Digital Ship
December 2013
www.thedigitalship.com

Inmarsat announces first GX launch date

The explosion of a Proton-M rocket during an unrelated satellite launch in July had cast some doubt on whether Inmarsat would be able to proceed with its plans for the launch of its own first Global Xpress satellite in 2013 – however, despite a slight delay the company has now announced that Inmatsat-5 F1 is set for December

Inmarsat CEO Rupert Pearce has confirmed that the company expects to launch the first of the satellites for its Global Xpress (GX) Ka-band service in the first half of December.

A failure in an unrelated launch earlier this year using the same Proton launch vehicle that will be used by Inmarsat had cast the company's launch schedule into doubt, raising the possibility that the first satellite may not have made it into orbit until 2014, rather than in 2013 as planned.

That launch of three Russian GLONASS satellites on July 2nd had seen the Proton-M rocket crash less than one minute after lift-off, and led to an investigation and review of the Proton programme.

However, speaking on an investor conference call on November 7th Mr Pearce noted that he was happy to be able to report that the launch service was back on track and that the extent of any delay to GX had now been minimised, with the company ready to proceed with the launch within the next few weeks.

"The first Inmarsat-5 satellite (is being) shipped from the US to the launch site in Kazakhstan," said Mr Pearce, during the call.

"Ahead of us is one Proton launch (in) November, clearing the way for us to have a launch date as early as the 8th of December."

"While this is slightly delayed to our original plan, it's an improvement on the position we described on the second quarter results."

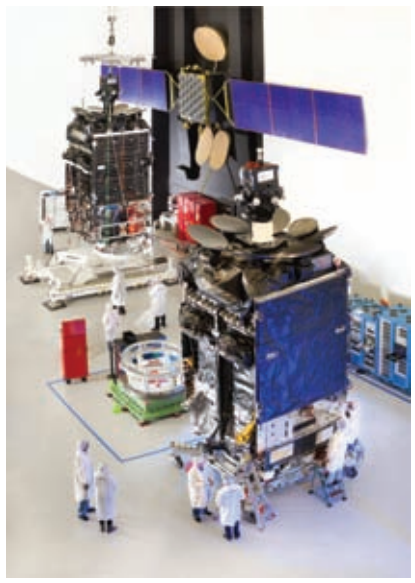
The spacecraft was shipped by manufacturer Boeing to the Baikonur Cosmodrome in Kazakhstan from Los Angeles International Airport on November 9th, arriving safely at its destination on November 11th in preparation for the upcoming launch.

November 11th also marked the date of the other November Proton launch that Mr Pearce spoke about, which was carried out without any problems – clearing the way for Inmarsat to prepare for lift-off as the next in line for launch from Baikonur.

Mr Pearce also noted in the call that the fact that Inmarsat had been prepared for an earlier launch had helped in this process, as its "high degree of readiness" had allowed the company to move up the launch queue once Proton flights got underway once more.

"Expectations for GX take-up have not been lowered," noted Mr Pearce.

"We continue to believe that even with a slightly delayed start to GX services in 2014 our medium term targets for MSS revenue growth over the next three years remain fully achievable."



The first GX satellite has been shipped from the US to Kazakhstan in preparation for launch

During the call Mr Pearce also said that Inmarsat had seen a record quarter in terms of new customers on its XpressLink service, which combines Ku-band VSAT and FleetBroadband, having added 138 XpressLink terminals in Q3, though net adds after

continued on page 2

IN THIS ISSUE

Digital Ship

Vol 14 No 4

Digital Ship Limited
2nd Floor,
2-5 Benjamin Street,
London EC1M 5QL , U.K.
www.thedigitalship.com

PUBLISHER
Stuart Fryer

EDITOR
Rob O'Dwyer: Tel: +44 (0)20 8144 6737
email: odwyer@thedigitalship.com

SENIOR NEWS REPORTER
Cecile Brisson: Tel: +44 (0)20 7017 3405
email: cecile@thedigitalship.com

CONFERENCE PRODUCER
Cathy Hodge: Tel +44 (0) 20 7253 2700
email: cathy@thedigitalship.com

ADVERTISING
Ria Kontogeorgou: Tel: +44 (0)20 7017 3401
email: ria@thedigitalship.com

EXHIBITION SALES
Young Suk Park: Tel: +44 (0)20 3287 9317
email: yong@thedigitalship.com

PRODUCTION
Vivian Chee: Tel: +44 (0)20 8995 5540
email: chee@thedigitalship.com

EVENTS MANAGER
Jo McGhee
Tel: +44 (0)20 7017 3412
email: jo@thedigitalship.com

CONSULTANT WRITER
Dr Andy Norris (navigation)
apnorris@globalnet.co.uk

DIGITAL SHIP SUBSCRIPTIONS
€180 per year for 10 issues
contact subs@thedigitalship.com,
or phone Stephan Venter on:
+44 (0)20 7017 3407

DIGITAL SHIP ATHENS
Metropolitan Hotel, Athens
27-28 November 2013

DIGITAL SHIP HAMBURG
MagnusHall, Hamburg
5-6 February 2014

DIGITAL SHIP SCANDINAVIA
Grieghallen, Bergen
5 & 6 March 2014

Printed by
The Manson Group Ltd
Reynolds House, 8 Porters' Wood
Valley Road Industrial Estate
St Albans, Hertz AL3 6PZ
U.K.

continued from page 1

'While this is a slight delay to our original plan, it's an improvement on the position we described on the second quarter results' – Rupert Pearce, Inmarsat

internal churn from legacy Inmarsat VSAT services to XpressLink was 91 ships.

He noted that Inmarsat ended the third quarter with 1,386 ships served with VSAT, and the company now has approximately 40,000 ships using FleetBroadband.

"(The addition of these XpressLink vessels represents) a record quarter for us. All of this is business that will convert easily and is committed to migrate to GX on launch," said Mr Pearce.

"At the end of the quarter the backlog on XpressLink was about 300 vessels, but this excludes a major contract win signed by an indirect partner...which involves more than 140 ships committed to XpressLink."

"Those are wins from VSAT (competitors), not (customers moving) from FleetBroadband."

Mr Pearce also noted on the call that the company would continue to use pricing as a strategic tool to move customers away from its legacy services and on to the current generation networks, something evidenced by Inmarsat's recently announced 48 per cent increase in data costs on its Fleet services.

"You'll see E&E pricing continue to go up as the base of business declines, and as the cost of supporting that base of business on older services increases," said Mr Pearce.

"It's fair to say that we are using pricing as a tool to guide people towards higher quality services and cheaper services. FleetBroadband is something like one-third cheaper per megabyte on average than the older services. There's nothing Machiavellian there, we've been quite open about that process."

M2M

In related news, Inmarsat and ORBCOMM, a provider of Machine-to-Machine (M2M) solutions, have announced that they have formed a strategic alliance to collaborate on joint product development and distribution for the satellite M2M market.

The companies say that they will work together to create a standard satellite platform and develop hardware and service pricing models for the global M2M industry, and will also investigate opportunities for future satellite network expansion and integration.

ORBCOMM is in the process of building a series of interchangeable modems powered by its OG2 VHF network and Inmarsat's L-band satellite constellation. ORBCOMM operates a constellation of low-Earth orbit (LEO) satellites, and Inmarsat operates a constellation of geostationary (GEO) satellites.

These modems are expected to have the same footprint, connectors, power input, and programming environment, meaning that manufacturers and partners will be able to drop in the appropriate modem that corresponds with either the ORBCOMM or Inmarsat network based on geography, message size and delivery speed.

In addition, users will be able to take advantage of ORBCOMM's relationships with cellular providers for dual-mode service, including either satellite network.

ORBCOMM will include its MAPPTM (Multi-Network Access Point Platform) technology, which translates and integrates communications from its network service partners into a uniform set of commands and information. This will facilitate a uniform platform for provisioning, billing and multi-mode access for M2M applications, supported by Inmarsat's M2MAP (M2M Access Platform).

ORBCOMM will make use of Inmarsat's IsatData Pro (IDP) satellite packet data service in the provision of these services, as well as BGANM2M, a 3G service offering real-time IP data up to 512 kbps on a single global SIM.

ORBCOMM and Inmarsat expect to bring these solutions to market through their commercial and government distribution networks.

The two companies will also look to find potential synergies in other areas that could include leveraging technologies, capital expenditures, product development, satellite operations, and ground infrastructure support for future satellite deployments.

"By working with ORBCOMM and leveraging their 20 years of expertise in M2M, we can round out our mobile communications offerings by delivering ORBCOMM's dynamic M2M solutions and dual-mode network services to our global customer base," said Mr Pearce.

"Our combined strengths will be unmatched in the satellite M2M space. We look forward to working with ORBCOMM to maximise our service offerings in the satellite industry and expand our footprint in M2M through our groundbreaking standard satellite platform." DS

CLARIFICATION

In the November 2013 issue of ***Digital Ship,*** *the page 1 story 'Good news and bad news on 2014 Inmarsat pricing' listed five services that will increase in price by 48 per cent in 2014 – 2.4 kbps Fax and Data; 9.6 kbps Fax and Data; ISDN/HSD (64 kbps); MPDS; and F77 128 kbps ISDN. The article also noted that 'This price increase is likely to impact a significant number of Inmarsat's maritime customers, with an estimated number of approximately 60,000 E&E terminals in service today'.*

The price increase in question on the five listed services will only apply to Inmarsat Fleet users, of which there are approximately 20,000, rather than all 60,000 E&E service users as may have been implied by this remark. ***Digital Ship*** *is sorry for any confusion caused.*

Acquisition combines AND Group and Satcom Global

www.broadband-satellite-services.com

Broadband Satellite Services Limited (BSS), an investment company based in the North East of England, has announced that it has completed the acquisition of AND Group and Satcom Global.

Focused on the satellite communication and telecommunication markets, BSS says that it acquired the two businesses as part of its growth strategy, to expand into all of the key vertical markets within the mobile satellite services sector.

The newly merged group has a geographical footprint covering core markets across the globe and reported revenues of over $100 million. Both constituent companies will remain trading as AND Group and Satcom Global respectively whilst various integration projects are taking place.

"Combining the network assets of AND Group and Satcom Global fits perfectly within our strategic framework of strengthening our end-to-end solutions capabilities in key areas, and providing the best possible customer experience," said Ian Robinson, chief executive officer for the group and former CEO of AND Group.

"Building on our existing technology platforms and extending our global reach will provide new opportunities for growth, innovation and expansion. Our customers will benefit from improved levels of service and reliability, as well as the expansion of our global data communication network, customer support and dedicated engineering resources."

"We are focused on creating innovative and differentiated services which present compelling value propositions to our customers, and deliver the opportunity to develop new revenue streams. The enlarged size of the group will also allow us to drive scale benefits and create a highly competitive cost structure."

BSS is wholly owned by Ian Robinson and Robert Howes, BSS CFO and also formerly of AND Group. Currently BSS says that it owns and operates companies in five continents, focused on the provision of satellite communication and telecommunications solutions to customers in areas where other communications networks are unreliable or non-existent.

The Group says that it is strategically targeted at pursing growth in the satellite communications sector through acquisition, and is focused on identifying and pursuing high growth communications opportunities within the satellite communications market.

The transactions were supported by Faunus Group International and FW Capital, and provided the group with a flexible working capital facility of $12 million at closing.

OCEAN SAT

KEEP IN TOUCH_

83 CM VSAT SYSTEM
(INTELLIAN)

FROM
$1.400
PER MONTH
36 MONTH LEASE

\+ **AIRTIME**
(EUROPEAN COVERAGE)

\+ COMPLETE **INSTALLATION**
(ADE + BDE + INSTALLATION)

GLOBAL **COVERAGE**

24/7 **SUPPORT**

Intellian VSAT inmarsat iridium THURAYA

+31 (0)183 401025 | INFO@OCEANSAT.COM | WWW.OCEANSAT.COM

Intellian launches multi-band antennas

www.intelliantech.com

Intellian has introduced the v240M, a 2.4m multi-band maritime antenna providing fully automatic switching between Ku-band and C-band.

The new system allows ships' crews to avoid having to physically change antenna components to achieve a band change or switch between multiple antennas.

The antenna manufacturer says that its engineers have overcome this problem through the use of built-in software and hardware which automatically switches between Ku-band and C-band, requiring no technical intervention.

On deck the 2.4m antenna is protected by a radome, which contains the Ku-band RF System, C-Band RF System, Antenna Control System and Power Supply Units. An optional air conditioning unit can be installed.

Below deck the antenna control unit is interfaced with ship information systems, such as a gyro.

The onboard unit can be controlled remotely via Intellian's App 'APTUS'. A graphical dashboard allows logging, recording and fine-tuning of the antenna for optimum performance.

In addition to the v240M, Intellian has also introduced a Ku-/Ka-band TV antenna, the s80HD WorldView TVRO. The 83cm dish simultaneously receives two Ka-band satellite signals and one Ku-band signal for DIRECTV North American programming, enabling all channels to be watched simultaneously.

This will allow the user to have access to HD TV in the Mediterranean as well as when travelling to and from the Caribbean and in North America.

Intellian says that it is simple to set up, as the user only needs to select a satellite television provider and connect to a satellite receiver to enable the WorldView Trio LNB to automatically switch frequency, depending on the region the antenna is operating in.

An Intellian App is available for download to enable users to select their preferred TV satellite whilst travelling from region to region, and operate their antenna from an iPhone, iPad or their chosen device.

