-wide curved screen.

“This data is invaluable,” said Jan Chirkowski, Rolls-Royce Intelligent Analytics Centre manager.

“For example, it can inform fleet managers of any material degradation or likely component failure before it actually happens. Components can then be ordered and replaced before causing any operational disturbance.”

“Certainly, a reduction in the frequency of unplanned maintenance events will pay dividends and result in a fleet that is always running to optimum commercial and environmental efficiency.”

Invoce automation target of Greece and Cyprus partnership

Document automation company Eye-share has formed a partnership with Greece-based Eiger Marine, to provide Eye-share’s invoice automation systems to maritime customers in Greece and Cyprus.

The partnership aims to provide a system for maritime invoice and document automation incorporating Eye-share’s flags.

“We are proud to announce our partnership with Eiger Marine,” said François Vielfaure, executive vice president maritime operations for Eye-share.

“Being selected by Eiger, after a rigorous evaluation process, confirms that Adonis is continuing to meet the needs of today’s labour-intensive, demanding and highly competitive maritime businesses,” said Sigrid Kvetneberg, project director at Adonis.

“Ponant and Adonis both enjoy reputations as innovators in their respective fields, which is why we’re so honoured to have been selected as their technology partner. We look forward to helping them streamline their existing fleet, and to a productive, long-term partnership to support their growth and continued innovation in the years ahead.”

Ponant to roll out crewing and payroll software

Maritime HR software provider Adonis has begun a project with French cruise company Ponant to roll out the Adonis Maritime Suite over the course of 2018 to manage its crewing and payroll operations.

“The complexity of our global operations made it necessary for us to start looking for a brand new platform and technology for our crewing agent UMS,” said François Vielfaure, executive vice president maritime operations for Ponant.

“By choosing Adonis, we are confident that ‘SeaOps’ are meeting the future together with a partner that fully understands our high demands for reliable, efficient and cost reducing systems.”

Ponant currently operates a fleet of five cruise ships with an ongoing newbuilding programme that plans to increase that to nine vessels by the end of 2019.

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“With the opening of this, the first in a number of planned Ship Intelligence Experience Spaces around the world, we can fully demonstrate for our customers the very tangible benefits of what is often considered an intangible technology,” said Mikael Makinen, Rolls-Royce president – marine.

The IAM space is split into two areas, an Intelligent Analytics Centre Collaborative Canvas area and a ‘Fleet Management Command Centre’. The facility also provides a workspace in which Rolls-Royce and its customers can tweak existing digital systems and collaborate on the development of new tools to meet specific requirements.

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GNS launches VOYAGER digital payments system

GNS and Caxton FX, a payment card and foreign exchange company, have announced a partnership to help shipping companies manage cash onboard ship through the use of VOYAGER payment cards.

The new VOYAGER Money service allows users to electronically transfer funds on demand to their ship’s ‘virtual safe’ in any of 15 currencies. Funds are immediately accessible to the ship’s Master for loading to payment cards that can be used to withdraw cash from ATMs, over-the-counter at banks and to purchase items from locations that accept Mastercard.

VOYAGER Money has fixed annual pricing that includes all of the ATM, replacement card and other fees involved.

“One of the great opportunities in commercial shipping is the delivery of tangible benefits from digital technology,” said Paul Stanley, GNS CIO.

“GNS’s development efforts are focused on the creation of our powerful VOYAGER ecosystem that harnesses Big Data and delivers new digitally-led efficiencies and safety improvements to a wide range of stakeholders ashore and onboard. By working with Caxton to provide a modern cash-to-master solution we are helping shipping companies realise more of the tangible commercial benefits promised by our digital age.”

The service aims to reduce the need to carry large amounts of cash on board, increasing security while also lowering the foreign exchange and other logistical costs involved in sending currency to ships.

Vessel tracking and monitoring portal launched

Marine Press of Canada, a supplier of integrated navigation systems, is launching a web-based platform called SeaOps that it says will enable users to track, monitor, and manage their fleet through a single portal.

The new system can be integrated with the company’s existing SeaPassage technology installed on board ship, used to manage charts and navigational data, to provide actionable information to share in real-time.

“Vessel operators have been demanding a solution that will help better manage their fleet. Current solutions are simply incomplete and require fleet managers to work with different suppliers to get a complete view of their vessels,” said Nicholas Bourque, CEO at Marine Press.

“SeaOps is the first solution that allows fleet managers full situational awareness thanks to its integration with our SeaPassage on board solution.”

The new platform offers vessel and fleet tracking, compliance monitoring based on position, weather forecasting, and piracy risk information.
Service providers wanting to optimize maritime communications and delight customers leverage the performance and flexibility of the Comtech brand. Our range of best-in-class infrastructure solutions include VSAT networking platforms, satellite modems, network & bandwidth management, frequency converters and amplifiers. The solutions blend unparalleled horsepower, efficiency and intelligence, providing the advanced technologies you need to increase profitability, differentiate services and improve quality of experience.

Contact us today. We are ready to evaluate how our unique feature set can provide you with the industry’s highest user throughput, highest availability, and most optimal resource utilization.
Xeneta adds reefer data

www.xeneta.com

Freight rates intelligence platform Xeneta reports that it has added reefer container rate data to its system, and has begun to populate its database with more than 30,000 data points for major trade lanes that have been generated by existing customers that joined its beta programme.

Approximately 20 per cent of Xeneta’s existing customers carry refrigerated containers, the company notes, and it now has data available for a variety of routes between Asia and Europe, and between Europe and the Americas.

“We have had numerous requests for reefer rate data from our customer base and the general market,” said Patrik Berglund, CEO Xeneta.

“In particular, customers shipping perishables and pharmaceuticals are looking for the same type of real-time rate market intelligence we provide for dry containers. Because of the flexible and scalable technology behind our platform we have quickly been able to offer reefer rate data as a filter right in the platform where our customers can instantly switch between dry container and reefer rates.”

Hanseaticsoft adds purchasing app

www.hanseaticsoft.com

Maritime software company Hanseaticsoft has launched a mobile app to assist shipping companies in managing their purchasing processes.

The Purchase Mobile app provides real-time insights into budgets and operating expenses, and allows the user to grant approvals for requisitions and orders on the move.

“Our new purchasing app gives executives the ability to approve orders on the move, meaning colleagues can continue working, resulting in better transparency, visibility and streamlined workflows,” said Alexander Buchmann, managing director of Hanseaticsoft.

“The app is a valuable addition to our purchasing module, ensuring users have access to relevant information within seconds. For busy purchasing executives this means they can make faster business decisions and collaborate with colleagues wherever they are, which is a huge benefit for companies.”

The app is available for iOS and Android and is free for clients using Hanseaticsoft’s Cloud Fleet Manager.

IMO eyes arrival of ‘digital disruption’ in shipping

www.imo.org

Examination of emerging technologies, autonomous vessels and cyber security must form an integral part of IMO’s strategic approach to the next five years, said secretary-general Kitack Lim in his opening address at the IMO’s 30th Assembly session as he outlined the key elements of the new ‘Strategic Plan for the Organization’ for the 2018 to 2023 period.

Mr Lim described his ambition to transform IMO into a “knowledge based Organization” that will embrace data and analysis in its work and decision-making processes. He called for more detailed and deeper analysis of statistics and data to better understand the underlying trends and causal factors behind shipping casualties, and for additions and amendments to the regulatory framework to be based, wherever possible, on relevant statistics, studies and analysis.

“The seven strategic directions (in the new plan) point us now towards more effective rule-making and implementation processes by integrating new and advancing technology to respond to our challenges – among others, to increase ship safety, including addressing new emerging technologies such as autonomous vessels, our contribution to combat climate change, engagement in ocean governance, mitigation of cyber-crimes, and facilitation of international trade, whilst continuing to take consideration on the human element factor,” he said.

The rapidly increasing pace of change in the modern world outside shipping would also have a likely impact on IMO’s own way of working, Mr Lim added, since technology will continue to move far quicker than the regulatory process in the future.

“Digital disruption will arrive in the shipping world very soon, and when it does, IMO must be ready,” he said.

“For me, this means the regulatory framework for shipping must be based firmly around goals and functions rather than prescriptive solutions. This is the only way to ensure that measures adopted by IMO are not rendered obsolete by the time-lag between adoption and entry-into-force. I know we have already made good steps in that direction but we must go further and faster in the coming years.”

“We are in the era of digitalisation and at the United Nations level we are already looking at frontier issues that include emerging technologies such as artificial intelligence, and the benefits they could have in society as a whole, and to remain relevant,” IMO has also recently completed the official launch of a global maritime technology centre network, consisting of five Maritime Technology Cooperation Centres (MTCCs) across the world, with the aim of promoting sharing of energy-efficiency technologies and operations, and the reduction of harmful emissions.

The network of MTCCs – in Africa, Asia, the Caribbean, Latin America and the Pacific – will be run by IMO and funded by the European Union.

The MTCCs will conduct collaboration and outreach activities at the regional level, helping countries to develop national maritime energy-efficiency policies and measures, promoting the uptake of low-carbon technologies and operations in maritime transport and establishing voluntary pilot data-collection and reporting systems.

“The GMN project brings together two of the most important themes that IMO and its member states are pursuing as we move into a new era. These are developing new and innovative technology and building the necessary capacity, the latter especially directed to the developing world, to be in a position to take up that technology and then use it to its best advantage,” said Mr Lim.

“Today, we live in a world in which new technology seems poised to have a transforming impact on all our lives. Shipping is no exception. Technology holds the key to a safer and more sustainable future for shipping.”

Wärtsilä launches Smart Marine Ecosystem strategy

www.wartsila.com

Wärtsilä has launched a new Smart Marine Ecosystem strategy, which will focus the company’s efforts on four forces it expects to “re-shape the industry” – shared capacity, Big Data analytics, intelligent vessels, and smart ports.

“The world is moving towards a future that is more and more connected, and nowhere is this more apparent than in the shipping sector. The opportunities offered through smart technologies, a new era of collaboration and knowledge sharing with customers, suppliers and partners,” said Roger Holm, president, Wärtsilä Marine Solutions.

Wärtsilä’s ecosystem strategy is focused on eliminating ‘waste’, or inefficiency, in areas like overcapacity, inadequate port-to-port fuel optimisation, and time wasted waiting when entering ports and other high traffic areas.

In that regard, the company will focus on how shared capacity can improve fill rates and reduce unit costs; how Big Data analytics can help to optimise both operational and energy management; how intelligent vessels can enable automated and optimised processes; and how smart ports can drive faster port operations.

“Servicing our customers means supporting them throughout the lifecycle of their installations. This means that we are looking at the smartest way of operating and maintaining assets, as well as optimising performance in order to have the safest, and most environmentally sound and efficient operating profiles,” said Pierpaolo Barbone, president, Wärtsilä Services.

“In the future, we shall be looking more holistically at customer business operations. Instead of optimising a single vessel, we may be optimising a fleet, or even the customer’s business. In the long term, vessel-as-a-service becomes the ultimate means of providing asset and lifecycle management services.”

Wärtsilä has already opened a Digital Acceleration Centre (DAC), located in Helsinki, which is working on intelligent vessels and other new technologies. This will be joined by further DACs in Singapore, Central Europe and North America by the end of 2018.