The company is expanding its R&D and production facilities in Korea

In related news, Intellian has also announced that its own range of FleetBroadband terminals has now been approved for use with XpressLink, Inmarsat's Ku-band and L-band solution that utilises both VSAT and FleetBroadband terminals.

XpressLink provides broadband data and voice connectivity across a redundant service for a fixed monthly fee. It also offers a free upgrade path to Global Xpress, the forthcoming Ka-band service which Inmarsat says will achieve full global coverage by the end of 2014.

"We have been working in partnership with Intellian since 2011 and are pleased now to be able to offer their high quality FleetBroadband terminals to XpressLink users," said Frank Coles, president of Inmarsat Maritime.

"XpressLink has achieved great success in meeting the needs of ship owners thirsting for the broadband data speeds of VSAT combined with the reliability of L-band. Today, we are able to add the dependability and long term security of Intellian FleetBroadband terminals to the XpressLink offering."

Intellian and Inmarsat partnered in 2011 to begin development of Ka-band terminals for Global Xpress. The companies have since expanded the partnership and in March Intellian unveiled three new terminals designed to support all FleetBroadband services.

The launch of these new products comes as the company begins work on expanding its production space in response to what it calls "significant growth."

Intellian reports that it has shipped over 23,000 antennas since it was founded in 2004. It says that its five-year revenue

Intellian's new antenna can operate in both C-band and Ku-band

Compound Annual Growth Rate (CAGR) is currently 40 per cent.

Intellian has headquarters in Seoul and an additional two locations in South Korea, as well as a further two US locations and two European offices.

It has started building two additional floors at its Innovation Centre in Seoul, adding 3,809 m2 to the existing production area and a further 2,787 m2 to the R&D facility, at a total investment of $20 million.

Intellian president and CEO Eric Sung said: "The expansion of our R&D and production facilities are an important milestone for us as we continue to provide our customers with outstanding innovation and on time delivery of product from stock."

The Intellian Innovation Centre opened four years ago and includes a Design and Manufacturing facility for all Intellian antennas. Environmental tests such as salt mist, antenna RF test range and extreme vibration testing are carried out in-house at the centre. Additionally, there is a training facility for customers and partners.

Ku-band flat antenna

www.phasorsolutions.com

Phasor Solutions reports that it hopes to commercially launch a flat Ku-band antenna in 2014, having carried out a successful operational test of its electronically steered, phased array antenna.

The array, which is 1 inch in height and covers a surface of 0.7m x 1m, supported an HD video transmission via Intelsat 905 operating on Ku-band. Phasor's technology formed and auto-pointed the RF beam to acquire the signal emitted from the satellite and demodulated the high quality video.

The beam is entirely formed electronically and is steerable over a 70° cone. The company says that it is inertia-free, allowing rapid scanning and overcoming the limitations of motorised parabolic reflector antennas.

Phasor says that the array aperture is conformable to any curved surface such as an aircraft fuselage or a train roof, and may be extended to provide any required gain to support high data rate links with low satellite capacity demands.

The developer says that its engineers have used low cost electronic components and that the antenna can offer more affordable applications for satellite communications on the move (SOTM) for trains, planes, drones and yachts.

Besides Ku-band, Phasor says that its technology is applicable at X-, Ka- or other bands.

"The successful tests vindicate several years of development representing millions of dollars of investment offering the potential to enable major new markets for the satellite industry," said David Garrood, chief satellite officer, Phasor Solutions.

"This heralds the eagerly anticipated arrival of the holy grail of satellite antennas."

Another company, Kymeta, is developing flat antenna technology for Ka-band connectivity. It has partnered with Inmarsat to design a flat Ka-band antenna for airplanes, which it plans to launch in the first quarter of 2015, but it also intends to make the technology available for the maritime industry, initially in the Ka-band, and then possibly in the Ku- and L-bands.

Thuraya certifies RedPort Optimizer

www.thuraya.com
www.redportglobal.com

Thuraya has certified the RedPort Optimizer Wi-Fi router and the RedPort XGate e-mail and data service software.

The Dubai-based telecommunications company says that its customers can now use RedPort Global's throughput optimisation services on their computers, laptops and smartphones, be they on Android or iOS.

The RedPort Optimizer is used to optimise communications onboard commercial vessels.

It enables a vessel operator to stay in contact with its crew while its firewall ensures there are no unintended data transmissions to and from the vessel that could result in unexpected airtime bills.

"Ship managers and their crew need to stay in touch with their team regardless of where they are," said Randy Roberts, vice president of Innovation at Thuraya.

"Maritime crews especially need a solution that is easy to install and allows them to have services that are optimised for satellite connectivity."

"RedPort Solutions will be made available through our extensive network of service partners starting today."

The RedPort Optimizer is certified for use on the Thuraya network with the Seagull 5000i, Thuraya Maritime Broadband, Thuraya XT, IP and IP+.

The RedPort Optimizer works exclusively with the RedPort XGate software to provide e-mail, web browsing, social media, blogging, weather data, GPS tracking and GPS NMEA Repeating.

Dr Luis Soltero, CTO of RedPort Global, said: "Our partnership with Thuraya allows us to provide maritime managers with easy access to a high-quality solution with unparalleled satellite data services."

"While we have the expertise in software development, Thuraya has the capacity to accelerate these solutions to market in a very timely manner."

Your input is the most important piece of the puzzle.
You ask, INFINITY delivers.

Everything drops into place.

Ask for more, get more.

Distributed by navarino
For **more** information visit: **www.navarinotelecom.com**

INFINITY

Iridium NEXT passes review

www.iridium.com

Iridium Communications reports that it has successfully completed a Critical Design Review (CDR) of the complete Iridium NEXT satellite network system, which it says has demonstrated its design is valid and on schedule for a first launch in early 2015.

The company says that the review represents an important transition from the network design to the fabrication and testing phase of Iridium's next-generation constellation.

The Iridium NEXT satellite network will also serve as a platform for the company's newly announced Iridium PRIME programme to carry hosted payloads for third parties on its satellites, which it says offers an estimated cost saving of 50 per cent or more compared to current stand-alone solutions - while also providing another revenue stream for Iridium that will contribute to the cost of construction of the network.

"We're very proud of the successful completion of the CDR phase under the direction of our prime contractor Thales Alenia Space," said Scott Smith, Iridium's chief operating officer.

"The entire Iridium NEXT Mission Team working on this programme represents the best and the brightest in the industry, and collectively we strive to consistently meet the highest standards of design, engineering and innovation within the timelines of the Iridium NEXT programme."

"Completing the CDR phase establishes that all components of the satellites will properly function as designed in the dynamic environment of the new constellation, keeping the Iridium NEXT programme schedule on track and on budget."

Thales Alenia Space is leading the design and construction of the satellites for the Iridium NEXT constellation and will partner with Iridium to provide and

The first Iridium NEXT launch is expected in 2015

produce a new satellite bus for Iridium PRIME, maintaining inter-satellite crosslink functionality and the ability to fly within the Iridium NEXT constellation.

In addition, the companies will work together to develop a Hosted Payload Controller for the Iridium PRIME bus to ensure independence and diversity of missions on Iridium PRIME satellites. Customers with compatible missions will be able to share the platform-minimising costs.

"Thales Alenia Space is proud to work with Iridium on the largest satellite constellation in the history of the industry," said Nathalie Smirnov, EVP telecommunication, Thales Alenia Space.

"With Iridium NEXT and Iridium PRIME satellites, this constellation will be ready to offer customers ground-breaking choice and flexibility for their technology solutions and hosted payloads."

By completing the CDR phase of the Iridium NEXT programme, the next key milestone is the Low-Rate Initial Production (LRIP) Readiness Review, scheduled for completion in the first quarter of 2014.

The review signals the completion of flight hardware design and qualification activities, and it will demonstrate that processes and procedures, equipment, and personnel are ready for the start of satellite production.

Underwater web

www.buffalo.edu

The University at Buffalo, in New York state, has announced that its researchers are working on a project to develop technologies that would allow for the creation of a deep-sea internet infrastructure.

The University says that the technological breakthrough could lead to improvements in oil and gas exploration, surveillance, pollution monitoring, tsunami detection, and other activities.

"A submerged wireless network will give us an unprecedented ability to collect and analyse data from our oceans in real time," said Tommaso Melodia, UB associate professor of electrical engineering and the project's lead researcher.

"Making this information available to anyone with a smartphone or computer, especially when a tsunami or other type of disaster occurs, could help save lives."

Mr Melodia and his students presented a paper titled 'The Internet Underwater: An IP-compatible Protocol Stack for Commercial Undersea Modems' at the 8th annual International Conference on Underwater Networks & Systems. Hosted by the Association for Computing Machinery, the conference ran November 11-13 in Taiwan.

Land-based wireless networks rely on radio waves that transmit data via satellites and antennas. However, radio waves work poorly underwater, so the project will rely on techniques based on the use of sound waves to communicate.

NOAA (National Oceanic and Atmospheric Administration) already uses acoustic waves to send data from tsunami sensors on the sea floor to surface buoys. The buoys convert the acoustic waves into radio waves to send the data to a satellite, which then redirects the radio waves back to land-based computers.

Many systems worldwide employ this paradigm, says Mr Melodia, but sharing data between them is difficult because each system often has a different infrastructure. Aiming to solve that problem, the framework that UB is developing would transmit data from underwater sensor networks to laptops, smartphones and other wireless devices in real time.

Mr Melodia tested the system recently in Lake Erie, a few miles south of downtown Buffalo.

Hovannes Kulhandjian and Zahed Hossain, who are both doctoral candidates in his lab, dropped two, 40-pound sensors into the water. Kulhandjian typed a command into a laptop. Seconds later, a series of high-pitched chirps ricocheted off a nearby concrete wall, an indication that the test worked.

The project is funded by the National Science Foundation in the US.

Deep-sea internet could have many applications, including linking together buoy networks that detect tsunamis. In these situations, it could deliver a more reliable warning thereby increasing the odds that coastal residents can evacuate, Mr Melodia said. It may also help collect oceanographic data and monitor pollution.

There are also military and law enforcement applications. For example, drug smugglers have recently deployed makeshift submarines to clandestinely ferry narcotics long distances underwater. An improved, more robust underwater sensor network could help spot these vessels.

The framework could also be useful to the energy industry, which typically relies on seismic waves to search for underwater oil and natural gas. Industry's efforts could be aided by a network of interconnected devices working together, the lead researcher said.

"We could even use it to monitor fish and marine mammals, and find out how to best protect them from shipping traffic and other dangers," Mr Melodia said.

"An internet underwater has so many possibilities."

Obituary – Patrick Slesinger

Digital Ship is sad to report that Patrick Slesinger, former director and CIO of Wallem Ship Management and one of the most respected figures in the maritime IT industry, has died.

Mr Slesinger died of a heart attack on Sunday, October 27th 2013. A funeral was held in Hong Kong on November 5th.

Digital Ship and many across the industry will remember Patrick for his passion and dedication to improving operations through the use of technology, and his intense focus on delivering value through the application of these tools - figuring out what works and what doesn't, and how to apply this knowledge for the benefit of the company.

A consummate professional, senior ship management executive and IT innovator, Patrick possessed a rare quality of combining the commercial and operational reality of management of fleets of vessels with the ability to move them forward technically to deliver 'right sized' solutions.

While many around him over the course of his career were side-tracked by the hype of the dot com era, or new software tools and satellite communications options, Patrick would implore colleagues to ignore the rhetoric and search for the return that would make investing in these systems worthwhile.

Patrick understood that a range of benefits could be derived from more expensive technologies if the results justified the investment - as he memorably remarked in one particular presentation, he would happily buy all of his staff Montblanc pens to write with if they could demonstrate how it would create more value than using a ballpoint Bic.

Patrick served at Wallem Shipmanagement for 18 years, as CIO / Group IT manager from December 1992 to October 2011. He also acted as managing director of Wallem Innovative Solutions, an IT development and offshoring service provider.

Among the many accolades he received during his time with the company was the CIO Asia Award, awarded to him by MIS Asia magazine in 2008. Patrick left Wallem in 2011 to work as an independent consultant to the maritime industry in change management and process management.

Patrick has been a true friend and staunch supporter of *Digital Ship* for more than a decade, having sat for one of the first ever interviews carried in the magazine soon after this company started in 2000.

Patrick was instrumental in the inauguration of *Digital Ship's* first ever conference outside Europe, in Hong Kong in September 2001, chairing the first day session - and made keynote speeches at *Digital Ship* Hong Kong and Singapore events every year between 2004 and 2012 (with the exception of 2011 when he had just left Wallem).

Patrick will be dearly missed by *Digital Ship* and his many friends and admirers across the maritime IT sector, both for his friendship and for his expert knowledge in shipping technology matters. *Digital Ship* would like to extend our sympathies and condolences to his family at this time.

- Broadband speeds up to 8Mb & 8 x voice lines
- All ocean regions covered
- 24 / 7 / 365 technical support
- Free of charge service number
- Service engineers, spares and support available globally

For more information:
Tel: +44 (0) 1737 648 800
Fax: +44 (0) 1737 648 888
Email: enquiries@nsslglobal.com
Web: www.nsslglobal.com

NSSLGlobal
ON LAND ▮ ONBOARD ▮ ONLINE

B & J Martin agrees Boatracs KVH deal

www.boatracs.com

Boatracs reports that it has agreed a contract to provide a KVH broadband communications solution to B & J Martin, an offshore service company providing supply, crew and site clearance vessels as well as offshore living quarters.