Trelleborg in China MOU

www.trelleborg.com

Trelleborg has signed a memorandum of understanding (MoU) with Third Harbor Consultants Company (THCC), a subsidiary of the state-owned China Communications Construction Company (CCCC), which will see the firms work together closely with THCC and learning more from them about where our product development should focus in order to best meet the needs of China’s world class ports as they continue to evolve.”

AutoMoor forms part of Trelleborg’s SmartPort portfolio, a technology platform that connects port operations and aims to provide a standardised way to collect and store data, allowing users to analyse asset performance.
A new series of four ‘smart’ shuttle tanker concept vessels being developed by Teekay are set to be fitted with Vessel Performance Management software from Wärtsilä subsidiary Eniram, alongside a range of other energy and emissions management systems and machinery, as part of a €110 million deal for Wärtsilä.

The four ‘next generation’ vessels will be built by Samsung Heavy Industries (SHI) in South Korea after orders were placed in December 2017 and January 2018.

The Eniram system will provide a data collection platform which will be used to drive optimisation of the vessel’s operations, while also providing the owners with analytics and reporting tools.

Using these technologies in conjunction with a range of other efficient machinery and energy systems being installed on the ships it is estimated that Teekay will be able to reduce annual emissions of CO2 by more than 40 percent, compared to conventional shuttle tankers.

The vessels will operate on Liquefied Natural Gas (LNG) as the primary fuel, with dual-fuel engines capable of running on a mixture of LNG and recovered Volatile Organic Compounds (VOC) – the gas evaporating from the oil cargo tanks during loading.

By utilising the recovered VOC as fuel rather than venting it to the atmosphere, harmful emissions will be eliminated and the ships’ bunker needs will be significantly reduced, while Nitrogen Oxide (NOx) emissions from the engines’ exhaust will be reduced by more than 80 percent and Sulphur Oxide (SOx) emissions will be almost entirely eliminated.

In total, the new concept ships aim to reduce particulate emissions by more than 95 percent, creating significant environmental benefits while also being economically advantageous for Teekay through the reduction of fuel costs.

“The industry has been living in a dark age,” said Angus Frew, secretary general and CEO at BIMCO. “The industry is being lived in a world of hardware. But software has been integrated into most physical equipment on the vessels, and the systems and procedures to manage the software has not kept up with technical developments, and it creates problems.”

BIMCO says it has seen multiple incidents demonstrating the potential consequences of digital incompatibility, where ships have, for example, suffered complete blackouts and malfunctions in radar and other related systems as a result of unforeseen difficulties with a software update.

The goal of the organisations’ Standard on Software Maintenance of Shipboard Equipment is to make sure software updates happen in a secure and systematic way, to increase the visibility of the software installed on board, ensure the effective planning of maintenance and promote effective communication between the different parties involved in maintaining the software.

The standard requires the user to have a complete list of the software versions that are currently running on the ship’s equipment, and ensures that all equipment can display the current software version. It also requires that ships can do a complete roll-back to a previous software version if an update goes wrong.

The proposed standard also contains an identification of the various roles involved in maintaining software (producer, system integrator, data provider, service and shipowner), a procedural flow for maintenance and an outline of the requirements and responsibilities of the five roles.

The industry standard was created over a four-year period in collaboration with several industry stakeholders, such as BP Shipping, Maersk Line and Emarat Marine.

BIMCO and CIRM say that they would like to see the standard be adopted by ISO, to make it more robust, with ISO having already provisionally accepted the proposal. BIMCO expects a work group to complete the standard in 2021.

“It is our hope that BIMCO members will use suppliers who use this standard, and that the shipowners will adhere to it as well, for example by ensuring that there is an updated software log on board,” said Mr Frew.

The document outlining the standard is available on both the BIMCO and CIRM websites.

BIMCO and CIRM propose maritime software standard

WEATHERNEWS and MITSUI LAUNCH CARGO MATCHING PLATFORM

Japan-headquartered Weathernews and Mitsu & Co. have announced that they have formed a joint venture called maruFreight, which aims to provide a platform for maritime companies to match cargo with the best available shipping options.

The launch of commercial services is expected to start in July 2018, combining the weather and maritime data analysis provided by Weathernews with Mitsui’s logistics and networking expertise to create a system to efficiently match cargoes with vessels in the tramp market.

The partners believe that the utilisation of IoT and Big Data technologies in international maritime logistics could drastically improve efficiency by streamlining current processes, with this product aiming to drive some of these improvements for cargo owners by assisting them in optimising their supply chain management.

“In recent years, a number of companies have been created to utilise ICT to match supply and demand for diverse means of transportation,” the companies said, in a statement.

“Until now, it has taken a lot of time and effort to make arrangements between shippers and carrier companies, a time-consuming operation which has cost the maritime industry a lot of money,” the partners said.

“Together with Teekay, we have developed a concept that takes the shuttle tanker sector into a new era, and which is further evidence of Wärtsilä’s ability to transform shipping by developing and utilising the very latest technologies,” said Roger Holm, president, Wärtsila Marine Solutions.

“These ships will have tremendous operational flexibility with unmatched manoeuvring capability, and will achieve what all operators are striving for today, namely optimal economic and environmental performance.”

EURONAV TO IMPLEMENT SERTICA ACROSS TANKER FLEET

Tanker company EURONAV has agreed a deal to implement the SERTICA fleet management software package by Logimatic on board its fleet of 52 vessels to improve vessel management and streamline maintenance procedures.

“We chose SERTICA because of the capabilities of the system, but also because we trust the people behind the system,” said Rudi Vander Eyken, group IT manager at EURONAV.

“The software developers will play an important role in our future partnership and plans for future innovation. The project managers, I am sure, will complete the project in time and to our satisfaction. We just felt that the Logimatic team was the perfect match for our plans and ambitions.”

Hans Christian Jensen, sales manager at Logimatic, also stressed the partnership element of the new agreement, and looked forward to continued collaboration between the companies beyond the initial software roll-out.

“It is always a pleasure dealing with a shipping company that is well aware of their needs and requirements. EURONAV did not just want a modern fleet management solution, they wanted a solution for the future – a solution with horizon and perspective,” he said.

“SERTICA is the fleet management solution of tomorrow, and EURONAV is going to play an important, integrated part in moving forward. EURONAV has the right state of mindset; they are innovative and progressive. It’s going to be a perfect partnership. The SERTICA team will, as always, be on their toes to meet the expectations of EURONAV.”

Logimatic has recently expanded its range of services with the launch of a new mobile and Cloud-based maintenance program called INEXTIA, which will be positioned alongside its existing SERTICA package.

INEXTIA includes management of documents, maintenance jobs, stock, spare parts and history, with an additional ‘Job App’ for ease of access.

“We have customers in all types of industries and businesses that already use the sister product SERTICA to structure maintenance, track costs and much more,” said Mr Jensen.

“Of course, this is also possible with INEXTIA, and the additional feature is that you can get started much faster without any installation problems. You always have access to INEXTIA, whether you are working from a stationary computer, tablet, PC or a smartphone, which is really clever.”

“As something new, you can buy INEX- TIA on a subscription basis, providing even more flexibility. I am sure many companies will also see that as an advantage.”

Weathernews and Mitsu launch cargo matching platform
SOFTWARE, BIG DATA & IOT

WinGD standardises digital data with Shipdex

WinGD.com

Marine engine designer Wintertthur Gas & Diesel (WinGD) has announced its intention to begin supplying technical documentation in accordance with Shipdex standards, a set of specifications for digital data exchange adapted for the maritime sector from the S1000D specification applied in the aerospace and defense industry.

Shipdex is used to standardise the electronic dissemination of technical data to equipment manufacturers, shipyards and ship owners. WinGD has now committed to making all its technical documentation available to shipbuilders and operators in this digital format.

The primary scope of Shipdex is to allow manufacturers and users to create a technical documentation repository where all related data is collected and managed with defined quality, configuration and version control processes.

In addition, the protocol allows the digital data to be automatically imported into Computerised Maintenance Management Systems (CMMS) and Enterprise Resource Planning (ERP) software at shipyards and on board vessels, rather than requiring manual input of the data from paper documents.

“With important data, such as our Operation Manuals, Maintenance Manuals and Spare Parts Catalogue converted into Interactive Electronic Technical Publications (IETP), we can compile, structure and deliver the data to shipbuilders and engine end-users much more rapidly and effectively,” said Rudolf Holtebeck, director operations at WinGD.

“Our recently launched X52 diesel engine is our first new engine project in which we employed Shipdex standards for all technical documentation. We will now continue to apply the philosophy to all new engines and convert existing documentation for our complete engine portfolio with an overall target of having the complete portfolio accessible by mid-2022.”

Shipdex allows us to realise digitisation as an industry trend and ensures that all possibilities are considered and all synergies realised. The fact that almost all modern ship management programmes are compatible with Shipdex means that this format will have a very positive impact.”

RINA increases digital focus

RINA.org

Italian class society RINA has announced its intention to shift to a more digitally-focused strategy, and launched a new cloud-based platform called ‘Cube’ to assist clients in data-driven process optimisation and predictive asset management.

CUBE is a data integration platform created by a team of 50 people within RINA that can interact with most common technologies, RINA says, to help organisations gain value from their existing data by converting it into useful actionable information. The system would also allow for the integration of different parties with a single system to provide common access to data sets.

As an example, the class society says that Cube could be integrated into the management of the logistics chain as a whole, allowing data to be securely accessed by different authorised users at various stages to help to optimise the entire process.

“The volume of available data is growing exponentially. It is forecast that, by 2020, 75 per cent of companies will be fully digitalised, but only those companies able to process this data intelligently will remain competitive. RINA now has the capability to bring technical, process, and business skills together within a digital environment,” said Ugo Salerno, chairman and CEO of RINA.

Other digital projects RINA will focus on include the development of new virtual immersive environment training programmes, vessel ‘digital twin’ technologies, and a fully digitalised certification system that uses an automated online process to issue certificates.

One of the first applications of this new digital certificates approach relates to cyber security, with a ‘Cyber Essentials’ certification scheme that will be launched to certify the degree of protection a company has against potential attacks.

Jotun goes digital on paint management

Jotun.com

Jotun has begun using DNV GL’s Veracity platform to combine external and proprietary data sources in optimising the delivery of its maritime coatings at port, using an Estimated Time of Arrival (ETA) system to ensure it has the right amount of product to ensure.

“Veracity is making paint digital. Jotun have recognised that even products that require a physical loading only have a digital footprint,” said Inge André Sandvik, chief digital officer at Jotun Group and its subsidiary NSG Digital,”

“(This) is one of several collaborative projects in our group, and digitalisation is shaping our future within the maritime industry.”

Managing director of NSG Digital, Henrik Heggland, also noted that his company has identified strong synergies between Kongsberg Digital and NSG Digital from the outset of the collaboration process, and said that their combined efforts would now be multiplied following this latest deal.

Kongsberg Digital buys NSG Digital stake

Kongsberg.com

Kongsberg Digital is set to purchase a 34 per cent ownership share in NSG Digital, a subsidiary of the Wilhelmsen-owned supply base and logistics company NorSea Group, when Kongsberg Digital will partner in efforts to digitalise the supply chain in the oil and gas and offshore wind industries. Kongsberg Digital and NSG Digital have collaborated since the beginning of 2017 on developing a new logistics system called S1000D-2. The system is a part of the Kongsberg application platform, Kognifai, and is used to facilitate information sharing and collaboration in the supply chain.