B & J Martin will be outfitting the site clearance trawling division of its fleet, consisting of six boats, with KVH TracPhone V7-IP VSAT terminals including a mini-VSAT Broadband airtime plan. The ships will continue using Boatracs BTConnect for vessel tracking to maintain two-way voice and data communications ship to shore.

"We have been a Boatracs customer for many years because of the reliable service and support," said Jimmie Martin, vice president and owner of B & J Martin.

"Maintaining constant communications with our vessels is vital in our business and Boatracs has proven to be an excellent partner. We have seen the benefits of having broadband on our trawling vessels and, after working with other communications providers, we decided that Boatracs offered the level of dependable connectivity we require."

"We are excited to move forward with the installation of the KVH systems on our vessels, integrated with Boatracs BTConnect on shore."

B & J Martin first became a Boatracs customer in 2008 with the installation of narrowband satellite communications on its entire fleet, with Boatracs BTConnect on shore to monitor and message the boats.

"We are honoured to have an innovative offshore services leader like B & J Martin as a customer," said Jonas Olsen, business unit manager of Boatracs.

"They are a forward thinking company who recognises the efficiencies and business improvements that come from reliable communications with their vessels."

"The KVH TracPhone V7IP is a high performance maritime VSAT terminal that offers outstanding service and a simplified below decks unit. Boatracs is the only software provider that offers fully integrated vessel tracking and messaging software as a packaged solution with the V7IP, and we provide the 24-hour live support for the hardware, airtime and software that customers like B & J Martin rely on for ongoing operations."

Intellian has appointed Hans Henrik Danevig as sales director for the TVRO range of products in Europe. Mr Danevig, who previously worked for **KVH Europe,** will be based in Denmark.

Hans Henrik Danevig, new man at Intellian

Kartik Sinha has been appointed as the new business development manager at **Martek Marine.** Mr Sinha joins Martek from **Inmarsat**, where he was responsible for international business development. The appointment is a result of Martek's planned expansion into the digital ship solutions and navigation market, which will be driven primarily by the launch of its own ECDIS system later this year.

Kartik Sinha has swapped Inmarsat for Martek Marine

www.intelliantech.com
www.martek-marine.com

Telaccount Overseas celebrates 25 years

www.telaccountoverseas.com

Maritime communications service provider Telaccount Overseas is celebrating its silver jubilee, having reached 25 years of service to the industry.

Telaccount Overseas is a subsidiary company of Bernhard Schulte Shipmanagement, but also provides services for other shipping companies such as Reederei Nord, Norddeutsche Reederei H. Schuldt, Claus-Peter Offen Tankschiffreederei, E.R. Schiffahrt, Oldendorff, Transeste Schiffahrt, and OPDR.

Headquartered in Cyprus and with offices in Singapore, Panama and Germany, the company says that it provides mobile voice and data solutions via Inmarsat, Iridium and VSAT for approximately 110 clients, 1,000 vessels and 20,000 seafarers worldwide.

"For 25 years, Telaccount Overseas has remained a constant in the maritime communication industry and a stable and reliable partner for our clients," said Telaccount's managing director Adonis Violaris.

"Thanks to our recent partnerships with reliable distributors and navigational equipment manufacturers, combined with our strong presence in the market, Telaccount Overseas will continue to provide our customers with best-in-class maritime communication solutions and embrace new opportunities for growth and expansion as the economy continues to recover."

Adonis Violaris, Telaccount Overseas, speaks at the 25th anniversary celebrations

The company's 25th anniversary was marked with a party at the BSM Maritime Training Centre located near the new Limassol Marina in Cyprus.

SAILOR Navtex available for order

www.cobham.com

Cobham SATCOM has announced that its new SAILOR 6390/91 Navtex System is now available to order.

The system consists of the SAILOR 6390 Navtex Receiver (available separately), which receives Navtex messages on the international Navtex frequencies 490 kHz, 518 kHz and 4209.5 kHz, and the SAILOR 6004 Control Panel, a 7-inch touch screen.

Cobham says that the receiver can be installed anywhere on board whilst the control panel can be placed anywhere on the bridge. They are linked by dual LAN (NMEA also included).

The SAILOR 6390 Navtex Receiver can be used as a standalone receiver and networked with any Integrated Navigation System (INS). The SAILOR 6004 Control Panel is designed to be used with the available SAILOR 628x AIS System and other forthcoming devices.

On the touch screen interface, the user can select the app icon required for access and control of the device chosen.

"In addition to offering a new approach for Navtex, through its network integration capabilities, touch screen interface and black box design, the SAILOR 6391 Navtex System is of course built to the well-known SAILOR high standards, so users can be confident in the reliability of this vital piece of GMDSS equipment," said Casper Jensen, VP Maritime Business, Cobham SATCOM.

Harris CapRock wins 100-ship Carnival VSAT contract

www.harriscaprock.com

Harris CapRock Communications has signed a five-year contract with Carnival Corporation to provide communications services on board more than 100 cruise ships in its 10 cruise line brands.

Harris will deploy a fully managed, end-to-end VSAT system utilising the latest generation of iDirect technology, via a hybrid C- and Ku-band solution. Carnival will also receive equipment, installation, maintenance, service and 24/7 monitoring and support from Harris' Customer Support Centres as part of the deal.

Transition and installation work will occur globally in various ports, spanning the United States, Bahamas, Europe, South America, Australia and Singapore.

"At Carnival, our most important goal is to give our guests a great experience. For many of our guests, this means staying connected by phone and internet, even when they're on our ships in the middle of the sea," said Richard Ames, senior vice president of business services, Carnival Corporation.

"Providing connectivity has been an important part of the Carnival experience, and with (this) agreement, we look forward to continuing to provide our guests with a high level of connectivity. We know our guests get excited about creating great memories on our cruises, and if they can't wait to get home to share photos and stories, we're happy to make it possible for them to call, text, e-mail and tweet from the middle of the ocean."

Each ship will be equipped with stabilised antenna systems to provide bandwidth levels higher than what was previously delivered to each fleet, in line with new service requirements set by Carnival for its guests and crew, as well as for new entertainment solutions across the 10 cruise line brands.

"This agreement solidifies Harris and Carnival's long-lasting communications partnership and enables guests and crew on board to connect with their friends, family and businesses - no matter where they are cruising around the world," said Tom Eaton, president, Harris CapRock.

"By teaming with Harris as its communications partner, Carnival has the backing of an industry-leading business and global infrastructure that ensures we are here to meet their communication needs at all times, no matter where its ships are traveling."

Carnival's 10 cruise line brands include AIDA Cruises, Carnival Cruise Lines, Costa Cruises, Cunard Line, Holland America Line, Ibero Cruises, P&O Cruises, P&O Cruises Australia, Princess Cruises and Seabourn Cruise Line.

MARITIME SOLUTIONS AT SEA

crédit photo : Shutterstock

With capacity commercialised on 32 satellites, Eutelsat is one of the world's leading satellite operators. Eutelsat has pioneered the development of today's maritime telecommunications and continues to build its success on the reliability of its in-orbit resources, its expertise and continuing commitment to innovation. Our VSAT technology provides corporate class networking services, interconnectivity and real-time data applications for all business, leisure and crew welfare needs.

1983 - 2013 EUTELSAT 30 YEARS OF SERVICE FROM SPACE

www.eutelsat.com

eutelsat
communications via satellite

Maritime VSAT capacity expanded

The continued success of VSAT technology in penetrating the maritime market has been evidenced by a host of newly agreed capacity deals that will see a range of providers extend the coverage and capabilities of their VSAT networks for the shipping industry

A range of new VSAT coverage deals been announced in recent weeks, with service providers Astrium, NSSLGlobal, SpeedCast and MTN all adding coverage and extended capabilities to improve their services to maritime customers.

Astrium Services has announced that it is expanding its Ku-band VSAT coverage as a result of deals with three satellite operators.

The company has contracted for 100MHz of Ku-band capacity on the Intelsat 907 satellite, to serve customers in the North Sea and across European waterways.

Astrium says that the coverage agreement will enable it to address significant demand from its core maritime transport and customised Ku-band VSAT customer segments.

It notes that in the North Sea oil & gas sector an increasing number of specialised vessels are pushing the boundaries of maritime VSAT usage. In 2013, Astrium Services' direct sales channel Marlink provisioned services aboard vessels in the North Sea with high capacity requirements, in some cases up to 12 Mbps, from ship to shore.

"It's vital that we continue to provide Ku-band broadband services backed by superior customer support to our North Sea and European partners," said Tore Morten Olsen, head of maritime for Astrium Services.

"With usage patterns changing and the demand for bandwidth rising, our Ku-band capacity ensures we are well positioned to provide the high level of reliable connectivity that the maritime market requires today and in the future."

Astrium Services has signed two new separate Ku-band capacity agreements with Eutelsat and SES, which it says will improve its performance in Europe, the Middle East and North America.

Enhanced capacity on Eutelsat's E36B will provide more bandwidth for its customers operating in the Mediterranean and Middle East, and in the area North of Norway and Russia (Barents Sea).

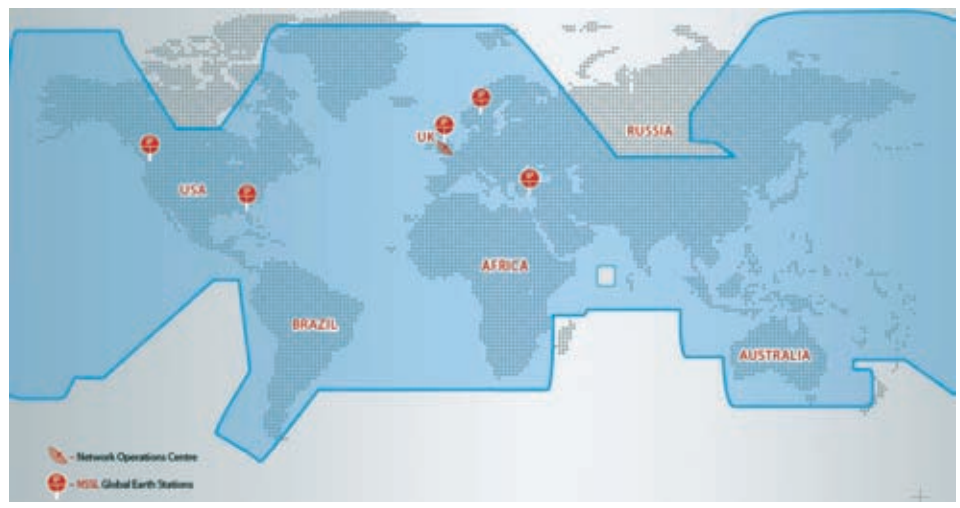
In addition, new Ku-band capacity on SES' AMC-21 satellite will offer more comprehensive coverage over the United States, enabling its clients operating in the oil & gas and inland marine sectors to have better connectivity.

The move from AMC-9 to AMC-21 provides enhanced signal and coverage over the Gulf of Mexico, the Caribbean Sea and part of the North Atlantic Ocean, so customers will see improved performance and availability of their satellite services there.

"Astrium Services continues to offer the most extensive global VSAT coverage available across all bands," said Mr Olsen.

"Our customer base is global, so it's important for us to meet the bandwidth and service availability demands of vessels regardless of where they are operating."

"These latest coverage extensions strengthen our ability to provide services in mainstream maritime regions, meeting the current demand for globally available data usage and service quality but also with extensive capacity to ensure we can meet future bandwidth requirements from the maritime and offshore sectors."



NSSLGlobal has extended its VSAT coverage (pictured), as have Astrium, SpeedCast and MTN

NSSLGlobal

NSSLGlobal has also announced the further expansion of its Ku-Band VSAT network, which will now include an additional two satellite beams covering the South Atlantic and Indian Ocean region.

These two beams became active on October 15, combining with the current VSAT coverage already offered by NSSLGlobal.

Current as well as new customers will benefit from the coverage allowed by the additional beams, which come via Intelsat's Rugby-based Earth Station in the UK.

The first beam utilises Intelsat's IS21 satellite and is primarily aimed at the commercial maritime sector. The satellite is positioned at 58 degrees West, with a large proportion of the beam covering the South Atlantic, from the south of South Africa across to Buenos Aires.

The company says that this beam compliments the TL11 North Atlantic beam that already forms part of its coverage area.

The second beam, MID-IOR, covers the Maldives and Seychelles area and will primarily be used to target the super yacht market.

"With the most extensive coverage offered in the industry these new beams are another indication of NSSLGlobal's commitment in providing a premium satellite communications service to our customers," commented Sally-Anne Ray, managing director of NSSLGlobal.

SpeedCast

The Indian and South Atlantic Oceans are also areas where SpeedCast has expanded its maritime VSAT network with additional capacity.

The new coverage of the two heavily traversed routes is provided via three satellites, which the company says should offer increased availability, uptime, and resiliency on the network.

"This is an important investment in our maritime network which not only provides complete coverage of all key maritime routes, but also enhances our coverage with multi-satellite support for additional redundancy," said André Eerland, vice president of Maritime Services.

SpeedCast, which has delivered auto-beam-switching broadband VSAT networks using multiple satellites operating in the Ku-band, says that the launch of the Indian and South Atlantic VSAT services strengthens and expands the reach of its existing maritime VSAT network.