“We are very excited by the investment in software development made by NorSea Group and its subsidiary NSG Digital,” said Inge André Sandvik, chief digital officer at Wilhelmsen.

ShipServ adds new procurement data analysis tools

ShipServ.com

ShipServ has launched ‘Supplier Performance Report’, an addition to its monitoring and analytics tools that provides users with data on the procurement performance of every supplier that they transact with, enabling them to analyse trends and identify where improvements can be made.

The system provides data on every supplier that a shipowner or manager has traded with through ShipServ over a specific period, from 12 weeks to three years.

This includes transaction totals, quote and win rates, response times, price and time sensitivity analysis, most commonly bought items and spend history, as well as the quality level, and payment terms that have been quoted.

The system also displays two benchmark marks: an individual supplier against the average of all suppliers trading with the user, and also against an average of all suppliers trading on ShipServ. All relevant data is compiled into an online report, which is updated daily.

“The Supplier Performance Report provides shippers and managers with real knowledge and intelligence on key dimensions of the relationship with their suppliers so they can have more informed discussions and further develop and enhance their working relationship,” said Kim Skarup, chief executive officer, ShipServ.

“It’s the latest step in our ongoing mission of providing insights to maximise the positive collaboration and information exchanged between buyers and suppliers.

We are investing heavily in new reporting tools for buyers. Our sweet spot is in spending analysis and benchmarking and in the near future you will see us launching new analysis and insight tools specifically aimed at C-level executives and procurement directors.”

In addition to the Supplier Performance Report, ShipServ has also launched an IMPA Spend Tracker and Price Benchmark tool that offers an online view of all the IMPA coded products that the user has purchased, showing the quantity, average unit price, and total spend.

Benchmark unit price figures for products are available, which is the average unit price from all the buyers using ShipServ. Procurement managers can then compare the benchmark price of a product against the actual price that they have paid, and calculate the total potential overpay or underspend, filtered on a vessel-by-vessel or regional basis.
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INTTRA expands Cloud-based services

INTTRA has added two new Cloud-based products to its digital transactions platform, adding a new Container Forecasting and Allocation Solution Tool (C-FAST) for freight forwards and NVOCCs, as well as launching an improved version of its Ocean Schedules system.

C-FAST is used for forecasting and allocating future customer shipments, providing automated allocation options to assist in contract management and offering improved matching capabilities by performing the allocation of customer forecasting and carrier-availability commitments.

The system considers quantity commitments, contract type, and carrier-space contractual obligations by port to optimise selections, and provides a dashboard review of planned-to-actual bookings.

“The ocean shipping industry is becoming increasingly interconnected, driving towards full digitisation, with technology enabling businesses to improve operationally and financially,” said John Fay, CEO of INTTRA.

SM Line to roll out IoT container monitoring system

www.intelliantech.com

Korean container shipping company SM Line has agreed a deal with Intellian to deploy Intellian V100 maritime VSAT antenna equipment on board its ships, to be used for data and communications services while also powering a new IoT (Internet of Things) freight monitoring system being rolled out across the fleet.

SM Line is implementing the freight monitoring technology to improve service quality along its key Asia-US shipping route, becoming the first Korean container shipping company to monitor and track the condition of items in a container in real time.

“Through our partnership with Intellian, we’ve gained a comprehensive and connected smart solution that’s tailored to our needs, and is already delivering valuable benefits throughout our supply chain,” said SM Line, in a statement.

“As a reliable, proven system with full certification in many of SM Line’s biggest markets, we knew that we could count on Intellian’s V100 to facilitate access to the data we need to deliver an exceptional service based upon detailed and comprehensive intelligence:”

Intellian’s V100 can operate in both Ku and Ka-bands. More than 5,000 units are now in operation in the maritime market, the company says.

“Extending across the entire logistics value chain, the IoT is bringing enormous benefits to logistics operators and their end users,” said Eric Sung, CEO, Intellian.

“By proactively working with Intellian to build smart system platforms that can host digital ecosystems, SM Line is taking insight and turning it into actionable intelligence for the owners of their ships’ cargoes.”

Darwin inspires evolution of new ship design system

www.napa.fi

NAPA and C-Job Naval Architects have introduced a new Accelerated Concept Design system to automate the concept stage of the ship design process, using genetic algorithms that apply a Darwinian approach to automatically generate successive generations of ship designs, with each new one inheriting the most successful characteristics of its predecessors.

NAPA notes that this methodology has been successfully deployed in other industries and applications. The NASA using genetic algorithms to create optimal designs for components such as antennae.

The Maritime and Port Authority of Singapore (MPA) has expanded its range of digital services for ships visiting the port, as the organisation reaffirmed its commitment to keeping Singapore at the forefront of technological innovation in the maritime sector.

Among the new initiatives announced is the expansion of the number of organisations permitted to issue electronic certificates (E-Certs) to Singapore-registered ships.

MPA had previously only authorised Recognised Organisations (ROs) to issue E-Certs to applicable vessels, but says that from the beginning of 2018 it will also issue E-certificate itself directly to Singapore-registered ships to reduce the need for hard copies, allowing for instantaneous and simultaneous transmissions of documents and reducing the risk of fraud.

Before E-Certs, MPA notes that hard copies of over two dozen certificates, including the Certificate of Registry, Safe Manning Certificate and Lloyd’s Line Certificates, had to be kept on board to provide proof that the vessel is compliant with the various applicable regulations or conventions.

In addition, MPA has also expanded its Maritime e-commerce system to include two new online applications for ship registration and appointment of manager forms, as well as applications for various documents issued by the Singapore Registry of Ships (SRS).

Another initiative to be pursued by the MPA will cover the introduction of drone technologies for use in ship surveys.

MPA says it is currently developing acceptance criteria for the usage of such remote inspection techniques on board Singapore-registered ships, with the acceptance criteria expected to be completed during the first quarter of 2018.

“IOT, digitalisation and new technologies such as blockchain and smart drones are changing the way we work,” said Andrew Tan, CEO of the MPA.

“To stay ahead, the Singapore Registry of Ships needs to embrace these technologies to offer value-added services to its customers. As a responsible flag administration, we will continue to find new ways to promote clean, efficient and sustainable shipping.”

Artificial Intelligence applied to vessel power systems

www.ecomarinepower.com

Eco Marine Power, a Japan based provider of renewable energy systems, has announced that it is to begin incorporating Artificial Intelligence (AI) into a range of its ship related technology projects, specifically using the Neural Network Console provided by Sony Network Communications.

The Neural Network Console is an integrated development environment that uses ‘deep learning’ for AI creation. The technology has been used by Sony since 2015, with capabilities such as recognition technology and a GUI (graphical user interface) to support the development of deep learning AI programs.

‘Deep learning’ refers to a form of machine learning that uses neural networks modelled after the human brain, which Eco Marine Power (EMP) says will offer it high versatility in application development across a wide variety of fields, including signal processing and robotics.

An initial area of focus for the company will be on studying how the Neural Network Console and AI can assist with the development of an automated control system for its EnergySail technology, a series of rigid sails used to capture wind and solar power onboard ships.

AI could help in allowing the position of the EnergySail to be adjusted automatically, depending on variables such as wind speed and direction.

EMP says that it also expects to utilise the AI technology in analysing the results of computer simulations related to its Aquarius Eco Ship, a vessel design concept incorporating renewable energy technologies.

“All of our solutions include a level of automation, however we see opportunities to expand on this by using artificial intelligence and deep learning to improve control algorithms, analyse results and develop future systems,” said Greg Atkinson, chief technology officer at Eco Marine Power.

“In addition we intend to explore how recognition technology and sensors can be integrated together to control not only our systems, but other systems and equipment on ships especially in regards to the use of renewable energy on ships.”

Bunker safety training CBT launched by Videotel

www.kvh.com

Kvh Videotel has launched an LNG bunkering training course to promote safe bunkering processes, based on guidelines from the Society for Gas as a Marine Fuel (SGMF) and developed in response to the increasing use of LNG as a bunker fuel by operators looking to meet the low sulphur targets required by MARPOL Annex VI.

The ‘LNG Bunkering – Respond Level Training Course’ covers composition and properties of LNG, and potentials and risks for ship operators, machine learning, data recognition technology and sensors can be integrated together to control not only our systems, but other systems and equipment on ships especially in regards to the use of renewable energy on ships.”

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Digital Ship February / March 2018 page 20
ABS updates fleet management software package

ABS reports that it has issued a new release of its Nautical Systems (NS) Enterprise fleet management software, now including a new business intelligence module called NS Insight and a Cloud-based NS Voyage Manager.

The updated software also offers access via mobile applications for iOS and Android devices, as well as an expanded NS Autologger and an improved NS Health, Safety, Quality, Environmental (HSQE) Manager.

“Effectively managing compliance is a core business objective for our clients,” said ABS chief digital officer, Howard Fireman. “This release offers the industry’s most comprehensive compliance solution, which includes EU MRV and USCG requirements.”

The classification society says it has added NS Insight to help shipping companies extract the value hidden in their existing data, using analytics to provide visibility into safety, operational and financial trends. The software can be used to create KPIs, generate quarterly management reports and complete root cause analyses.

“We continue to innovate with mobile and Cloud-based solutions to give clients greater access to timely information,” said ABS Nautical Systems vice president, Stephen Schwarz.

“NS Insight lets our clients leverage data captured for compliance reasons, to gain operational insights and improve performance. Mobile applications facilitate daily onboard vessel operations, and ensure accurate data capture for compliance reasons, to generate quarterly management reports into safety, operational and financial trends.”

Stephen Schwarz

Inmarsat opens application development centre in Norway

Inmarsat has opened a new facility in Ålesund, Norway, at the Norwegian Maritime Competence Centre (NMCC), to ramp up its work with third party technology companies on development of applications to connect with Fleet Xpress through its Certified Applications Provider (CAP) programme.

“Inmarsat opens a new chapter for the CAP programme and Inmarsat’s strategy to work with third parties on content-rich applications to populate the digital maritime world enabled by Fleet Xpress,” said Ronald Spithout, president of Inmarsat Maritime.

“We welcome all partners, whether their motivation is to develop greater operational efficiency, improve crew welfare, IT and security, or regulatory compliance.”

“In addition to creating new revenue streams for partners, application-triggered bandwidth allows users to choose to dedicate connectivity to specific efficiency measures or for the application to trigger bandwidth ‘dynamically’ and transparently.”

Ronald Spithout,
President,
Inmarsat Maritime
The Association of Maritime Managers in Information Technology and Communications (AMMITEC) has published a set of guidelines for shipping software developers and vendors, which it hopes can be applied to improving the usability and reliability of shipboard applications. Here, the Association outlines its advice on how to build quality maritime software systems.

The guidelines developed by AMMITEC are based on ISO Software Quality Standards (ISO/IEC 25051:2014) and address quality with regards to ‘Ready to Use Software Products’, covering most types of onboard software.

The guidelines have been summarised below into 15 specific items that we at AMMITEC would like to request from software vendors when it comes to developing and supporting maritime applications.

1. Users’ Forum: We request the immediate implementation of a Forum on the software developer’s official site as a community support tool.

The Forum should be accessible to all Registered Users and allow for dialogue between those users. It should also allow the upload of screenshots and videos, accompanied by suggestions for improvements or solutions to documented problems.

2. Functionality and Accuracy: Functionality, and accuracy in the software conforming with the actual requirements and specifications described, is very important.

If or when the software is tested against the specifications given by the vendor, it should be found to conform completely with all of those specifications. In cases where there are non-conformities the vendor shall be required to comply fully with the specifications.

3. Help: Help should be made available to users in a variety of ways, but should especially include online help (for fast access) that also allows access to the user manual.

The help sections provided should additionally be context sensitive, and able to provide precise help on the topic the user is currently engaged in. Help sections should be User Editable, allowing the user to add personal notes, and should contain FAQs, pictures, diagrams and video support.

A Tutorial, a CBT (computer based training) module, or a Demo should also be available for each application. This is particularly necessary for vessel applications.

Good support is another essential element for a good user experience. Effective support should have some key characteristics, including continuous improvement of the user interface and documentation, based on customer feedback, and a continuously improved published FAQs list.

Customers should be encouraged to look at all of the documentation available – Help, FAQs, Forum etc – before calling for support.

4. Usability and Accessibility: Usability is the degree to which software can be used by specified users to achieve quantified objectives effectively, efficiently, and satisfactorily within their context of use.

User interfaces are the only visible parts of software from the viewpoint of the user, so simplicity, the ability to take less time to complete a job, and ease of learning are very important. In short, principles like ‘Don’t Make me Think’ and ‘Don’t Make me Click’ should be the guiding principles of the user interface.

5. Effective error/bug handling: When a program encounters an error, it should make the error known to the user in Plain English. No jargon is allowed. The program should also provide the user with a Screen Capture utility which can include the user’s description of the problem, which then notifies both the developer and the shore office.

Recovery from errors is an extremely important characteristic of software (especially vessel software). We need to guide users in how to quickly recover from errors without the need for human intervention.

6. Proper Documentation/ Manuals: Typically, user documentation describes each feature of the program and assists the user in accessing these features. But a good user manual should go further, and provide thorough troubleshooting assistance.

It is very important for user manuals not to be confusing, and to be kept up to date. User documents need not be organised in any particular way, but it is very important for them to have a thorough and detailed index. Consistency and simplicity are also very valuable.

User documentation should be considered as constituting a contract specifying what the software will do. However, there are two broad ways in which user documentation can be organised. One is a tutorial approach. Considered most useful for a new user, this approach

How to build software – by shipping IT managers
Guides the user through each step required to accomplish particular tasks. This is an absolute necessity for vessel applications.

The other approach is Task Oriented, with the manual explaining how a certain Task is accomplished. This should be laid out in the format “If you want to achieve ‘THIS’ then ‘DO THAT.’”

An Index of Tasks is also necessary, and is especially important if the Task involves a large sequence of clicks and is not part of a menu. Tasks are usually explained during training, but few users can adequately memorise them at that stage.

7. Performance and Efficiency: Performance is mostly related to the response time of the software. This response time should be within acceptable user limits (perhaps a few seconds), and should not increase if the transaction load increases. Efficiency must facilitate resource utilisation, with an optimal resource/performance ratio the main aim.

8. Scalability and reliability: A scalable system responds to user actions in an acceptable amount of time, even when the load increases (e.g. number of users, amount of data, etc). Reliability is a measure of the integrity and consistency of the software even under high load conditions. The vendor should provide proof of these capabilities when an application is being reviewed.

9. Flexibility and Extensibility: Flexibility is the ability of the software to allow various types of functionality to be added/modified/removed without damaging the current system. Extensibility is the ability to add functionality to the software without damaging the system, so it may be thought of as a subset of flexibility. The vendor should provide proof of these capabilities when an application is being reviewed.

10. Customisation and configuration: Configuration is the normal set-up of the software, such as choosing parameters/user preferences, laying out and naming fields, and establishing workflows. They are user defined, and since they do not require changes to the source code they should exist as a feature of the program. Customisation, on the other hand, requires changes to the source code and usually implies deviations from the official specification in order to meet additional/follow requirements specific to a company.

The problem with this process is that customisations are often performed under heavy pressure and with short time limits, which can badly affect the quality of the code and lead to problems with configuration. Vendors should try to reduce potential customisation requirements by expanding built-in flexible configuration options.

11. Simple and Inclusive Installation: Installation on a vessel should be a straightforward task if parties are well prepared and organised. It should be possible to be carried out by a crew member in most cases, and the installation package should include everything necessary to implement the program (for example, no external libraries or DLLs should be required).

12. Version control and Update Processes: Users should be updated as soon as a new software version is released. A description of all the changes should be supplied and existing manuals should also be updated with changes as soon as possible. A detailed Log of changes should be kept both by the developer and the IT manager. All upgrades should be first implemented in a test environment, and migrated once accepted to the ‘live’ environment.

13. Security and Data Privacy by design: Data stored locally on a vessel’s PCs or servers, along with data exchanged via e-mail or other non-encrypted transmission methods between the vessel and office, should itself be encrypted. Direct access to the database should only be allowed based on the security rules in place at each company.

Data exchanged via a VPN channel is considered a secure method, for the moment. The software should also meet password complexity best practices, with frequent changes etc.

14. Communications between Vendor and Client: Clear-cut instructions should be given by the software vendor describing the methods of communications to be used whenever any support is needed (i.e. points of contacts for all modules from both the client and the vendor).

Set procedures should be followed by both parties to maintain control and the ability to monitor performance, to prevent users from just contacting whoever they believe is appropriate. The vendor should also comply with the client’s communications policies (e.g. clarifying who is permitted to submit tickets, using the client’s own language for communication language etc.).

15. Service Level Agreements (SLAs): SLAs should be made clear at the outset, and penalties should be stated to be enforced when commitments are not met. Pricing and support agreement policies should also be made very clear in relevant contracts. Special attention should be given to how pricing schemes will be applied during system updates and version upgrades.

Soncini leaves SpecTec for RINA innovation role

After close to 30 years working with maritime software provider SpecTec, former CEO Giampiero Soncini has left the firm’s parent company Volaris Group to take up a new position with Italian classification society RINA (Registro Italiano Navale).

The new role will see Mr Soncini act as the society’s ‘marine innovation advisor’, working on the advancement of new technologies in areas like unmanned ships, blockchain, cyber security, remote monitoring and control, and electronic documentation.

“There is no doubt today that, through the digitalisation revolution, shipping is going through an incredible transformation period. Shipping is a highly competitive environment and, with lower profits, to remain competitive there are few solutions – economies of scales, strict cost control, total efficiency,” Mr Soncini told Digital Ship.

“As shipping companies grow, they will need to be extremely controlled and controllable in all they do. And they will have to push efficiency to the extreme, given the actual margins. Moreover, given the remote nature of its assets, shipping has always relied on trust to be sure that all ships were managed the right way. But in today’s world, this trust must be controlled, as the world has become unforgiving, whether it comes to hackers, pillage or mistakes.”

“The leaders (in innovation in this area) today are Rolls-Royce, Kongsberg, DNV GL, and a few others. RINA’s aim is to be within the top five, and to be a reputed and trusted advisor to all its customers on all matters regarding innovation and IT.”

The issue of unmanned ship development in particular is one that Mr Soncini says he is keen to focus on, something he believes will inevitably result as from the natural evolution of technology in the industry.

“I stated in many conferences that I thought it was absurd to have a ship with 20 people on board, and a cook, a galley, with all the attached problems of fridges, garbage, fire hazards and costs. The elimination of the galley will be the first step towards ships with five crew, (and this will continue until we) allow crewless vessels. These ones will come much later than the first ones,” he said.

“But, today, wants to be at sea for months and months. It is getting more and more difficult and expensive to get prepared crews. But the main reason will be that automated ships put all players at the same playing level. The economic advantage will come from better managed ships, and not from differences in crew wages.”

Mr Soncini is also keen to note that his departure from his previous role at SpecTec’s parent company Volaris Group has been amicable. He moved from his position as SpecTec CEO to become director of Volaris’ marine division after its acquisition of SpecTec in 2016, and was put in charge of further group acquisitions in the industry, such as the purchase of ShipNet in 2017.

“There are reasons, of course, for me deciding that it was time to move on and out. And it was not easy – I loved SpecTec, and ShipNet, which was acquired by Volaris in March last year. And I had an excellent relationship with Volaris, which is a great company with impressive eco-

Giampiero Soncini, the new innovation tsar at RINA
Planned maintenance of shipboard systems and machinery is a key element of efficient operations in the maritime industry, with excellence in reliability the ultimate goal when implementing related applications and processes during vessel operations.

Improvement is possible only on those elements which are measurable however, so the first step on the road to excellence in reliability is to calculate maintenance key performance indicators (KPIs) that can help to achieve these goals.

Knowledge of actual performance on a continuous basis in a number of areas, and can indicate if the organisation is operating within or outside what would be seen as ‘acceptable’ levels by providing insights into how maintenance processes are being carried out and how assets are being maintained. Tracking maintenance KPIs will also help to benchmark the organisation against others in the industry.

Each vessel will have its own specific set of KPIs that can help in making informed decisions impacting crew safety, productivity, vessel efficiency, and budget planning and forecasting, but there are some key KPIs that every organisation needs to monitor in order to have control of their operations, which we will examine in this article.

These include:
- Mean Time to Repair (MTTR)
- Mean Time Between Failures (MTBF)
- Overall Equipment Efficiency
- Planned Maintenance Compliance

**Mean Time to Repair**

Mean time to repair (MTTR) is the time it takes to run a repair after the occurrence of a failure, i.e. the average time required for troubleshooting and repairing of equipment that has suffered a failure and returning it back to normal operating conditions. MTTR reflects how well an organisation can respond to a problem and repair it.

During the lifetime of an asset the consequences of each failure will vary depending on the severity of the issue. Some may require just a simple change of parts, while others could require more time to diagnose and repair.

Maintenance time is generally defined as the time the equipment is out of production, i.e. the time between the start of the incident and the system returning to operation. This may include elements like the time required to receive notification of the problem / issue, time to diagnose, time to fix the problem, waiting or cooling time, alignment time, reassembly time, calibration and testing time, time to return to production, and so on. It should be noted that MTTR does not generally take into account any lead-time for spare parts.

MTTR is calculated by dividing the total maintenance time by the total number of maintenance repairs carried out over a period of time, expressed as so:

\[ MTTR = \frac{\text{Total time used for Maintenance Repair}}{\text{Number of Maintenance Repairs}} \]

The maintenance system used should log the start time of the breakdown, so the repair time until the asset returns to operational use can be tracked. Using this data it is then possible to extract MTTR reports to see how this KPI trends over time. To more accurately calculate MTTR, it is advised to break up the downtime further into sub components like technician waiting time, spare parts waiting time, asset under repair, and so on.

MTTR can have a major impact on the organisation’s bottom line, especially when relating to assets which are mission critical. For these assets, taking too long to complete repairs may lead to losses in time available for operations, leading in turn to missed orders or unpleasantries in business relationships. The impact of MTTR can be limited or controlled through better planning of stocks of spare parts on board.

Measuring MTTR trends can particularly create benefits in:
- making informed decisions to prompt either repair or replacement,
- predicting asset unavailability during maintenance,
- optimising maintenance schedules,
- maintaining sufficient levels of spare parts on site,
- predicting asset performance and/or life cycle cost.

**Mean Time Between Failures**

Mean Time Between Failures (MTBF) is the average time an asset or system functions normally between breakdowns. MTBF affects both availability and reliability, and is considered an important indicator of expected performance, especially when it comes to mission critical systems on board ships (such as emergency generators, gas detection, firefighting & lifesaving systems, emergency electrical systems, steering gear, etc).