MTN

MTN meanwhile has focused on the Indian Ocean Region as it has agreed a renewal of its capacity agreement deal with satellite operator SES.

The deal marks the latest milestone in a long-term partnership.

In a multi-year deal, MTN has secured capacity on several transponders aboard SES' NSS-12 satellite to offer connectivity to vessels travelling one of the world's largest oceans and busiest shipping routes serving the African and Asian coasts and port cities in Australia and Antarctica.

"MTN and SES have successfully served the growing connectivity demands of our customers throughout the world for years," said Zafar Khan, vice president of Systems and Space Engineering for MTN.

"This renewed agreement with SES underscores our commitment to the Indian Ocean Region and serves as a testament to our confidence in SES satellites, people and expertise."

"SES has been an important partner, as MTN continues to grow and expand its mobility service offerings as well as its new hybrid network. This innovative solution allows partners to seamlessly switch from satellite to terrestrial broadband, maximising the bandwidth delivered to each vessel and others in their fleets for the best and most reliable performance and cost efficiencies." DS

100Mbps VSAT

www.omniaccess.com

Marine VSAT provider OmniAccess says it has launched a 100Mbps dedicated VSAT service for the Caribbean and Mediterranean.

The upgraded Broadbeam Ultra variant is based on iDirect's next-generation X7 modem platform and XipLink's WAN optimisation appliance.

OmniAccess says that, by leveraging the maximum efficiency of the X7 and Xiplink combo, it can offer a 100Mbps single-link VSAT service to customers across the Caribbean and Mediterranean.

The company says that the service has been designed to meet the high throughput requirements of demanding users who are increasingly using bandwidth-hungry applications and IPTV streaming solutions, such as the upcoming High Definition Plexus TV services.

Earlier this year, OmniAccess was appointed as a launch customer for iDirect's next-generation platform and is now deploying the X7 satellite modems on-board its vessels and upgrading its ground infrastructure to the new Evolution iDX 3.2 software.

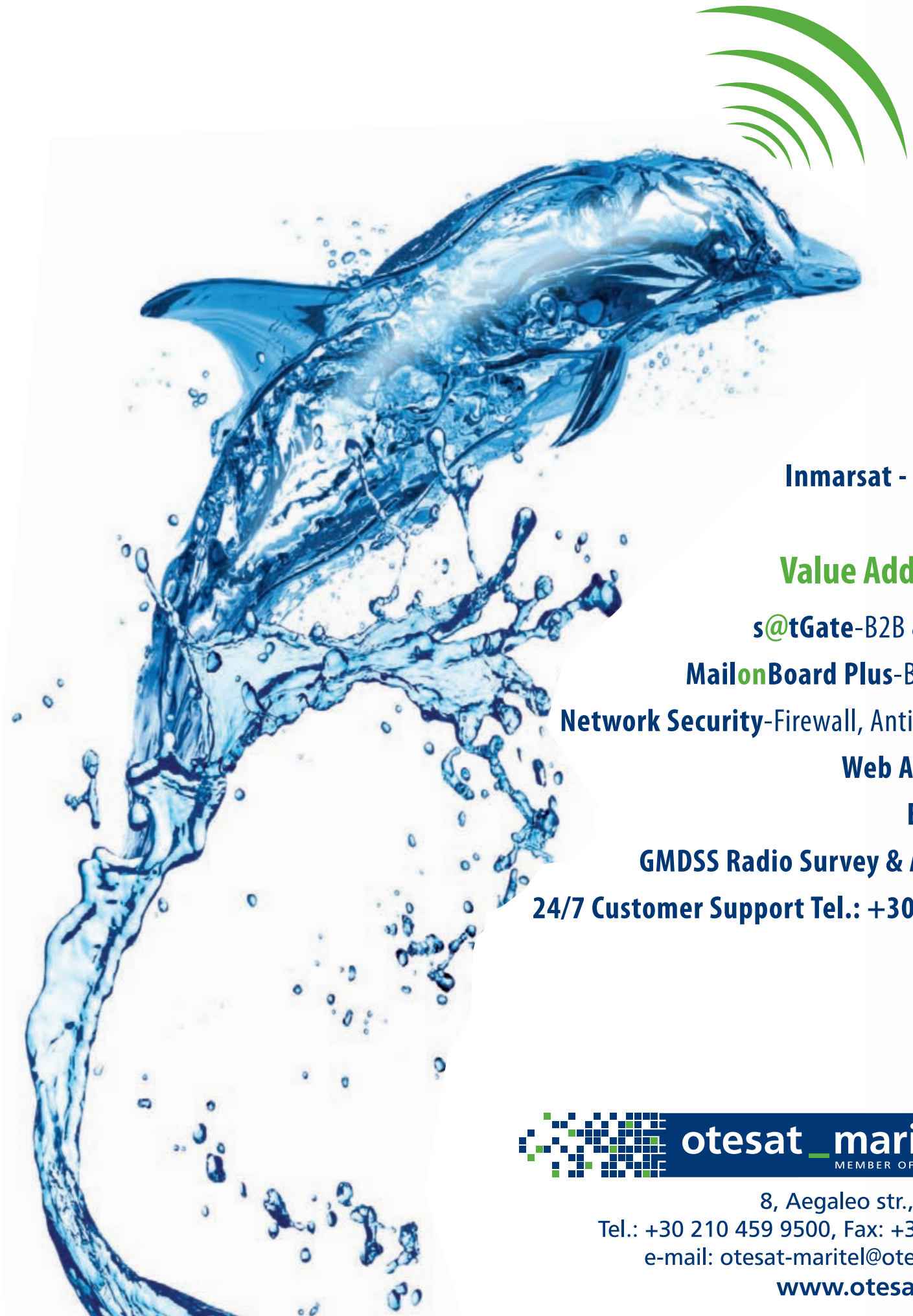
With the X7's built-in support, customers can upgrade to OmniAccess' latest offering without the need to change the existing iDirect VSAT platform.

The provider says that, unlike other TDMA service standards that peak at 15 Mbps, its BroadBEAM Ultra 100 is capable of exceeding these limitations whilst still using the prevailing TDMA iDirect architecture.

"We set a new standard for high speed marine internet two years ago when we launched our Broadbeam Ultra 20 Mbps service," said commercial director Carlos Carbajal.

"Following our strive to offer cutting edge services we've pushed the boundaries even further and are now able to offer five times the bandwidth of what used to be the fastest VSAT package available."

Your Telecom Partner Globally



Services:

Inmarsat - VSAT - Iridium

Value Added Services:

s@tGate-B2B & Crew Internet

MailonBoard Plus-B2B & Crew mail

Network Security-Firewall, Antivirus, Antispam

Web Admin Services

ECDIS - BNWAS

GMDSS Radio Survey & APT VDR/SVDR

24/7 Customer Support Tel.: +30 210 40 71111

otesat_maritel
MEMBER OF OTE GROUP

8, Aegaleo str., 185 45, Piraeus
Tel.: +30 210 459 9500, Fax: +30 210 459 9600
e-mail: otesat-maritel@otesat-maritel.com
www.otesat-maritel.com

Predicting the future of maritime communications

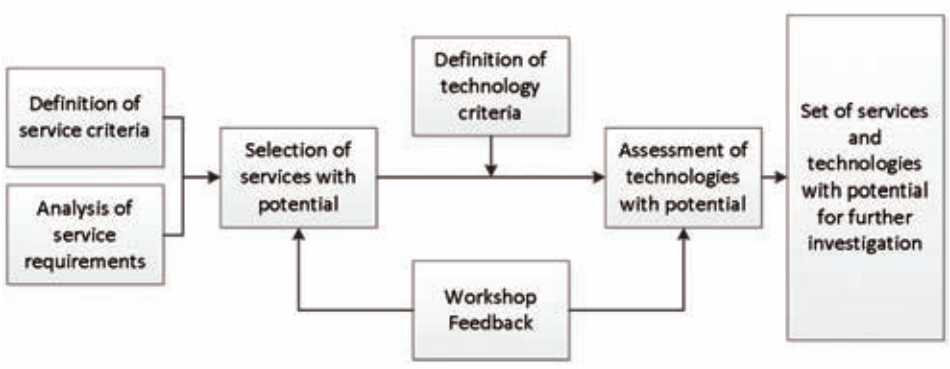
A new European project backed by funding from ESA (the European Space Agency) has been initiated, with the aim of identifying current and future requirements in the maritime satellite communications market – and the industry is urged to get involved, *writes Dr Simon Plass, SatCom4Mar*

It is tricky to predict the future, especially in the maritime communications market – what are the future demands? Which technologies will be available? How will the regulatory bodies think in the future?

The last *Digital Ship Round Table* this summer for example (see *Digital Ship* June/July 2013 issue, page 12) tried to examine the current, emerging and planned future communications technologies offered to the maritime market, and even during this round table there was no consensus on future needs, services and applications, how can we decrease the cost per bit, and which systems are needed to provide higher bandwidth.

We all know that maritime communications will experience major changes during the next two decades.

Not only will the evolution of e-Navigation require higher digital data exchange capacities, but new connectivity solutions for the crew will also increase bandwidth needs. New potential digital VHF services are envisioned while other innovative digital VHF implementations are also in the pipeline. These are only some examples of emerging trends, technologies or demands.



A methodology for selection of satcom opportunities is being developed by the project partners

A new project funded by the ESA (European Space Agency) called SatCom4Mar, now underway, has accepted the challenge of trying to predict the future.

The European consortium, led by the German Aerospace Centre's (DLR) Institute of Communications and Navigation and including project partners Inmarsat, the Norwegian Marine Technology Research Institute (Marintek) and Società Italiana Radio Marittima (SIRM), is pursuing the goal of defining a road map for future commercial and statutory maritime communications during the one-year project time frame.

Many initiatives are currently on-going within different organisations, such as IMO's 'e-Navigation Strategy' and the IALA Maritime Radio Communication Plan, with the ultimate overall goal of modernising statutory maritime communications systems with an increased reliance on robust communications, including satellite communications.

In addition, upcoming commercial satellite systems such as Inmarsat Global Xpress, O3b, Telenor THOR 7 in Ka-Band and Iridium NEXT in L-Band are expected to increase competitiveness, reduce the cost per bit and pave the way for new broadband services that will complement legacy narrowband offerings.

It is hoped that these new systems will contribute to the vision of an all-embracing system that will enhance navigational safety (with all the positive repercussions this will have on maritime safety overall and environmental protection) while simultaneously reducing the burden on the navigator.

Comms needs

Results from the MarCom, MarSafe North and ArctiCOM projects, as well as other on-going projects (such as the IO centre, COINOR), show that the maritime user applications requiring access to communication systems can be divided into the following main areas:

Safety & Security – voice communications and alert messaging during emergencies, which require access to narrowband communication systems. These services should have high priority and have high level requirements for availability and robustness of the communication system.

Vessel operations – communication to support daily vessel operations such as web-based services, file transfers, logistics and maintenance support, e-logbook, weather updates, maps and navigation information (e.g. ECDIS), VPN connections, database updates/replications etc.

It should be mentioned that there are on-going initiatives within the EU investigating autonomous ship systems, which indeed require robust and reliable communication systems. The services within this group are increasingly being implemented by shipping companies, and some of them require relatively high data rates.

Regulations/Policy - Current major regulations and policies affecting communications include the Global Maritime Distress and Safety System (GMDSS), Vessel Monitoring System (VMS), Long-Range Identification and Tracking (LRIT), and, increasingly, the Automatic Identification System (AIS). However, regulation is not driving much traffic, as it requires low bandwidth and most of the time is on standby/sleep mode.

Tracking & Monitoring – Tracking vessels for safety and environmental monitoring has been in use for some years already. AIS and LRIT was developed for such purposes. However, data from such systems are increasingly being used for commercial purposes in the maritime industry. This includes messaging and machine-to-machine (M2M) applications, which generally require only very low data rates.

Crew Welfare - Crew communication has been a major driver for capacity demand in the maritime industry in recent years, with applications evolving from limited voice phone calls to e-mail, web-services, social network applications, VoIP, and so on. Streaming applications are generally demanded but are still blocked in many cases, as they consume too much bandwidth.

Shared Situational Awareness – These applications aim at providing a common situational awareness to all actors involved in a maritime operation, such that correct decisions can be taken by the right persons at the right time. This is often needed in critical situations, which are either related to emergencies or to high costs (e.g. oil and gas related operations).

The military has used this concept for many years, while the oil and gas industry has lately started to implement Integrated Operations (IO) at different levels. Such applications require high availability and robustness, as well as high data rates, from the communication systems.

Research and Analysis – There is a tendency within the maritime industry to reduce the number of people on ship as far as possible. In the Arctic this is due to safety reasons, while in other places this could be due to the difficulties in finding qualified personnel, or a wish to reduce costs.

Experts are therefore often located on shore, and from time to time exploration and research vessels need access to this expertise during operation. Transferring data files to shore for analysis requires communication systems with high data rates and high levels of security, since the information is often sensitive.

Last but not least, the Arctic is a new and relatively unexplored area for the future statutory and commercial maritime communications market. A study performed by the ArctiCOM project reports that the maritime segment will be the main communication service consumer in the Arctic beyond the year 2015. With the limited availability of other communications options at sea, satellites will play a major role in the development of maritime activity in the region.