MTBF is calculated by dividing the sum of the time differences between occasions of downtime and uptime by the total number of maintenance repairs carried out over the period, expressed as so:

\[ MTBF = \frac{\sum (\text{Start of Downtime}) - \text{Start of Uptime}}{\text{Number of Maintenance Repairs}} \]

A maintenance system should log data indicating when the asset has been down for repair (alongside an accurate description of the reason for the failure) and data noting the time that the repair is completed, which will allow for calculation of the MTBF.

Some of the major factors influencing MTBF are human-centric, for example, has the asset been installed in the correct way? Has the asset been designed and built correctly? Have the actions of a technician during a previous repair contributed to the failure?

Care should be taken to ensure that MTBF does not include any repair time or downtime during scheduled maintenance, such as inspections, lubrication, recalibration, or spare part replacement which is a part of a preventative maintenance programme. MTBF should include only the operational time between actual failures.

Maintenance KPIs can particularly help the operator to:
- anticipate how likely a unit is to fail within a certain period of time,
- predict the future performance of the asset,
- estimate more accurate failure times derived from actual field performance rather than manufacturer-provided data based on laboratory testing or analytical modelling.

**Overall Equipment Efficiency**

Overall Equipment Efficiency is a measure of asset availability and performance, and measuring trends in this KPI can help to identify areas for improvement.

In order to calculate Overall Equipment Efficiency, the downtime from all planned shutdowns (such as drydocking) needs to be excluded. Then we combine performance scores and asset availability figures to arrive at our KPI.

An average score of 60 to 80 per cent for Overall Equipment Efficiency is considered as an excellent performance level. For example, if Asset Availability is calculated at 60 per cent, and Performance is calculated at 60 per cent, then Overall Efficiency will be 36 per cent – which would indicate that an increased focus on reducing downtime is required.

Asset Availability can be affected by excessive levels of breakdowns and machine idle time, for example, which could be improved by minimising reactive maintenance and improving planned maintenance scheduling, perhaps by employing a more suitable spare parts strategy, or most importantly making sure that personnel are adequately trained to properly manage planned maintenance on board.

Asset Performance, on the other hand, will be impacted by issues like the asset growing old, poor or inefficient work processes, incorrect material usage, lack of lubrication, or other similar issues. Ensuring correct work procedures are followed, using quality materials (from OEMs specifically), and timely maintenance inspections (overhauls, replacements) will all help to improve the performance of an asset.

**Planned Maintenance Compliance**

Planned Maintenance Compliance means completing scheduled Planned Maintenance jobs on time, as defined in the SMS of the organisation.

Taking precautionary and proactive steps against any unscheduled equipment downtime to avoid failures is the fundamental goal of Planned / Preventive Maintenance scheduling. Timely inspections helps to identify any defects and allows the company to take necessary steps proactively, before these defects evolve into major or severe issues that might lead to a breakdown.

Today, organisations follow a variety of different guidelines in planning this schedule, like TMSA, or the ‘10 per cent rule’ of preventive maintenance. Strictly following these or other rule sets can help to ensure that necessary planned maintenance actions are completed within the scheduled maintenance interval.

Even if organisations try to achieve a 100 per cent level of compliance in planned maintenance, downtime could still be an issue because this compliance does not make allowance for any delays in completing maintenance. Nevertheless, having a planned maintenance system and adhering to it will create advantages in reducing the replacement costs of assets, supporting the efficient usage of resources, and allowing better control of budgets.

In conclusion – a Planned Maintenance System can be hugely beneficial to organisations by assisting them in applying the best possible maintenance and reliability strategies when it comes to maximising value from their assets. It can also allow for the measurement and tracking of maintenance KPIs, which in turn helps to drive a process of continuous improvement and motivates organisations and people to achieve their goals.
**NAVIGATION, AUTONOMY & NEW TECHNOLOGIES**

**Pole Star to Integrate BigOceanData into maritime domain awareness**

Pole Star reports that it has entered into a technology sharing partnership with Globavista Limited, the owner of the BigOceanData (BOD) AIS-based vessel tracking portal, to cooperate on a new Maritime Domain Awareness / Advanced AIS Analytics technology initiative.

Under the terms of the technology supply agreement, Pole Star says it will deploy elements of the BOD AIS portal as part of a broader range of Maritime Domain Awareness (MDA) services.

In addition to collaborating on the development of what is described as an “AIS analytics toolkit”, the cooperation between the companies will extend to the integration of other satellite and terrestrial tracking technologies into the Pole Star MDA system.

The collaboration between Pole Star and Globavista brings together two established firms having well-recognised brands standing for innovation and quality. Our collaboration will benefit our existing and future clients through accelerated product development, innovation, and integration of advanced AIS analytics,” said Julian Longson, managing director of Pole Star.

![BigOceanData technologies will be integrated with Pole Star systems for new Maritime Domain Awareness services](image)

**Digital situational awareness system launched**

ABB has launched a new situational awareness system that can be used by officers anywhere onboard a ship to access multiple real-time visualisations of a vessel’s surroundings.

ABB Ability Marine Pilot Vision incorporates sensor and computer vision technology to create a virtual model of the ship that is superimposed on real surroundings, to view operations from a third person’s perspective. The officer can switch between views as required.

“The launch of ABB Ability Marine Pilot Vision addresses an important step in the ongoing digitalisation of ship operations,” said Juha Koskela, managing director at ABB Marine & Ports.

“This new solution indicates an important landmark in ABB’s digital strategy and offering for our customers. It also demonstrates the aspiration and technology leadership that ABB has to offer for the maritime industry.”

In addition to providing situational awareness support on board existing ships, ABB expects the new system to prove useful in enabling shore side remote services and in allowing for new vessel design options, by providing unrestricted digital views of the surroundings from any location.

“ABB believes that the next generations of vessels will be electric, digital and connected. Our recent fuel cell solution launch and ABB Ability Marine Pilot Vision give substance to this,” said Mr Koskela.

“Ultimately, Vision delivers a completely new user experience in ship operations. It also brings remotely-operated or unmanned ships into clear view. Unmanned ships will be dependent on fault tolerant and reconﬁgurable critical systems. Fuel cells, energy storage and renewable energy solutions ﬁt perfectly with these targets, without compromising energy efficiency.”

**Joint taskforce to explore terminal automation technologies**

Navis, part of Cargotec Corporation, has partnered with Microsoft China, terminal equipment manufacturer ZPMC and infrastructure advisory ﬁrm Moffatt & Nichol to form a joint taskforce on automation systems for container terminals.

Navis says that the group aims to deliver a single, integrated system for future terminal automation projects, as well as developing methods to optimise and automate existing terminal infrastructures and systems.

The exploratory taskforce members will each provide their own expertise to the project, including Navis’ maritime software experience via its N4 terminal system and XVELA Cloud-based collaboration platform, as well as Microsoft China’s work in IoT, Al and Big Data technologies.

“The joint taskforce consisting of members from Navis, ZPMC, Microsoft China and Moffatt Nichol has the potential to further extend Navis’ footprint and involvement in a majority of the world’s automat ed projects, including sites that are just getting started, as well as those like QOCTN on the cutting edge of terminal innovation,” said Mark Welles, VP and general manager, Asia Paciﬁc, Navis.

“While much has been achieved to date, our experience tells us that the collective industry as a whole still faces challenges ahead in order to achieve the full potential offered by automation.”

“We are proud to join the team, standing united with other top leaders in the ﬁeld to provide smart solutions for our customers, and at the same time, reinforce our commitment to PartnerShipping for Performance as a member of the greater ocean supply chain.”

**MOL to test intelligent awareness system**

Mitsui O.S.K. Lines (MOL) has agreed a deal with Rolls-Royce to collaborate in the testing of intelligent awareness systems for ships, starting with installation on board the 165m passenger ferry Sunflower, operated by MOL-Group Ferry Sunflower Limited on a 222-nautical mile route between Kobe and Osaka via the Akashi Kaikyo, Bisam Seto and Kurushima Straits.

Rolls-Royce’s intelligent awareness technologies fuse data from a range of sensors with information from existing ship systems, such as Automatic Identiﬁcation System (AIS) and radar, to provide crews with a more detailed picture of their surroundings. Data from other sources, including global databases, will also have a role, the company said.

“Ferry Sunflower operates in some of the most congested waters in the world and will provide an opportunity to test rigorously Rolls-Royce’s intelligent awareness system,” said Kenta Arai, director at Mitsui O.S.K. Lines.

“We also expect it to provide our crews with a more informed view of a vessel’s surroundings – making it accessible and user friendly way. This can give our crews an enhanced decision support tool, increasing their safety and that of our vessels. This is a signiﬁcant challenge to front-line technology leading to our ultimate goal of autonomous sailing.”

Asbjorn Skaro, Rolls-Royce director of digital & systems – marine, said that the tests would help his company to discover how to most effectively combine sensor technologies, and how these can be best adapted to the needs of the end user.

Rolls-Royce expects to be able to undertake an Approval of Concept and have its intelligent awareness product commercially available before the end of this year.

In related news, MOL has also announced a separate agreement with Furuno to jointly develop a system that supports ship operations through the use of augmented reality (AR) technology.

The project will involve the development of systems to display information relating to other vessels sailing in the vicinity and landmarks like buoys at sea, based on data from the AIS.

Images taken from the bridge can be shown on the tablets providing this information, and can be overlapped with AR to provide visual support to crew members operating the ship and keeping watch during voyages.

MOL says it is also looking at ways to overlap displays of obstacles detected by radar, adding an Obstacle Zone by Target (OZT) algorithm to prevent collisions between vessels, and incorporating image recognition technologies to expand the functionality of the system.
UKHO to increase tidal data update frequency

www.admiralty.co.uk

The United Kingdom Hydrographic Office (UKHO) reports that it is introducing regular tidal data updates to Admiralty TotalTide (ATT) as part of the new version 18 of Admiralty Digital Publications (ADP).

ATT is used to make tidal height and tidal stream predictions, covering more than 7,000 ports and 3,000 tidal streams worldwide. Version 18 will allow the UKHO to send new tidal data to mariners through ATT on a more frequent basis, moving away from the previous annual update cycle.

As part of ADP version 18, certificates will now show ATT’s update status in the same format as Admiralty Digital List of Lights (ADLL) and Admiralty Digital Radio Signals to support compliance.

In addition to this update, the UKHO has also added its Admiralty e-Nautical Publications (AENP) updates on to the ADP weekly update disc, increasing the frequency with which the new AENP data reaches the mariner.

“This major update for ADP, to version 18, brings important added features that will directly benefit the mariner. Whilst tidal data changes slowly, the ability for the UKHO to update tidal data more frequently helps to ensure that the mariner is using the most accurate information available,” said Susie Alder, product manager at the UKHO.

“There are also efficiency benefits to be realised through this update and proper use of all ADP’s functionality, in terms of the time taken by bridge crews in planning their voyage. Accurate tidal data gives mariners the certainty they need to operate in the industry’s competitive market environment.”

“The software will also ensure that they can demonstrate compliance, by showing the ATT update status on the certificate in the same way as ADLL and AENP.”

UKHO says that ADP is permitted to be carried as an alternative to paper by Flag States accounting for over 80 per cent of ships trading internationally, providing the same level of compliance as traditional paper-based publications.

The tidal data updates will be available through version 18 of ADP.

DNV GL introduces maritime 3D printing guidelines

www.dnv.gl

DNV GL reports that it has published the first classification guidelines for the use of additive manufacturing (AM), including 3D printing, in the maritime and oil & gas industries.

The new DNVGL-CC-0197 guidelines are designed to assure manufacturers and sub-suppliers of materials, parts and components, service suppliers and end users adopting AM technologies that the parts or components created by an AM process and the materials from which they are created have the same level of quality assurance as traditionally manufactured products.

Additive manufacturing is a catch-all term for industrial processes that create three dimensional objects by adding layers of material. It includes technologies such as 3D printing, Rapid Prototyping (RP), Direct Digital Manufacturing (DDM), layered manufacturing and additive fabrication.

The new AM processes allow for printing in metal, of particular importance to the maritime sector. A variety of products and parts have now been successfully printed for the industry, including screw pins, bearings, propellers, heat exchangers and propellers, DNV GL says.

“Additive manufacturing means products and components can be printed according to local needs, or even on board ships and offshore installations,” said Knut Ørbeck-Nilssen, CEO DNV GL – Maritime.

“This equates to less lead time, less cost, less labour, less logistics, and less need to keep stocks of spare parts. AM can also be used for maintenance and repair, simply adding layers of material to worn components, thus negating the need to replace them.”

With the new guideline, DNV GL says it has created a pathway for AM certification and has processes in place to assess a variety of parameters that will impact upon the final products – from the material used, to a technology assessment, manufacturing procedure qualification, data transfer, and the actual printing and post processing.

“AM parts that perform the same functions as those produced in traditional manufacturing environments must offer the same levels of quality assurance,” said Marit Norheim, vice president, material specialist, hull, materials & machinery at DNV GL – Maritime.

“Similarly, the companies that have designed the parts must protect their intellectual property, so that customers can be sure they are receiving genuine products that are guaranteed fit for purpose. This is why this guideline is so important to all industry stakeholders.”

These guidelines have been released just as Danish 3D print designer Create it REAL has begun a new maritime 3D printing pilot project in conjunction with the Green Ship of the Future consortium in Denmark.

Financed by the Danish Maritime Fund, the Green Ship of the Future project already includes a host of industry heavyweights, including J. Lauritzen, Maersk Line, Maersk Tankers, Maersk Drilling, MAN Diesel & Turbo and Copenhagen Business School, as well as DNV GL.

“3D printing technology is developing rapidly and we believe it is ready for utilisation in the maritime industry,” said Sverre Patrunson Vange, J. Lauritzen.

“However, the harsh environment and the top priority to safety calls for precautions, (which is why) we are very pleased to have DNV GL, MAN Diesel & Turbo and Create it REAL participating in the project to address these issues.”

While the convenience of being able to ‘print’ spare parts locally makes 3D printing an appealing prospect in maritime, Create it REAL says that issues such as safeguarding intellectual property (IP) rights and ensuring safe transmission of files are key questions that must also be addressed by the project.

To tackle some of these issues, the company says it has created a platform that can be integrated with existing 3D printers to allow for secure file decryption to take place directly on the printer, meaning that crews on board will be able to print items as required but will not be able to access the original files.

The pilot project with the Green Ship of the Future consortium will see secured 3D printers delivered to different locations, including ships and drilling stations, alongside training tools and videos for the crew to test how the whole process could work in practice.

“We believe many companies are facing the same problem – how to share my files with my partners or customers while being sure to keep my intellectual property safe,” said Jerome Pierre Gay, founder of Create it REAL.

“The business model we are creating thanks to our technology is a bit like listening to music on online platforms. You do not access the MP3s but you can still listen to the music depending on your subscription. We aim to create the same positive environment where end-users will have access to high quality branded content and IP owners keep what they worked for.”

Bourbon agrees digitalisation deal

www.bureauveritas.com

Bourbon and Bureau Veritas have signed a strategic partnership agreement to develop and deploy a range of real time fleet monitoring applications and other digital technologies, while also looking for ways to mitigate cyber risks as the fleet becomes increasingly connected.

This digitalisation process will include the installation of automated dynamic positioning (DP) systems with real-time advisory tools for bridge operators and remote support from on shore teams, which Bourbon hopes will eventually streamline shipboard operations to the extent that manning levels could potentially be reduced.

A pilot system has been implemented on the Bourbon Explorer 508, currently operating in Trinidadian waters. Developed with Kongsberg Maritime, already a Bourbon strategic partner, the system is certified by Bureau Veritas and collects data from the DP system to support decision-making and verification applications for both offshore crew and employees on shore.

On the cyber security side, Bureau Veritas has also established a global partnership agreement with APSYS, an Airbus company specialising in product security, which will be leveraged to help identify and mitigate risks linked to data collection and communication between Bourbon’s vessels and shore-based infrastructure.

Based on this risk assessment, which will incorporate best practices from APSYS work in the aerospace sector, Bureau Veritas will be able to issue cyber security certification for any products developed, as well as class notations for ships it deems to meet global industry security standards.

“We have decided to innovate with Bureau Veritas in the way we operate vessels in order to bring a response to this new cycle focused on operational excellence at optimum cost,” said Gael Bodené, CEO of Bourbon Corporation.

“Streamlining work organisation on board vessels, this project will have a significant positive impact on our operations. In this digital era, we also have a common will to deploy innovative technological solutions offering tangible benefits to our customers.”

Bourbon aims to increase shore-based support for operations using digital technologies
Oceanstar is an onboard decision support system that enhances vessel navigation in confined waters.

The Oceanstar system shows position and movement within, or relative to, predefined corridors or quaysides in addition to GNSS quality data.

The Oceanstar system is type approved by DNV-GL as a GNSS receiver, speed and distance display measurement equipment (SDME), rate of turn indicator (ROT) and transmitting heading device (THD).

The Oceanstar system can be used standalone, or integrated with a bridge system.

The Oceanstar system facilitates quick decisions and leads to a safer and more efficient operation.

Fugro
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Chinese ‘smart ship’ noted by LR

The first Chinese ‘smart ship’ has been presented with LR’s cyber-enabled ship descriptive notes. The vessel, Great Intelligence, was designed by Shanghai Merchant Ship Design and Research Institute (SDARI) and built at Guangzhou Wenchong Shipyard (GWS), a subsidiary of China State Shipbuilding Corporation (CSSC).

Great Intelligence, a 38,800 dwt modified version of the Green Dolphin fuel-efficient bulk carrier concept, is a Chinese pilot smart ship project involving LR, System Engineering Research Institute (SERI) and China Class Society (CCS).

LR’s latest CES descriptive notes will be assigned to the project. The vessel achieved LR’s CES descriptive notes - Cyber AL2 Safe (Navigation, Propulsion, Steering), Cyber AL2 Maintain (M/E, A/E, Boiler, Shaft) and Cyber AL2 Perform (Energy Management).

“LR is extremely pleased to be present- ing this first smart ship in China with our latest cyber-enabled ship descriptive notes,” said Nick Brown, LR Marine & Offshore director.

“It is a true landmark for all parties involved and another step forward in our digital journey as an industry as well as a milestone for smart shipping in China. We are very proud to be helping our clients build more autonomous ships that are safer, more efficient and energy saving.”

The Ship Operation and Maintenance System (SOMS) will utilise a range of advanced sensing technologies connected to the ship’s network, creating a ‘brain’ that incorporates intelligent technologies, such as machine learning.

Factory acceptance and sea trial tests for the Great Intelligence’s smart system have now taken place, with LR satisfied that the smart system meets its requirements.

These smart technologies include an Intelligent Navigation System, intended to augment rather than replace existing vessel systems. Data from ship and shore-based service stations is collected and analysed against baseline ship’s route information in order to identify opportunities for route optimisation, for example alteration of the ship’s route to avoid adverse meteorological conditions, or modification of the route to avoid identified obstacles.

The Intelligent Navigation System also provides smart functions such as ship route optimisation to reach the destination in the shortest time, with minimal fuel con- sumption. Any actions taken in response to information provided by the system must be performed by a human.

In related news, LR has also introduced a newly revised ShipRight procedure to address the challenges posed by new uses of data, new platforms and new types of services, ways of working and vessels.

The new procedure has been developed based on the experiences of the classification society in live projects with clients such as Rolls-Royce, CSSC and Synergy Marine, as well as through lessons learnt by working with academic and industry partners at QinetiQ, the University of Southampton and the National Oceanography Centre.

The update includes three new descriptive notes. These include: Cyber MAIN-TAIN, for recognition of digitally enabled condition based maintenance systems; Cyber PERFORM, for recognition of performance optimisation systems; and Cyber SECURE, recognising that cyber security has been assessed in the context of design and build.

Descriptions of autonomy levels have also been refined, with differences between vessel automation, remote moni- toring and control, and fully autonomous operation and associated accessibility from onshore or ashore having been clarified.

Autonomy levels are now referred to, and defined as, ‘Accessibility Levels for Autonomy/Remote Access’, and are num- bered from 1 to 5.

Robotics In Maintenance Strategies (RIMS) has been approved as a ‘Recognized External Specialist’ by ABS, Lloyd’s Register and RINA for the use of Remote Inspection Techniques (drones) during surveys of enclosed spaces. This is in addition to RIMS’ previous certification by Bureau Veritas Marine & Offshore, as an approved service supplier.

Ocean Signal has appointed Emden-based Nordwest-Funk GmbH as a distributor for the German market, and IEC Telecom AS as a new distributor for Norway. Both companies will offer Ocean Signal’s full range of safety products, including EPIRBs, PLBs, MOBs and its newly-launched ABS transponders.

Thome opens new operations hub in Singapore

www.thome.com.sg

The Thome Group has opened a new digitally-powered operations hub at its offices in Singapore to support both duty-personnel and Thome’s crisis teams.

The new Hub is installed with systems to allow for remote tracking of individual ships in the fleet, supporting passage plan- ning, security risk assessment, weather routing, video conferencing, integrated vessel management system (NAU) imple- mentation, and individual on-board CCTV remote monitoring.

“The Operations Hub means that we now have an even closer control of our managed fleet, offering our clients up to date information and even greater improvements in our ship management services,” said Claes Eek Thorstensen, president and CCO of the Thome Group.

“The monitoring capabilities provided by the Hub will enable us to direct our managed fleet more efficiently, saving time and improving our operational efficiency.”

Furthermore, in times of emergency we can react much more quickly and get faster and more accurate information about the situation in real time, allowing our crisis teams to make informed deci- sions on how to resolve any issues.”

The office features height-adjustable ergonomic tables and chairs, independent dimmable lighting to provide a comfortable environment for the team, who may have to spend long periods of time monitoring spe- cific operational aspects of the fleet.

If required, a room adjoining the Hub can be used to set up a team to handle a crisis. Dividing walls can be deployed should a separate office be required and the crisis team can monitor live action from the Hub using CCTV cameras installed in the facility.

Totem Plus to align cyber security with navigation equipment

www.totemplus.com

Totem Plus reports that it has signed a Letter of Intent (LOI) with security compa- ny Naval Dome to add a cyber defence system as a supplemental option to its PC- based navigation and automation systems.

The two Israel-based companies began working together last year when the Naval Dome system was installed to pro- tect Totem Plus ECDIS, IMAC (Integrated Monitoring, Alarm & Control), VDR and BAM (Bridge Alert Management) installa- tions aboard a 5,000 TEU container ship.