Project goals

The fundamental questions the SatCom4Mar project will address are:

- Which upcoming satellite communication system could contribute to fulfilling the requirements of maritime user applications?
- Whether any technological gap, requiring new developments, exists?
- How could the integration/coexistence of upcoming satellite communication systems, upcoming terrestrial wireless systems and legacy systems be addressed, bearing in mind the ultimate goal of reducing the burden on the navigator (in terms of amount of radio equipment and related procureent and service costs)?

Current and planned communication systems will be evaluated in the project. Furthermore, statutory maritime communications requirements will be identified. The next step will see the demands of the market evaluated, followed by an assessment of the opportunities existing for satellite systems, services and technologies.

A methodology and criteria for the selection of identified opportunities is being developed. The first step will deal with the definition of service selection criteria and an analysis of the service requirements, followed by the selection of services which show significant potential. The selected services will then form the basis of further analysis during the remainder of the project.

The second step will deal with the selection of satellite systems and their technologies. The selection will be based on an assessment of the abilities of the different technologies measured against the requirements of the different services resulting from the first step. The selected satellite systems and technologies will then also form the basis of further analysis in the remainder of the project.

The main outcomes of the selection process of identified opportunities will be disseminated to relevant bodies and stakeholders. A dedicated public workshop is planned in March 2014 for this purpose.

The final step will see a road map being released outlining potential new satellite systems and technology, highlighting candidates offering technologies which are considered promising and worthy of further investigation.

Everybody is welcome to share her or his ideas, thoughts and experience!

The project is seeking opportunities to exchange information with regard to possible future maritime communications in the commercial and statutory market, and not just in the context of this project. Don't hesitate to contact us! DS

About the Author
Dr Simon Plass *is project coordinator of SatCom4Mar, and a project manager at the Institute of Communications and Navigation, German Aerospace Center (DLR). Dr Plass can be contacted at Simon.Plass@dlr.de.*

By joining forces with Vizada, we have created the new Astrium Services. Now, as the world's number one communications provider across the major commercial satellite networks in the maritime sector, we offer you more. More choice thanks to our multi-satellite technology strategy. More productivity from our convenient solutions and efficient services. More engineering power as part of the world's leading aerospace company. Now more than ever, we support your smooth business operations at sea. Connect. Inform. Protect. **www.astriumservices.com**

VIZADA IS NOW PART OF THE NEW ASTRIUM SERVICES

ASTRIUM

AN EADS COMPANY

SAP develops software for CMA CGM

www.sap.com

CMA CGM, the world's third largest container shipping company, has announced that it has chosen to develop a new software system in conjunction with SAP.

The software, scheduled to go live from the end of 2015, will manage commercial processes and automate management procedures.

The French shipping company, which handles 10.6 million containers a year, says that the system will cover all 3,360,000 bookings it generates annually, including every step in the end-to-end management of freight, from the yards, ports and on board vessels, to transport, transshipment and discharge.

CMA CGM hopes that it will improve its operational performance and meet the needs of its one million customers.

Rodolphe Saadé, executive officer at CMA CGM, said: "Over recent years, the Group has established its own global network of agencies and a highly efficient fleet. To continue our development, we have chosen the best solution for our business, one that is recognised for its efficiency and strong capabilities."

"Alongside SAP, the world leader in business management software, we will customise this platform to leverage performance both for the Group and for our clients."

Franck Cohen, president of SAP Europe, Middle East & Africa, also added that his company is "delighted to partner with CMA CGM, which is now one of our major customers."

"This further strengthens our presence in this industry, enabling SAP to offer a complete and fully optimised solution for processes at the heart of the container shipping industry," he said.

'To continue our development we have chosen the best solution for our business' – Rodolphe Saadé, CMA CGM

AVEVA donates Outfitting software to Newcastle University

www.aveva.com/academic

AVEVA has donated software licences to Newcastle University to train Marine Engineering and Naval Architecture students on its AVEVA Outfitting system, which will be used on group design projects in the students' final year.

"Newcastle University has already successfully implemented and run courses using AVEVA Hull and Initial Design, so AVEVA Outfitting was a logical addition to its programme," said Fredy Ktourza, senior vice-president, Western Europe and Africa, AVEVA.

"We recently completed training in AVEVA Outfitting for six lecturers so that they can immediately begin using it with the students. This donation is part of AVEVA's Academic Initiative and will help to encourage a new generation of ship designers and engineers, contributing to the future success of the whole industry."

Approximately 70 third-year and fourth-year students will be using AVEVA Outfitting in the 2013/2014 academic year.

"This additional AVEVA software will enhance our students' capabilities," said Dr Kayvan Pazouki, teaching fellow in Marine Engineering, Newcastle University.

"AVEVA is helping us to equip students with the skill set needed to use one of the leading 3D design tools in the shipbuilding industry. Our students can now experience working with this industry-leading software to develop their own 3D models."

Marine Fuel Management (MFM) systems consultant **Mustang Technologies** has been signed as an official representative of **Nautical Control Solutions** and its FuelTrax system in the Asean Free Trade Area (AFTA).

www.fueltrax.com

Web-based resource to help with MLC compliance

www.ics-shipping.org

The International Chamber of Shipping (ICS) has launched a web-based information resource to assist shipping companies in implementing the requirements of the Maritime Labour Convention (MLC).

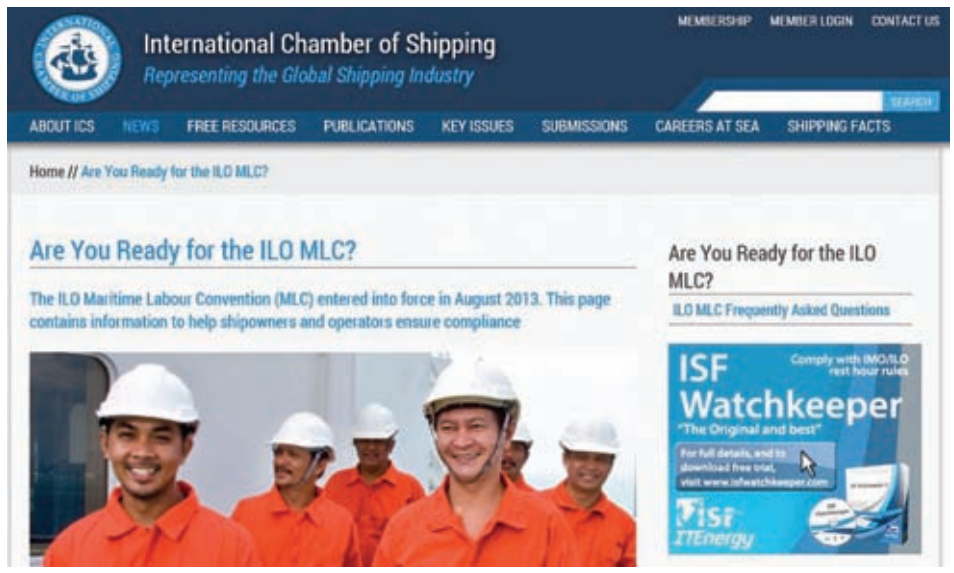
It answers Frequently Asked Questions (FAQs), lists the ratification status of flag states, and offers guidance materials produced by the ILO (International Labour Organisation). Users can also download the free 'Guidance on Port State Control of the ILO MLC' paper published by the ISC and the International Shipping Federation (ISF).

The new web area provides information about Watchkeeper, the software which the ISF developed with IT Energy to help ship managers maintain individual seafarers' rest hours in accordance with MLC requirements.

"This new ICS resource should help to answer many of the questions that employers still have with respect to MLC implementation and will hopefully serve as a kind of 'one stop shop', in combination with guidance we have already produced and that of individual flag states," said Natalie Shaw, director of Employment Affairs, ICS.

"Although the ILO work hour record requirements have been around for some time, the entry into force of the MLC means they should now begin to bite and ships will need to produce very detailed records if they wish to avoid falling foul of port state control."

The special area on the ICS website site can be found at: www.ics-shipping.org/Are-You-Ready-for-the-ILO-MLC



The website includes guidance materials produced by the ILO, ISC and ISF

Web-based terminal management under development

www.portvision.com

PortVision reports that it is working with the West Gulf Maritime Association (WGMA) to deploy a free web-based system for creating, sharing and managing terminal gate security clearance lists.

The system will initially be used along the Sabine-Neches waterway which extends from the Gulf of Mexico to Port Arthur, Beaumont and Orange, Texas.

The project is the first to be awarded a grant by PortVision under the company's PortVision CONNECT initiative, which funds web-based initiatives for non-profit maritime organisations.

"The Sabine-Neches waterway is the nation's fourth largest waterway and an ideal location for the first deployment of this important tool for improving the nation's marine terminal security," said Dean Rosenberg, PortVision chief executive officer.

"This free gate list portal will provide a collaborative, web-based solution for automating the previously cumbersome task of developing and managing marine terminal gate security clearance lists."

"Similar challenges exist in the nearby Houston ship channel and other major US ports and waterways, and we anticipate that this will be the first of many PortVision CONNECT gate list portal projects we will initiate under the same grant terms we have established with the WGMA and Sabine-Neches stakeholders."

In addition to the WGMA, PortVision is also working with members of the Southeast Texas Waterways Advisory Council to launch the gate list portal. These and other US port and waterway stakeholders are subject to the federal Marine Transportation Security Act of 2002, which requires vessels and port facilities to maintain security against unauthorised access to the marine terminal area.

To gain terminal access, vessel agents and contractors must first submit information in an approved format to the terminal security office, including an up-to-date list of personnel who will be accessing the terminal to perform work.

PortVision says that providing a web-based gate list portal for creating and managing these lists will streamline and simplify the terminal access process, improve the accuracy and completeness of gate lists, and enhance security while reducing vessel delays.

"We are pleased to partner with PortVision to bring area maritime stakeholders a great value-added tool that will directly enhance maritime terminal security," said Niels Aalund, senior vice president, WGMA.

"The PortVision initiative will be warmly received and actively utilised by a diverse cross-section of industry users."

PortVision launched the PortVision CONNECT initiative in March 2013 with a $500,000 commitment to fund the development and implementation of web-based solutions that help non-profit maritime organisations enhance port and waterway efficiency, safety and security for their stakeholders.

Eligible PortVision CONNECT programme participants include harbour safety committees, trade associations, marine exchanges and other industry organisations with a primarily maritime mission.

In addition to the gate list portal launch in the Sabine-Neches waterway, PortVision's other pending projects include information portals for real-time data access, real-time resource scheduling, and waterway alert systems.

From ship to shore,

Simplicity is the key to Success.

20 years experience. 1 simple solution.

- Type Approved PMS
- Minimal Training Required
- Rapid Technical Support Service
- No ‘Per Seat’ or any Annual License Fees
- Global Customer Base from VLCC’s to Workboats
- Complete Package or Single Modular Components available
- PMS, Stock, Procurement, Dry Dock, Safety & Document Management Solutions

Visit **www.marinesoftware.co.uk**
or email **info@marinesoftware.co.uk**

MARINE SOFTWARE

‘Simplicity is the key to Success’

Seafarers frustrated by administrative burden – study

A study by the Danish Maritime Authority, supported by InterManager, has found that seafarers believe they are spending too much time on tasks they consider to be "an administrative burden."

A survey of international seafarers revealed that a third of all nationalities are "annoyed or frustrated by administrative burdens" in the maritime sector, stemming from what the seafarers consider to be unnecessary repetition of tasks and demands for too much paperwork and documentation to be handled.

The study also concludes that there is a "significant potential to relocate time to more fruitful tasks" to increase efficiency and quality.

The study, which surveyed almost 2,000 anonymous seafarers from 59 different nationalities, asked 55 questions to understand the characteristics and perceptions of administrative burden and the different types of work-related activities perceived as administrative burdens among seafarers.

The survey concentrated on seven main areas of work: preparation of and participation in Port State Control, Flag State Control or Class inspections; vetting inspections; handling of International Vessel and Port Facility Security requirements (including paperwork and mandatory deck watch duties); planning and executing exercises and drills; using and maintaining internal management systems (QSM, ISM etc); completion of journals (garbage, oil, deviation etc); and the completion of port and pre-arrival documents (such as crew and passenger lists, vessel stores, port calls, health declarations etc).

At least 50 per cent of those responding – and sometimes as many as 79 per cent – felt the tasks were repeated too often and required too much documentation and paperwork.

The report concluded that "a lot of paperwork and documentation that is being produced on the job contributes little value to the work of the seafarers."

Port and pre-arrival documentation proved particularly problematic with many seafarers feeling a lot of the paperwork was superfluous.

The report advised that: "The qualitative comments from the seafarers give the general impression that the amount of necessary paperwork has exploded in recent years and in some cases taken time away from more urgent and meaningful tasks in terms of guaranteeing ship safety."

"Seafarers suggest easing the rigid control slightly and instead putting more focus on culture and competencies in order to effectively and meaningfully improve efficiency and safety on vessels."

The report states that "many seafarers are frustrated because they feel that the time usages are disproportionate to the gains of many of the tasks" and advises there is "a large potential to rationalise and/or digitalise at least some of the processes."

In addition, the report underlines the fact that "seafarers and shipowners" understand the rationale underlying most procedures and requirements even though these may lead to administrative burdens.

They acknowledge that such procedures are not implemented with the aim of being a burden but that "they in principle serve higher-end objectives like personal safety and environmental protection."

It points out there is scope for developing digital solutions to reduce paperwork and time consuming manual workflows, particularly in relation to port and pre-arrival procedures. In addition the report recommends a revived focus on seamanship and safety culture with a view to reducing the number of procedures and burdens and advises of a potential for increased co-operation and dialogue between stakeholders in all areas of the maritime sector.

InterManager secretary general, Captain Kuba Szymanski, said: "InterManager members and their crews were happy to take part in this important survey."

"The amount of time seafarers report they are spending on administrative tasks is eye-opening and we welcome the report's suggestion for further investigation into how these requirements can be better complied with to enable smarter working."

'The amount of time seafarers report they are spending on administrative tasks is eye opening' – Capt Kuba Szymanski, InterManager

Maximo 7.5 gets LR approval

www.srosolutions.net

UK company SRO Solutions reports that it has achieved software conformity for the Maximo 7.5 system from Lloyd's Register.

The assessment criteria are aimed at establishing that Maximo 7.5, intended for use as part of a computerised planned maintenance scheme, has been developed and tested according to acceptable standards of software engineering practice.

"We drove the whole process by providing documentation, files and other records for Lloyd's Register software conformity assessment to deliver objective evidence that the criteria for the assessment were satisfied," said Steve Driver, managing director at SRO Solutions.

"We went through a similar process last year for version 7.1 of Maximo and we are pleased that after all the work we put in Lloyd's decided it met their strict criteria for software for marine services. It now means that we can use their approval mark on all our Maximo materials."

"This accreditation demonstrates to the marine services sector that Maximo is the ideal and safe asset management solution to ensure they get the maximum return from their expensive assets. We have implemented it in many onshore and offshore facilities and have seen the benefits it delivers in terms of improved maintenance management and reduced costs. So, we would have no hesitation in recommending it to any organisation in marine services."

The software conformity assessment establishes that for Maximo 7.5 satisfactory controls are in place for design, development, verification testing of its performance, functionality, version control and configuration management.

TNKC upgrades full fleet on BASS

www.bassnet.no

BASS has clinched a fleet-wide system upgrade contract to move the ships of K-Line group subsidiary Taiyo Nippon Kisen Co. (TNKC) to the latest version of its software.

The Norwegian software provider says that 107 TNKC vessels will operate on its BASSnet 2.8 Fleet Management System. The Japanese ship management company had been using BASSnet 2.0 since 2001.

"The key attraction of the latest BASSnet software for us is that it drives productivity improvement in our fleet to exciting new levels," said TNKC's senior managing director Nakanishi Shinsei.

"With the seamless migration process managed by BASS, we anticipate rapid gains in our ship management processes immediately."

Among the ships being upgraded, 79 are from TNKC's base in Kobe and another 28 ships are from its Manila office.

In place of the legacy Easy Info application included in the system, TNKC will be equipped with the BASSnet Operations and BASSnet Document Manager modules. BASSnet Operations streamlines tasks like certificate tracking, voyage management, location management and maintaining electronic logs, among other things. BASSnet Document Manager is a document and content management solution that serves the domain of ship/shore operations.

Besides BASSnet 2.0, TNKC has also been using BASSnet SAFIR, a module that streamlines and automates safety information reporting.

The modules that will be upgraded are BASSnet Maintenance, BASSnet Procurement and BASSnet SAFIR. BASSnet Maintenance helps users plan and execute the maintenance of their fleet and manage their global stock of spare parts. BASSnet Procurement streamlines purchasing activities and optimises the purchasing cycle. BASSnet SAFIR is designed for the reporting and analysis of events arising from accidents and hazards that affect ship operations.

TNKC will be maintaining its current BASSnet Accounting and BASSnet CrewNet systems for the time being.

The Japanese fleet will upgrade its vessels to the latest BASS software. Photo: TNKC

PortPayables Dashboard

www.da-desk.com

DA-Desk has launched the PortPayables Dashboard, which provides an overview of all port expenditures that have been settled through its PortPayables services.

PortPayables is a cash management service comprised of four pillars: DA-Accounts, DA-Forex, DA-Cashflow, and DA-Compliance, which manage tasks related to payment, transfers, confirmation, netting, accounting and reconciliation.

Relevant information from these four components can be viewed on the Dashboard, which is offered at no additional cost to PortPayables customers.

"In my past experience leading finance organisations, I often found it difficult to readily access information on expenses and suppliers precisely when I needed it," said Domenico Carlucci, DA-Desk financial services director.

"Now for the first time, our customers can have instant access to all relevant information on their port-related expenditures, including statements of account per port agent, savings generated for management accounting reports and cash flow forecasts for day-to-day practical needs."

DA-Desk says that the Dashboard can help controllers to maximise savings through payments in local currencies and make certain that overfunded balances are being collected, among other things.

It can assist accountants in responding to reporting requests and allows operators to see the latest information on agent accounts, data on overfunded agents, spend by vessel, and spend by port.

The Dashboard is now live and is being introduced to PortPayables customers on an individual basis.

The Dashboard aims to provide an overview of expenditure

CargoDocs for iron ore trade

www.essdocs.com

ESS (Electronic Shipping Solutions) has reported that BHP Billiton, Royal Bank of Scotland, Westpac Banking Corporation, Cargill and Minerva Marine have recently completed the first iron ore trade using its CargoDocs electronic bill of lading and eUCP Presentation solutions.

CargoDocs was used on a shipment from Australia to China, says ESS, adding that the entire creation and presentation process took just four days.

In this trade, the electronic bill of lading (eB/L) was drafted by BHP Billiton in Shanghai. It was then approved, signed and issued on behalf of Minerva Marine by Wilhelmsen Ships Services in Port Hedland, Australia.

BHP Billiton created original electronic peripheral documents within CargoDocs and the whole eSet was endorsed and presented electronically to RBS, the confirming bank, under an eUCP600 letter of credit, all within an hour.

RBS electronically transferred the eDocs to Westpac Banking Corporation in Singapore, the issuing bank, the next working day. Westpac then forwarded them to the buyer, Cargill, completing this four corner presentation within just 4 days.

ESS says that all the documents required under the letter of credit were presented as original electronic documents.

The shipment was one of the first uses of CargoDocs electronic bills of lading in iron trades, the first live use of CargoDocs by BHP Billiton as well as the first use of eUCP Presentation using CargoDocs by RBS and Westpac.

Nadeem Ashraf, trade execution lead, Cargill Singapore, said: "ESS has supported us in creating a web-technology to simplify our processes around management of shipping documents. The use of these tools offers better customer experiences."

Manoj Menon, global head of Trade Services, Innovation & Customer Proposition, RBS, also commented: "Transferring the document electronically means this can all happen in minutes instead of days and the goods are released much sooner."

"Banks can already provide their own electronic banking services, but this may not be sustainable in the long term. Independent, multi-bank platforms are the way ahead for bringing benefits across international trade as evidenced here with ESS."

Capt. Yannis Giannopulos, operations manager, Minerva Marine, said: "We do believe that a move from the traditional paper bill of lading to a secure electronic format is the future of shipping documentation."

Ships detained for MLC deficiencies

The Paris Memorandum of Understanding on Port State Control has reported that seven ships were detained for MLC-related deficiencies during the first month of implementation of the Maritime Labour Convention (MLC, 2006).

This means that 10 per cent of the total number of detentions (68) in the Paris MoU area in this period were MLC-related.

The detentions were imposed by four different port States: Spain (3 ships), Canada (2 ships), Denmark, and Russia. The detained ships were flying the flag of Cyprus (2 ships), Panama (2 ships), Liberia, the Netherlands, and Tanzania.

The MLC, 2006 applies to all ships engaged in commercial activities. International certification is required for all ships of 500GT and over, making international voyages.

The requirements of the MLC, 2006 have had to be implemented on board relevant ships since the entry into force date 20 August 2013, but only the member States of the Paris MoU who have ratified the MLC, 2006 on or before 20 August 2012 are entitled to conduct PSC inspections on MLC, 2006 requirements since the 20 August 2013 date.

As a result the following twelve member States have started enforcing the MLC, 2006: Bulgaria, Canada, Croatia, Cyprus, Denmark, Latvia, the Netherlands, Norway, Poland, Russia, Spain and Sweden.

Videotel gets serious

www.videotel.com

Maritime training provider Videotel is launching its first serious game, a training course entitled Entry into Enclosed Spaces.

Developed in conjunction with Mines Rescue, the interactive course puts the learner into a real-life scenario, enabling them to apply their knowledge to specific situations under realistic time pressures.

"Interactivity is the future of training," said Nigel Cleave, CEO of Videotel.

"It takes CBT (computer-based training) to new levels, allowing learners to explore, and think for themselves. They can learn by doing, and we are able to design learning in a less linear way. The step change in using serious gaming is that it presents the learner with the time pressure and the unpredictability of a real situation."

"In addition, research has shown that in a learning environment people clearly remember what they do. This makes simulations and games the ultimate training tool, duly complementing our existing video, CBT and interactive courses."

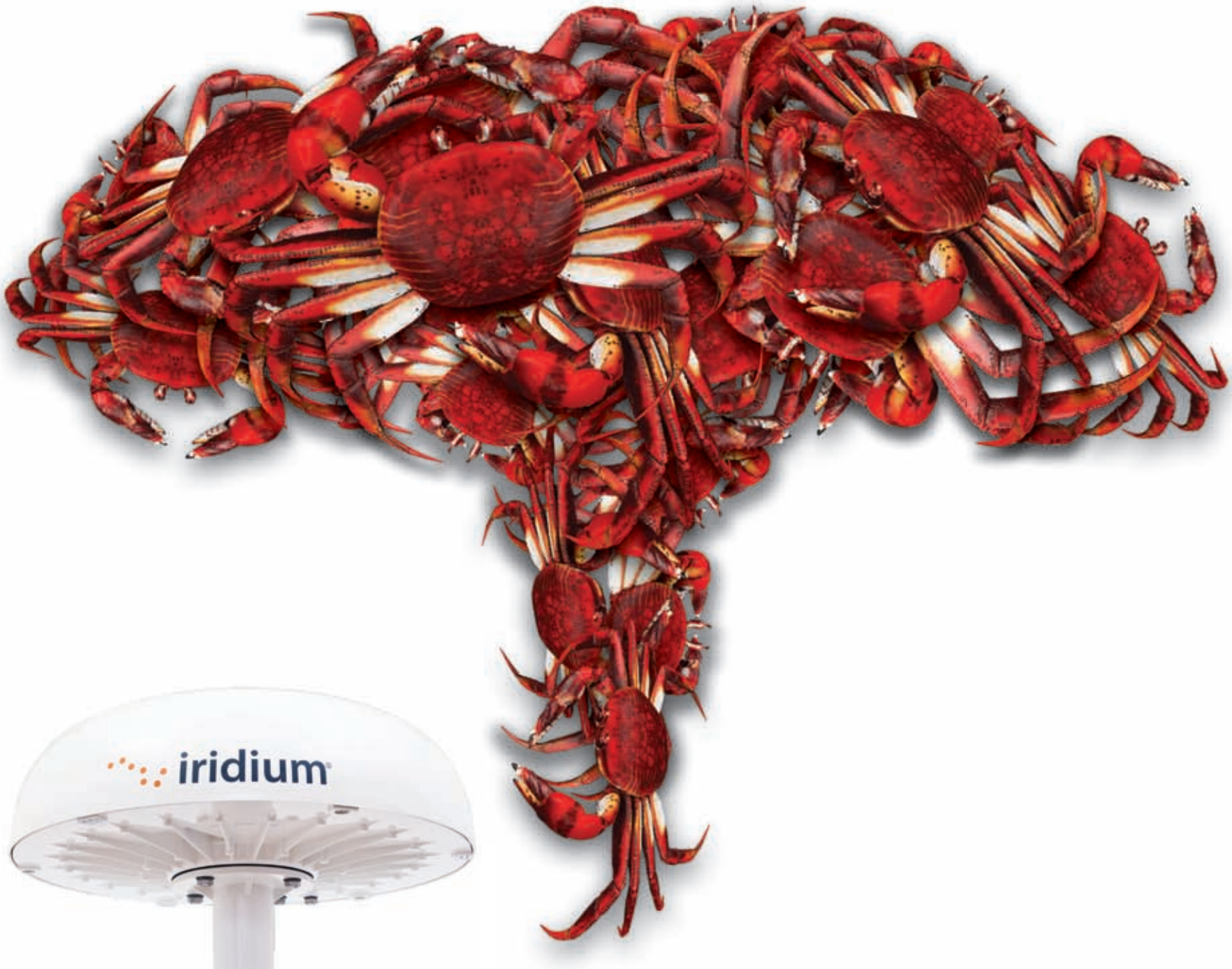
In the game environment, the player will be tasked with identifying and fixing a problem with a ballast valve on a bulk cargo ship. The valve repair must be carried out urgently.

The player should conduct all safety checks and equipment preparation before moving down into the enclosed space. While the repair is taking place, the player will need to move between sections separated by lightening holes. Consequently, the air in these sections may differ and should be checked.

However, unbeknown to the learner, one of these sections contains a toxic atmosphere, and he/she is challenged with dealing with the situation.