“We are proud to be a pioneer of cutting edge maritime systems. Being able to offer the first maritime multi-layer cyber defence solution with our navigation and automation systems provides unrivalled protection to our customers. I don’t think any other ECDSi provider can offer this level of security without impacting perform- ance,” said Capt Azriel Rahav, chief executive officer, Totem Plus.

“We opted to partner with Naval Dome because its cyber security solution is proven to offer affordable multi-layer protection designed specifically for maritime application. As a stand-alone device it doesn’t have to be integrated, so it can be used with any connected or unconnected system onboard ship. It is intelligence grade cyber protection that requires mini- mal human interaction.”

The cooperation agreement with Totem Plus follows an earlier Memorandum of Understanding that Naval Dome signed with Lloyd’s Register to help establish standards and guidelines for maritime cyber defence.
Nautisk updates

www.nautisk.com

Norway-based navigation technology company Nautisk has released an updated version of its digital navigation publication library, NaviTab. The new version offers a larger 12-inch screen, an integrated keyboard, as well as a faster processor, the company says.

The NaviTab tablet stores a range of maritime publications and documents on its virtual bookshelf, and automatically manages updates. The unit also includes a detachable keyboard and electronic pen for annotations in the digital documents.

KR launches drone surveys

www.krs.co.kr

The Korean Register (KR) has begun conducting inspection services using drones, following the completion of a collaboration and research project conducted with the University of Gyeongnam Geochang. The inspections will be carried out using camera-equipped drones (unmanned aerial vehicles) and underwater drones (remotely operated vehicles) by registered service suppliers, including the University of Gyeongnam Geochang. The two organisations also plan to work together on future technological developments.

“We are delighted to announce that we can now offer full ship inspection services with camera-equipped drones, employing the very latest technology,” said Lee Jeong-kie, chairman and CEO of KR.

“This development will be a significant advantage for our customers, saving their time and capital resources as well as increasing efficiency and safety at the worksite, which I hope will in turn improve competitiveness across the shipping industry.”

“This is just the latest development in KR’s continuous efforts to identify and develop new practical ways to meet our clients’ needs, and to enhance their businesses’ prosperity.”

Ethical hackers demonstrate weaknesses in shipboard systems

www.navaldome.com

Israel-based security company Naval Dome has reported the results of a series of penetration tests on maritime technology systems, including an ECDIS, which allowed its ethical hackers to directly impact on board systems.

With the permission and under the supervision of system manufacturers and owners, Naval Dome says that its cyber engineering team managed to hack into live, in-operation systems used to control a ship’s navigation, radar, engines, pumps and machinery.

While the test ships and their systems were not in any danger, Naval Dome says it was able to shift the vessel’s reported position and mislead the radar display. Another attack resulted in machinery being disabled, signals to fuel and ballast pumps being overridden and steering gear controls manipulated.

Commenting on the first wave of penetration tests, on the ship’s ECDIS, Asaf Shefi, Naval Dome’s CTO and the former head of the Israeli Naval C4I and Cyber Defense Unit, said: “We succeed in penetrating the system simply by sending an e-mail to the Captain’s computer.”

“We designed the attack to alter the ves-
sel’s position at a critical point during an
intended voyage – during night-time pas-
sage through a narrow canal. During the attack, the system’s display looked normal, but it was deceiving the Officer of the Watch.”

“The actual situation was completely
different to the one on screen. If the vessel had been operational, it would have almost certainly run aground.”

According to Mr Shefi, the Naval Dome hack was also able to alter draught/water depth details in line with the spurious position data displayed on screen.

“The vessel’s crucial parameters – position, heading, depth and speed – were manipulated in a way that the navigation picture made sense and did not arouse suspicion,” he said.

“This type of attack can easily penetrate the antivirus and firewalls typically used in the maritime sector.”

Naval Dome says that the hack was made possible by the fact that the Captain’s computer was regularly connect-
ed to the internet, using a satellite link, to download chart updates and other general logistics data. The attack file used in the hack was transferred to the ECDIS in the first chart update.

“The penetration route was not too com-
cplicated: the attacking file identified the
Disk-On-Key used for update and installed itself. So once the officer had updated the ECDIS, our attack file imme-
diately installed itself on the system,” said Mr Shefi.

In a second attack, the test ship’s radar was hit using the local Ethernet Switch Interface, used to connect the radar to the ECDIS, Bridge Alert System and Voyage Data Recorder.

“The impact of this controlled attack was
quite frightening,” said Mr Shefi.

“We succeeded in eliminating radar tar-
gets, simply deleting them from the screen. At the same time, the system display showed that the radar was working per-
fectly, including detection thresholds, which were presented on the radar as perfectly normal.”

A third controlled attack was per-
formed on the Machinery Control System (MCS), which was penetrated using an infected USB stick placed in a socket.

“One once connected to the vessel’s
MCS, the virus file ran itself and started to
change the functionality of auxiliary sys-
tems. The first target was the ballast sys-
tem and the effects were startling,” said Mr Shefi.

“The display was presented as perfectly normal, while the valves and pumps were disrupted and stopped working. We could have misled all the auxiliary systems con-
trolled by the MCS, including air-condi-
tioning, generators, fuel systems and more.”

One way that such an attack could be perpetrated could be through an unwitting transfer of the virus to the ship systems by the system manufacturer, the company notes, as the manufacturers themselves can be targeted and inadvertently pass on viruses when they take control of onboard computers to carry out diagnostics or perform software upgrades.

MCP project completes Korean test

www.efficiensea2.org

The first full sea trials of the Maritime Connectivity Platform (MCP), created via a partnership between the Efficiensea2 and STM Validation projects in Europe and the Korean SMART Navigation Project, have been successfully completed with a demonstration of the technology in Korea.

The test consisted of a simulation of how MCP could assist a non-Korean ship docking in Busan, creating a scenario where a ship with no local knowledge of the port could still be able to identify itself, get access to digital communications, and choose from a couple of test services provided by South Korea and found using MCP’s Maritime Service Registry.

“It functioned exactly the way we want-
ed it, which is never certain in live tests. Our simulation included a ship registered as Danish and the communication from shore to ship was done digitally exploiting different aspects of MCP,” said Thomas Christensen, work package leader in Efficiensea2 and senior advisor at the Danish Maritime Authority.

MCP is divided into three main parts; an Identity Register, a Service Register and a Messaging Service. The first two parts are being developed and tested in Europe, while South Korea is working on the Messaging Service, which aims to allow ships to receive data independently from their data connection at any given time.

Previously, individual aspects of MCP have been tested on board ships in European waters, but the addition of the newly developed Messaging Service meant that this latest test in Korea marked the first time all three aspects of the envis-
ed service were assessed at the same time.

The tests also marked the first time MCP has connected using the LTE-M (long-range 4G) service that South Korean Authorities are planning to pro-
vide off the coast of South Korea in the near future.

“The individual components of MCP have a value in themselves and could easily prove beneficial standing alone. The value is multiplied many times, however, if those components are combined into one platform, and the Korean sea trials proved that we are well on the way to finishing such a platform,” said Mr Christensen.

Wärtsilä navigation and positioning systems for Viking Line newbuild

www.wartsila.com

Wärtsilä has agreed a deal to supply a range of systems to an LNG-fuelled ferry being built for Finland-based Viking Line at the Xiamen Shipbuilding Industry yard in China.

Alongside propulsion and fuel manage-
ment equipment, Wärtsilä will also install its Nacos Platinum integrated navigation technology, used to integrate various func-
tions into a single system to allow the ves-
sel to be navigated, controlled, and moni-
tored from several onboard positions.

Also included in the overall scope of the project is the recently launched Wärtsila SmartPredict system, which dis-
plays a vessel’s predicted future position and heading. The software evaluates the wind and sea forces affecting the ship to provide advanced motion prediction, with a configurable prediction time display.

Commencing in early 2021, the new ves-
sel will operate across the Baltic Sea between Turku, Finland and Stockholm, Sweden. The ship is the first LNG-fuelled ferry of this size to be built in China, Wärtsilä says.

www.navaldome.com

The ethical hackers managed to compromise an onboard ECDIS

The new version offers a larger 12-inch screen, an integrated keyboard, as well as a faster processor, the company says.

The NaviTab tablet stores a range of maritime publications and documents on its virtual bookshelf, and automatically manages updates. The unit also includes a detachable keyboard and electronic pen for annotations in the digital documents.
The IALA (International Association of Marine Aids to Navigation and Lighthouse Authorities) Council has adopted a new specification guideline for digital services in the maritime domain, based on input from the EfficienSea2 project led by the Danish Maritime Administration.

The new guidelines will aim to provide a framework to harmonise digital services in the maritime industry to avoid innovation in different formats hindering interoperability between systems and across different regions. The guideline was proposed to the IALA Council by the organisation’s e-Navigation Committee’s 20th session in Paris.

“In order for digital services to truly be beneficial at sea, there is no question about the need for interoperability and globalisation, but we cannot get that without having a shared reference. We are confident that this guideline will serve as that reference in the future,” said Thomas Christensen, work package leader for EfficienSea2 and senior advisor at the Danish Maritime Authority.

“EfficienSea2 and senior advisor at the Danish Maritime Authority. The specification guideline is general and it will be very useful for a wide range of maritime services. The main ambition is to make it easier and more viable to take the service you’ve developed within a specific country and make it usable in other parts of the world.”

The IALA guideline on the specification of e-Navigation technical services’ will be made available on IALA’s website and through the national authorities that make up IALA.

The Sea Traffic Management (STM) project has received EU funding from the Interreg Central Baltic Programme to support a new programme called EfficientFlow, which will aim to improve traffic management in the ports of Rauma, Finland and Gavle, Sweden, as well as STM-enabled traffic flow management for large ferries that sail through the archipelago between Sweden and Finland.

The project will run from 2018 to 2020, with a budget of €4.5 million.

“We truly appreciate that the Flow Management part of the STM concept can be tested in a live test bed. Safety will increase even more when ships and VTS Turku work with STM-enabled tools,” said Magnus Sundström, head of research and innovation at the Swedish Maritime Administration and coordinator of the project proposal.

“We also appreciate that STM will be further tested and implemented in ports in the Central Baltic Region.”

The EfficientFlow project will implement STM technologies to reduce manual information exchange, improve processes and increase situational awareness among the actors in the ports and at sea. Project partners include the Swedish Maritime Administration, Satakunta University of Applied Sciences, Port of Rauma, Port of Gavle and the Finnish Transport Agency.

www.iala-aism.org

Heng Tong upgrades ECDIS

Heng Tong Fuels and Shipping, the Singapore-based subsidiary of Hong Kong’s Coastal Holdings, has installed SEALL ECDIS systems from GNS onboard two vessels, Coastal Jupiter and Coastal Neptune, replacing non-compliant legacy hardware to bring the ships in line with the updated ECDIS standards.

Heng Tong Shipping operates a fleet of six vessels. The new ECDIS units are compliant with the IEC 61174 standards, which came into force from September 2017.

“We evaluated a number of options and found the SEALL ECDIS offered the most user-friendly solution as well as the simplest, most cost-efficient installation. GNS had us up and running with the new systems onboard with just a few hours,” said Capt Liu Raoping, marine superintendent and DPA at Heng Tong.