The new game contains important safety lessons

Ship Shape



- **Reliable pole-to-pole global coverage**
- **Delivering email, weather, crew calling and more**
- **Best value installation and airtime**

Iridium **Pilot**™

All your maritime communications reporting for duty

Iridium Pilot delivers reliable, high-performance global voice and data communications, backed by an industry leading five-year warranty for peace of mind — no matter where you are.

iridium® Everywhere

www.iridiumpilot.com

Chemical tanker e-learning package introduced

www.eagle.org

Classification society ABS has launched Chem-eL, a specialised training package designed for chemical tanker operations.

ABS says that Chem-eL is a sector-specific e-learning marine product developed in accordance with the requirements stated in the International Maritime Organization's International Convention on Standards of Training, Certification and Watchkeeping for Seafarers and the relevant IMO Model Course.

Developed by ABS in cooperation with the Malaysian Maritime Academy (ALAM), a subsidiary of MISC Bhd (MISC), Chem-eL is designed to enable shipowners to optimise their training programmes for shipboard and shore-based staff.

"MISC identified a need for an e-learning program that could be used within the MISC and Group company fleet, as well as for students at its own training facilities," said ABS chief learning officer Mark McGrath.

"Drawing on technical knowledge from within ABS, we were able to develop a curriculum that could additionally serve the wider industry."

The package was made available to MISC headquarters in October 2012 for use across the fleet and at its maritime training institution, ALAM, to enable eight months' shipboard and shore-based testing.

David Fredrick, Malaysian Maritime Academy Chief Executive Officer, noted that "ensuring the required level of safety in chemical tanker operations requires a very high standard of training to support crew competence."

"When MISC wanted to develop a training package for use at ALAM and across the company, we knew that ABS had the technical and education expertise to support our aims and deliver a package that fulfilled our needs."

Accessible online, Chem-eL requires no specialised software installation. Course topics include an introduction to chemical tank practices, chemical and physical cargo properties, hazards and hazard control design, cargo containment and handling systems, safe working practices, pollution prevention and ballast operations.

Also covered are tank cleaning operations, risk management, the ship/shore interface, emergency, security and custody transfer aspects relating to carriage of liquid chemicals in bulk.

Capt Loo Eng Chuan, MISC senior manager, operations, Chemical Business Unit, said: "Chem-eL is the first program that provides step-by-step guidance to learners from basic understanding to advanced stages of chemical tanker operations and it also covers commercial aspects of the chemical business."

In related news, ABS has also recently announced that it has formed a new Asset Performance Management Group (APMG), which integrates several existing services, including its ABS Nautical Systems software division.

The APMG will bring together: ABS Operational and Environmental Performance (responsible for assisting clients with energy efficiency, operational and environmental performance), ABS Nautical Systems Product Line (which provides asset management solutions through the NS5 Enterprise software suite), and Asset Integrity Management (which helps clients develop life cycle management programmes that address reliability, technical integrity and safety).

These business units will work as a single team focused on complete life cycle performance services.

"The future of classification requires ABS to work with our members and clients in a more collaborative, more efficient and less intrusive way," said ABS chairman and CEO Christopher Wiernicki.

"To effectively meet the needs of the marine and offshore industries, we are continually seeking ways to better integrate our traditional classification services with innovative concepts, tools and practices."

"Nautical Systems has been and will continue to be a key differentiator for ABS in both the marine and offshore sectors. No other classification society has the ability to bring together such a wide breadth of services to compliment traditional class needs."

Howard Fireman will lead the team as senior vice president, Asset Performance Management and will serve as president, Nautical Systems Product Line. He joined ABS in February after a 35-year career with the US Navy including the role of Chief Naval Architect.

Stephen Schwarz will be joining ABS as vice president and COO for the Nautical Systems Product Line. He comes from SunGard, where he worked as head of Product Management, Global Customer Service and IT Operations.

'We are continually seeking ways to better integrate our traditional classification services with innovative concepts, tools and practices' – Christopher Wiernicki, ABS

KVH® INDUSTRIES
MINI-VSAT BROADBAND®
WORLD'S No. 1 MARITIME VSAT SERVICE

The No. 1 maritime VSAT network brings a new dimension to broadband at sea.

SATCOM... and beyond!

KVH's new IP-MobileCast is a unique content delivery service providing affordable news, sports, entertainment, electronic charts, and weather *on top* of your mini-VSAT Broadband connection.

Introducing IP-MobileCast™

- Movies & IPTV
- TV News & Sports Clips
- Newspapers
- Radio
- Training & e-Learning
- Crew Social Media
- Weather Files & Forecasts
- Full ECDIS Chart Database Delivery & Updates

KVH's end-to-end solution empowers you to deliver the bandwidth your operations demand, keep your crew happy, and manage your budget... *all at the same time.*

Get the details:
www.minivsat.com/VIP

New VIP-series features powerful Integrated CommBox™ Modem (ICM) – the hub for IP-MobileCast services.

KVH INDUSTRIES WORLDWIDE

World HQ: United States | info@kvh.com +1 401.847.3327

EMEA HQ: Denmark | info@emea.kvh.com +45 45 160 180

Asia-Pacific HQ: Singapore | info@apac.kvh.com +65 6513 0290

Data driven crew management

Third party shipmanagement company MSI recently embarked on an assessment project to evaluate how well it was managing recruitment, deployment, training and development of its seafarers – and where there was room for improvement. The results led to the commencement of a fleet-wide software implementation that will completely change the way the company operates, as Jackson Pho, MSI, told *Digital Ship*

There is a long list of challenges involved with running a deep sea commercial fleet of vessels in the modern environment.

Container ships, tankers, bulkers and the long list of other vessels that travel around the world are expensive, complicated machines that require fuel by the ton, at costs that have spiralled upwards while daily rates have hit the floor.

Many of these challenges are industry specific and pose problems that many working outside the maritime sector may not appreciate. However, one of the issues that shipping companies must deal with on a daily basis that shares some common ground with businesses across the world is the management of people.

In almost any commercial enterprise it is the people behind the company that drive the engine of progress, and it is their efforts that will make the company a success – or otherwise.

Shipping is no different in this respect. However modern your ship design, however well you construct your IT systems to make the vessel state of the art, that ship will travel nowhere without a crew to man it.

In other respects though, shipping is worlds apart from most other industries when it comes to dealing with manpower. The skills and training required are specialised, and the working conditions involve extended periods of time away from home living in difficult, and potentially dangerous, surroundings.

So crew management poses a special and significant challenge for modern shipping companies, which must be met to ensure that they are generating the maximum return from the floating assets they control.

MSI, a third party ship manager headquartered in Singapore and managing a fleet of more than 100 vessels, including tankers, bulkers, transshippers and tugs & barges, has recently initiated a project to improve the way that it manages its crew, and has found that the application of technology can offer significant benefits in this area.

Formerly the fleet management arm of IMC, with 60 ships under management, in 2005 the company formed a joint venture with V.Ships to form V.Ships (Asia) MSI Pte Ltd, increasing the number of vessels under management to more than 80 ships.

That situation continued until 2007, when MSI separated from V.Ships and MSI Ship Management Pte Ltd was established.

These various changes and subsequent growth has led the company to where it is today, trying to run an extensive fleet in the most efficient way possible.

"For MSI, and I'm sure for many other ship owners and operators, crew is the number one factor in our success. But at the same time it's also our number one challenge," explained Jackson Pho, director, business systems and process, MSI.

"There's a shortage of quality crew, shorter contract periods, faster promotions, weakening loyalty, and it's made worse by the increasing demands on the crew to comply with regulatory requirements. There is more and more paperwork, putting stress on the crew."

'We found a number of opportunities for improvement' – Jackson Pho, MSI

"Strengthening recruitment, deployment, training and development, and retention is the obvious answer. But how do we go about it?"

MSI's answer was to initiate a thorough evaluation of the company's policies and processes to try and identify areas where things could be done better with regard to crew management.

"We found a number of opportunities for improvement," said Mr Pho.

"In recruitment, we realised that we did not keep complete records for the crew of their experiences in training, evaluation and career progression. Many officers often complained about our legacy systems being too slow to input data and upload documents. Also, the recruitment processes were too slow for us."

"Crew change planning and execution was done manually and was silo based, with insufficient coordination between our crew department and manning offices, resulting in delays in relieving the crew and an inability to maintain a proper crew rotation programme. A lot of e-mail communication was often required to exchange information and to get even simple things done."

Training and development of the company's pool of seafarers was also identified as an area with the potential for significant improvement.

"A lot of effort was needed to keep track of the training reports for crew, especially for computer based training and on board training," said Mr Pho.

"Performance appraisals were kept in individual documents, so they were often difficult to retrieve when needed. It was also difficult to monitor if appraisals had been completed within the required timeframe."

"As a result it was difficult to measure crew development progress and proactively monitor training needs for them. Without a holistic view of progress it makes it more difficult when assessing the crew for promotion."

In addition to these areas that could benefit from a change in procedure, the company also wanted to streamline its payroll process, to make it work more efficiently and remove the potential for mistakes that would cause discontent among its seafarers.

"Making the crew feel that they are well taken care of is the key to retaining them," notes Mr Pho.

"The most basic requirement is to pay them or their beneficiaries on time and the correct amount. Mistakes and delays happen when the process is too manual and cumbersome and a lot of instances of information exchange are required between the vessel, crewing and finance departments."

Software upgrade

The result of this evaluation process at MSI was a decision to move forward with an overhaul of the IT systems it used to manage its crew and begin the search for a software system to integrate the various silos of information that existed in human resource management at the company.

"With all of these myriad challenges we realised that our crew and shore staff need help," said Mr Pho.

"We needed to arm them with the right tools to ease their workload and to make them work smarter and more effectively. We needed to better integrate with our manning agents to share crew data documents, preferably through a web-based system. Our legacy systems were unfortunately not getting that done, so we decided one year ago to go out to the market and look for a new system."

"The market for fleet management systems is fairly fragmented, there are no giants like SAP or Oracle. Learning from the experience we had of struggling with our legacy systems for many years, we were clear from the start on the criteria we had for the new system, in addition to meeting our requirements in terms of the features and work flows."

For MSI, choosing a vendor involved benchmarking of the various competitors against a list of criteria outlining exactly what it wanted to get out of the software implementation process, both in terms of the system itself and the company it would be working with.

These included a desire to find a vendor with strong financials and a sizable customer base, that was able to offer off-the-shelf systems developed to mirror industry best practices.

"We want a company that can support and upgrade our system for many years to come. This is important as the requirements in this industry are changing so rapidly that we need to constantly upgrade the systems to meet those requirements," explained Mr Pho.

"As a medium sized ship manager we do not wish the system to be customised to our processes, which is what the legacy system was, leading to a lot of bugs and difficulties in upgrading. Instead, we want to learn from best practices, from the best in class companies out there. On top of that we are looking for a company that is going to grow with us in the long term."

"We also want a fully integrated system – including crewing, PMS, procurement, safety etc, so our processes are integrated end-to-end and allowing information to flow seamlessly between the various functions, and break down the silos as a result."

MSI also wanted to work with a single user interface, to make training of the crew much easier and to reduce the complexity of on-going maintenance.

"We don't have huge IT resources and don't wish to keep a big team to maintain multiple systems if we chose best in class systems for each separate module. In addition, with all the information centralised in a single location it will allow us to get updated information on everything easily," said Mr Pho.

"For us, when we evaluated the software we tried to involve the users as much as possible, they were part of the evaluation team. Of course the crew are users too and can't be that involved, so we used ex-crew that are now shore staff and technical staff."

"In the end we went with a system that wasn't the cheapest, but is one we believe will serve us well into the 2020s and beyond."

Implementation

The ultimate result of this software project was that MSI chose to agree a deal with software provider BASS to implement its BASSnet package across its fleet of ships.

The implementation process is now underway, and the company hopes to have all vessels on the system in 2014.

"We are still in the midst of the implementation, we're targeting about five vessels per month to have the system implemented. Overall it will take more than a year to have everything implemented," said Mr Pho.

"But at the same time, since our biggest gap with our legacy system is on crew

YOUR COMMUNICATIONS ARE SECURE WITH SPEEDCAST

SpeedCast is a leading global maritime satellite communications service provider, with a strong leadership position in the fast-growing Asia-Pacific region. SpeedCast has a proven track record servicing most segments of the maritime industry, including Commercial, Offshore, Navy, Research and Yachting. Offering the widest selection of services in Ku-band, C-band, Ka-Band and L-band, we are able to expertly advise our customers on the best possible solutions for their specific needs. The high-level of redundancy in our network both in terms of satellite coverage and teleport infrastructure, provides our customers an unsurpassed level of service and reliability. Your communications are secure with SpeedCast.

SpeedCast™

To learn more, visit: www.speedcast.com/maritime | T: +852 3919 6800
For sales inquires: seacast@speedcast.com | F: +852 3919 6880

Visit us at: Marintec China
3 - 6 December | BOOTH# N3F31.4
Shanghai New International Expo Center

marintec China

MSI intends to implement the new systems on all its ships over the course of 2014

management and crew payroll, we have implemented it fully in the office and are now using the crewing system to manage our crew and process their payroll for the whole fleet."

"Because of that the shore staff can process data on behalf of the vessel for the time being. That will continue until we roll out to all the vessels, and then we'll slowly migrate that responsibility to the crew on board the vessels."

The company also conducted training during the set-up period, to make sure that those on board were comfortable with the systems as they went live – a process which should also help in preparing them to take on that responsibility from the shore staff.

"What we did is, when we first installed it on board the vessel we spent five days minimum on board the vessels with our IT engineers doing the initial set-up and installing the server," said Mr Pho.