The SEALL system includes a touchscreen tablet-style user interface, with an Intel Core i7 processor and a caching system to speed up ENC loading and display. The ECDIS automatically detects any sensors that it is connected to, including motion, positioning and heading devices, and automatically sets up monitoring functions like cross track.

www.gnsworldwide.com

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Increasing focus on regulation and safety of unmanned ships

As the development of technologies in the field of autonomous shipping continues to accelerate, issues of safety, regulation and reliability are gaining in importance as a way of bringing structure to the introduction of these new systems.
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Remote tank inspection system launched

Martek Marine has launched its new Shipboard Unmanned Inspection of Tanks Solution (SUITS), a system combining enclosed space drone technology and VR software which can be used to remotely conduct tank inspections.

SUITS allows the operator to remotely control a collision tolerant drone via a control console and video screen as it enters confined spaces, eliminating the need for surveyors and members to enter hazardous spaces on board.

Martek says that the product has been developed to assist ship managers fulfilling their ALARP (As Low as Reasonably Practicable) obligations when it comes to safety risks in the workplace. “SUITS will revolutionise confined space inspection to make operations safer, faster and, ultimately, cheaper,” said Paul Luen, Martek Marine CEO.

The new system aims to allow inspectors to check confined spaces without having to personally enter

NavStation updated to version 4.0

NAVTOR has updated its digital chart table with the launch of NavStation 4.0, adding a new passage planning module to reduce the amount of administration work required in managing vessel routing, both on board ship and at the fleet level.

The system includes automatic logging of passage plan information, digital checks to reduce human error, and the ability to share routes across fleets so any vessel or management office with the NavStation software can access them.

NavStation launched in 2014, with an initial passage planning module having been introduced last year before being refined again in this latest update.

“NavStation is already the best tool for maritime route planning and optimisation, but after close consultation with our users we thought we could push the passage planning functionality to the next level,” said NAVTOR CEO Tor Svanes.

NavStation 4.0 is available on standard computers, touchscreen devices and specialty made ‘giga-pads’, a table-sized touchscreen that allows users to grab, swipe and manoeuvre overlaid layers of information.

www.navtor.com

Now, not only can navigators create safe, compliant documentation automatically, they can also exchange planned routes with others, multiplying the efficiencies across entire fleets. The man hours this will save, and the insight this unlocks, has the potential to deliver real competitive advantages for our customers.

“In terms of additional safety, the improved module also provides complete route overviews of warnings and alarms, allowing navigators to prepare for, and if necessary adjust, routes through dangerous areas and challenging conditions. It is our mission to simplify tasks, enhance safety and improve efficiency for both navigation and ship operators. NavStation 4.0 really does embody that drive.”

NavStation 4.0 is available on standard computers, touchscreen devices and specialty made ‘giga-pads’, a table-sized touchscreen that allows users to grab, swipe and manoeuvre overlaid layers of information.

www.navtor.com

Concerned about the potentially increased threat of cyber-attack as a result of the use of unmanned ships,” said Joe Walsh, partner at Clyde & Co.

“However, it is probably worth mentioning that the maritime industry as a whole has been criticised for being a bit slow in reacting to existing cyber threats, including fully crewed vessels, and that the biggest threat to any organisation’s cyber-security posture is still, in fact, human error.”

“It is therefore possible that a transition to unmanned ships might actually reduce an organisation’s profile and exposure to cyber risks. The cyber threat should certainly be taken seriously but it should not put the brakes on further exploration of the viability of unmanned ships.”

The report also highlights concerns in relation to the availability of insurance cover for unmanned ships, with four out of five survey respondents admitting to being unclear as to how insurers will approach the new technology.

Despite these wide-ranging issues, approximately half (48 per cent) of those surveyed predicted that unmanned ships will be implemented in the next 10 to 15 years, even though nearly two thirds (63 per cent) believe that the industry is not at all prepared in terms of infrastructure requirements for these autonomous vessels.

In addition, half (51 per cent) of the respondents think that crews do not currently have the skill sets needed to operate and maintain unmanned ships.

“A clear industry of work to be done but currently it is very much a chicken and egg situation,” said Mr Walsh.

“The marine industry desperately needs more clarity on the legal framework if they’re going to invest in the infrastructure and skills needed to roll out unmanned shipping on a commercial level. Meanwhile, regulators are unlikely to invest much time in assessing technology that they don’t think the industry is considering for widespread use.”

“Of course something will move eventually, so the organisations that are taking a proactive approach towards this new technology are likely to have a competitive advantage once the regulatory landscape becomes clearer.”

The full report can be accessed at the IMarEST website.

Further development

While these issues of regulation, safety and liability continue to be discussed technology development in the field of unmanned vessels shows no signs of slowing, with Rolls-Royce continuing its flurry of activity in the sector via a new cooperation agreement with the European Space Agency (ESA) that will see the organisations work together in harnessing space-based technologies to support autonomous and remote controlled shipping.

Rolls-Royce and ESA will aim to develop and validate new options for communication between vessel systems and shore based networks, in addition to ship-to-shore communication, including the use of next generation of 5G communications integrated with telecom networks and services.

ESA notes that it already has an existing ‘Satellite for 5G Initiative’ in place to support the development of these technologies and the commercial services that will be enabled by their introduction.

“The space industry has been operating assets remotely for many decades. The information, software and satellite-based technologies the sector has developed are wholly relevant to the work Rolls-Royce is doing to make the remote and autonomous ships a reality,” said Keith Tenvouso, Rolls-Royce, SVP ship intelligence.

“The current wireless carriers like satellite and associated infrastructure need to be developed to facilitate the development of remote and autonomous ships, as existing configurations were not designed for this purpose.”

“Rolls-Royce and the ESA will look at developing space-based technology projects,” said Egil Haugudal, president, Kongsberg Maritime.

“The move towards greater autonomy at sea has the potential to transform maritime operations and while the technology has now been proven, we look towards the regulations. Establishment of these test-beds is an important step, as it shows close co-operation between the people making the technology and vessels and the organisations developing the rules that will allow them to operate.”

www.navtor.com

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“The current wireless carriers like satellite and associated infrastructure need to be developed to facilitate the development of remote and autonomous ships, as existing configurations were not designed for this purpose.”

“Rolls-Royce and the ESA will look at developing space-based technology projects,” said Egil Haugudal, president, Kongsberg Maritime.

“The move towards greater autonomy at sea has the potential to transform maritime operations and while the technology has now been proven, we look towards the regulations. Establishment of these test-beds is an important step, as it shows close co-operation between the people making the technology and vessels and the organisations developing the rules that will allow them to operate.”

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Electronic navigation – at the tipping point

Data captured from millions of actual vessel voyages has shown that many shipping companies are yet to realise the economic benefits of electronic navigation and are still overspending on paper and digital chart products, writes Capt. Mike Bailey, GNS

A fter nearly a decade of recession in the main shipping markets, it would be natural to assume that shipowners have done everything in their power to control their operating costs. In the same way it would be natural to assume that they had done everything they could to achieve efficiencies afforded by smarter use of business intelligence.

It’s surely a surprise then, to hear that the shipping industry is still spending millions of dollars on navigational supplies they don’t actually need and that crews are wasting hundreds of hours needlessly correcting navigation charts and publications because they have not invested in the potential of digital navigation.

Beyond the operational aspects of ECDIS and electronic navigation data, the failure to properly implement an electronic navigation strategy means some owners are exposing themselves to entirely avoidable safety and compliance risks.

The solution is not spending more money on hardware or charts. Instead owners can begin to get a deeper understanding of their usage, needs and opportunities for efficiencies by working smarter, based on data intelligence.

Overspending

It’s a typically hot and humid afternoon in Singapore and another large and well-known shipping company has just learned that they have overspent by more than $9,000 per year on navigational supplies for just one vessel in their fleet.

In Athens, the week before, a similar story was played out, only that time the data presented highlighted large numbers of unnecessary paper charts being carried onboard, all still being corrected on a weekly basis, taking endless hours of crew time, despite the vessel’s Safety Certificate Form E specifying ENCs as both its primary and secondary means of navigation.

Some 15 years after the first ECDIS performance standard was approved, our analysis of shipping company purchasing habits has identified that owners of ships that have implemented digital navigation are very far from realising its true benefits.

Indeed of achieving the intended operational efficiencies and cost savings, vessels are spending on average 15 per cent more than necessary on navigational products and services – to put that into real money that’s anything between $375 and $1,800 per vessel per year.

Why? Well according to our research and analysis, many companies are failing to capitalise on just in time delivery of data to drive cost savings, vessel inventories are often not being regularly reviewed against routes, Flag State requirements or technical library requirements, and the software often installed on board to help navigate more efficiently isn’t being fully exploited.

Navigational product purchasing is still more often than not habitual, based on what has always been bought, rather than what is actually needed. As a result, inefficiencies, which can equate to many thousands of wasted dollars every year, are commonplace.

The ability to make such a claim is not based on estimation or looking at past orders. Using data intelligence tools we are able to collect, store and analyse millions of data points generated by actual vessels using our software systems, ranging from AIS positions to Port State Authority and Flag State data, every day. We can use that data to compare what shipping companies are purchasing against actual trading and compliance requirements in detail.

Since 2015, this has allowed us to capture 490,000,000 AIS positions for 75,000 vessels above 400 GRT. The output provides an extremely clear picture of the areas where a company may be overspending that can be used to refine vessel inventories to match what is really needed and then, importantly, maintain them at the most efficient levels.

Perhaps one of the more surprising findings from our work in this area has been the unnecessary spending it has uncovered on digital purchases. Using data analysis, we have been able to identify that as many as 70 per cent of ENCs purchased are never actually used, equating to anything between $1,000 and $5,000 per year.

ENC efficiency

We attribute this to one of two things. First, a persisting ‘just in case’ mindset; in other words, vessels are carrying large numbers of digital charts and publications onboard just in case they need to sail in those waters in the way that they used to with paper charts, or secondly, the need to download ENCs in order to plan routes that the vessel never actually ends up sailing.

This is despite ENCs and digital publications being easily accessed via permit keys that can be e-mailed to ships within 10 minutes, and the widespread availability of ‘pay as you sail services’ that provide always-on access to charts.

We use the same data analysis process to help customers identify potential safety and compliance vulnerabilities and reduce the risk of negative observations, detentions or deficiencies.

In one example, having reviewed an index and compared it to the vessel’s trading and Flag State requirements, we identified 25 publications held that were not required, but 49 publications that should have been on board, but were not.

Our data analysis is also helping to identify other purchasing efficiencies. We recently helped a shipping company in Hamburg to adjust ENC purchasing from a traditional voyage-by-voyage basis to a fixed price bundle.

The fleet was tracking through 42,731 ENCs and placing 2,870 ENC orders a year, which, based on PWC’s estimate of $35 for processing an order end-to-end, including raising the purchase order, checking an invoice and making the BACs payments, was costing the company a staggering $100,000 per year.

In addition, we were able to help the company switch to digital as the primary means of navigation and reduce paper holdings down to ‘Get Me Home’ levels, which delivered further savings of more than $60,000 and over 1,665 man hours previously spent on maintenance and updating of paper charts.

There will be exceptions to every rule but our research suggests that while ECDIS has now reached a tipping point in terms of adoption and application on a daily basis, many shipping companies are still working in ways that are inefficient in terms of cost and time – and as a result are missing out on the tangible benefits of the transition to digital navigation.

About the Author

Capt Mike Bailey is head of navigation products at maritime navigation technology company GNS

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