"As soon as it was done we did extensive training with the crew. We have found that to be very effective. After the five days normally we can go live straight away, so far we haven't had any issues. The system is very user friendly, the feedback from the crew has been that it's easy to get the hang of it."

"But I should also emphasise that our crew have experience working on the fleet management system before, our legacy system, so they more or less know about the processes and what to expect from them. It's just that now we are introducing a more advanced system with a better user interface, which they've adapted to very easily."

The system that the company is rolling out will require data replication from the software on the ship back to shore, and vice versa, which will be done over FleetBroadband using e-mail.

"We're sending all types of data, across all the different modules. As long as there are updates from the vessel or updates from the shore they will be replicated, it's only the changes that go across the satellite link," said Mr Pho.

"It's done in a condensed way using various packages to get it to the minimum size. So far it seems to be working well, we've had no issues with the replication at all."

Data will be entered directly at source in many cases and fed into the software – from there it should populate the system back on the shore side, without requiring further attention.

"We have a terminal in the engine room, so engine room information is directly entered there, for example. The next level of development is to have the right sensors in place so that data can be automatically fed into the system – but we're not there yet!" said Mr Pho.

"Data collection is just the first step – after that you need to know what to do with the data, how to analyse it and make it effective, to come up with action steps and benefits. We're still working on this."

"You also need different levels of checks and balances, on any system you can't assume that anyone that enters data has got it correct. With the crew management system, for example, when the manning officers input the crew data into the system, we have crew coordinators at headquarters who will check if it's correct and feedback to the person who input it. Similarly, if the crew on board the vessel input data our shore staff will check it, and at the same time we ask the master on board to verify things like the crew payroll data before it's processed. So there are still checks required."

Implementation of a new software system creates a set of challenges of its own of course, as it means a significant change in the way that people at the company are used to working – managing this process carefully is also a vital part of any successful software project.

"I think that is one of the most, if not the most, critical issues that faced us in terms of implementing a new system. It's not an easy process and we are still in that process, but what we have learnt so far is that for users to buy into the new system they must see the benefits of using it," said Mr Pho.

"Training is something that most people, probably us included, underestimate in terms of the amount that's needed and the cost involved. We want training to be conducted by 'super users' themselves, but these are people that have daily jobs, people like superintendents or senior purchasers."

"And no matter how much training you give, to a certain extent they will only really see the benefits if they use it themselves. So what we are doing now is that we are trying to sit with all of these users at the start to demonstrate the benefits they can have from the system – it's a very time consuming process but we find that this is the most effective way of getting them to buy in. If they have to sit through a training course we get complaints about why they have to do more now, but if we can individually explain to them and go through the system with them to let them see the benefits it will be better."

One example of how the company will be trying to change the work processes of its staff is in their use of Excel spreadsheets for data management.

As Mr Pho describes it, the use of Excel reports was prevalent in the company as part of its legacy system, so the management is now making a conscious effort that when the new system goes live Excel usage will be cut off.

"We tell them 'no more Excel', though at the same time we must ensure that we are able to get the reports generated by the new system," he said.

"That is an on-going process, and very important. A lot of times when we implement a system people may not see the benefits because they go back to their old practices, they maintain their Excel spreadsheets in addition to the new system and don't see the benefits."

"We need to talk to them and ask them why they are doing this – maybe they're more comfortable that way, the format is not the same, or whatever else – and help them to become ok with the new system so they can stop using the Excel spreadsheets. It's time consuming, but that's why I would say that it takes many years to get it right. You can't implement it today and see the results straight away."

Return on investment

Having implemented the system in the office and on a portion of the vessel fleet, Mr Pho is asked if the company has been able to identify the potential return on investment that may be accrued from this software project.

"This is the same question that our management asks!" he responds.

"I think it's a bit premature now to answer because we have not fully implemented the system on board the vessels. But to invest in the system in the first place we had to come up with an investment proposal with an IRR (internal rate of return) model of 10 to 20 per cent."

"For any system implementation like this it takes time to implement and then to see the results. So we shouldn't expect an immediate return within a year or two years, but in terms of benefits, we do see them coming in improvements in our activities, definitely, in terms of the support functions, in terms of the number of ships that each superintendent can handle."

Mr Pho notes, for example, that the company can also expect to see improvements in the number of ships that each purchaser and each crew coordinator can support. For all of these various focus areas the company intends to analyse the changes to create a precise picture of where returns are being created.

"We will be measuring those process improvements – for example, we can measure the time from a requisition to a delivery on board, the cycle time from the invoice through to the payment to the suppliers. All these things will be measured and we can see where we're improving," he adds.

"The software has a KPI module, but because we haven't got it fully implemented across all the vessels it hasn't been turned on yet. But once we have all the vessels turned on we'll start to do that."

"Other vessel-specific KPIs we can already start monitoring, of course, things like overdue jobs on the PMS systems or number of open requisitions. These kinds of things we can start checking."

In addition to the greater efficiencies in its processes that MSI expects the system to generate, the company also hopes that the life cycle cost of the new system will be greatly reduced in comparison to its existing set-up.

"I don't have the specific figures in mind (for life cycle costs), though we do have a legacy system so we know the costs we were incurring to support that. When we move to the new system we expect that to come down, because this is an off-the-shelf system and a lot less maintenance should be required," said Mr Pho.

"For instance, for the previous system we had to hire a full-time software engineer from the vendor just to sit in our office to do development work and change requests, and so on. With this new system we're going to remove that position, so that will also save on costs."

Once all of this performance data begins to come in Mr Pho is confident that the company will begin to see significant improvements in its operations and reductions in costs.

From his point of view, modern software systems like this one are no longer something that can be ignored by the maritime industry, and should form a fundamental part of operations for anybody in a similar business in the near future.

"I believe that many people in the maritime industry are still somewhat sceptical about IT systems. It is definitely not the solution to all of the challenges that we are facing in the industry today, but I can see no reason why we are not investing more in IT to help us to work smarter in an increasingly digitised world," he said.

"Success is less based on the specific system you choose but rather its implementation. It's a chicken and egg issue – if you don't start then you'll never master it. It takes many years to get it right."

"So my advice is not to wait any longer if you can avoid it – get on the digital highway to future-proof your operations." DS

A telephone system for ships is being upgraded in half a century

NET.Co.,Ltd located in Ulsan, Republic of Korea announced that it succeeded in developing VoIP based Automatic Exchange Telephone System for maritime commercially for the first time in the world.

A specialized shipboard internal communications network and equipment small &medium sized company NET.Co.Ltd is known as one of the world's top companies that holds about 2,000 ships system installation performance since 1999.

The world's first commercial marine Automatic Exchange Telephone system organized by the government of the Republic of Korea as part of research and development projects meet the government policy to jointly develop and commercialize by NET.Co.,Ltd and DSME (Daewoo Shipbuilding & Marine Engineering) in that promoting the coexistence between both SMEs and large enterprises for about two years

Joint research and development group photo after the regular meeting

The early stage of the convergence of sea-based wired and wireless internet is underway as the popularization of smart phone and mobile devices have rapidly expanded.

Next-generation Internet-based services emerged as the core of digital convergence, the Internet telephone system with the development of maritime satellite communications is drawing new attention as the standard for voice transmission. The demand in the area of shipbuilding and offshore is steadily increasing due to the relatively low communication cost compared with analog phone system.

However, it hasn't been made localization because of cost, relatively low margins and lack of skill for special product development that can adapt to marine environment.

The difference between Automatic Exchange Telephone System for maritime and Land-use phone system is as follows.

First, it should meet the conditions a link with a broadcasting and alarm system in an emergency. Second, waterproof and explosion-proof featured phone is required to adapt a marine environment. In order to meet the demanding conditions on the sea, the basic equipment for routine calls was developed in appropriate modules for marine environment including an IP-PBX waterproof phone, indoor phone and salinity proof phone

NET.Co.,Ltd also supply development of programs for monitoring and managing these internet-based phone system on land as well as server development in conjunction with analog-based broadcast(ing)system.

An internet-based phone system for maritime has the following differentiated features compared with a conventional analog system. First, ships that are equipped with wireless communications interlocking with smart phone also can be used with corded phone system. This expanded option makes communications possible anywhere on the ship with the land. Second, it can meet communication needs to use message function on land use for crews on the ship. Third, it is (was) difficult for an operating ship to provide unified time information when passing through an international date line. It has a function of notification converting standard time provided by GPS to current local time on LCD monitor and is developed to offer additional functions providing information such as notice and menu guide.

In order to establish a seamless communication system, is prepared for increased traffic that designed data separately by applying dual power device, uninterruptible power supplies, the internet telephone traffic on connection port of PoE (Power over Ethernet) and VLAN (Virtual LAN) technology applied PC data traffic.

Additionally, dual system control enhanced stability via autoswitch mode technique and bypass routing system in order to use an extra network channel in case of network failure disconnects the Internet. In addition to it, a remote maintenance system has also been developed to monitor an IP-PBX and a phone status on land. IP - PBX can be monitoring in conjunction with the backbone network management program.

The system is able to provide uninterrupted service for the new system that has been developed to manage tens of and hundreds of phone status egularly by modifying on-off function and software.

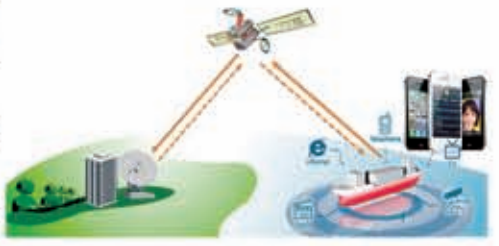
VoIP based Automatic Exchange Telephone System for maritime has been adopted as the standard for ship's design by DSME Ten ships already are being operated equipped with new system among 50 ship's order such as LNGC, container and Pipe Laying Support Vessel (PLSV). Additionally, more than 10 ships are built by Daewoo Romania Mangalia Heavy Industry with DESC design. It will be equipped with the tanker that is scheduled for construction in United States Nassco shipyard.

A Daewoo Mangalia Heavy Industry built container was delivered with new telephone system last June.

A new developed domestic applied domestic technology is accelerating globalization by entering into the shipyard in Europe.

VoIP Automatic Exchange Telephone - SWAN IPT 3000S

A specialized shipboard internal communications network and equipment company Net Co.Ltd is commercializing through ongoing research and development for more than ten years not only an internet-based phone system for maritime but All-IP based CCTV system development for maritime, Wi-Fi-based new concept time information system, a remote maintenance management system for an internet-based equipment. The Net Co.Ltd is pursuing global markets through commercialization based on successful technology development.



The company is continuing its efforts to grow a global player in its own industry, while proceed research and development of new networks for ships and offshore floating units

3D printing – the future of maritime spare parts?

3D printing is one of the latest technologies hyped as the 'next big thing', with many eager to see it as the next great revolution in manufacturing. In the maritime context, could 3D printing help to make storage of spare parts on board a thing of the past? *Digital Ship* examines the possibilities

The world of 3D printing, also called additive manufacturing, is currently going through a growth explosion, with worldwide shipments of 3D printers set to grow by nearly half in 2013 as the technology increases its presence in mainstream industry.

According to research company Gartner, worldwide shipments of 3D printers (3DPs) priced less than $100,000 will grow 49 per cent in 2013, to reach a total of 56,507 units.

And this is just a starting point – Gartner notes that rapid quality and performance innovations across all 3DP technologies will drive enterprise and consumer demand to the extent that shipments will increase further in 2014, growing 75 per cent to 98,065 units, followed by a near doubling of unit shipments in 2015.

"The 3D printer market has reached its inflection point," said Pete Basiliere, research director at Gartner.

"While still a nascent market, with hype outpacing the technical realities, the speed of development and rise in buyer interest are pressing hardware, software and service providers to offer easier-to-use tools and materials that produce consistently high-quality results."

"As the products rapidly mature, organisations will increasingly exploit 3D printing's potential in their laboratory, product development and manufacturing operations."

"In the next 18 months, we foresee consumers moving from being curious about the technology to finding reasons to justify purchases as price points, applications and functionality become more attractive."

The research firm predicts that 3D printing will have a high impact on industries such as consumer products, industrial and manufacturing; a medium impact on construction, education, energy, government, medical products, military, retail, telecommunications, transportation and utilities; and a low impact on banking and financial services and insurance.

"The hype around consumer 3D printing has made enterprises aware that the price point and functionality of 3DP has changed significantly over the last five years, driving increased shipments beginning in 2014," said Mr Basiliere.

"Most businesses are only now beginning to fully comprehend all of the ways in which a 3DP can be cost-effectively used in their organisations, from prototyping and product development to fixtures and moulds that are used to manufacture or assemble an item to drive finished goods."

"Now that many people in the organisation, not only the engineering and manufacturing department managers but also senior corporate management, marketing management and others, have heard the hype, they want to know when the business will have a 3D printer."

Further research by The McKinsey Global Institute has reiterated the point that the use of 3D printing is spreading quickly, pointing to the fact that the machinery is improving, the range of materials is expanding, and prices for both printers and materials are declining rapidly.

The price for a home 3D printer decreased by 90 per cent in just four years, with more than 6,500 3D printers shipped in the United States in 2012, the institute reported. The Institute notes that the machines are used mostly for assembling models and prototypes, but have also been used to make intricate aerospace components and even replacement human organs.

In its 18th annual report on additive manufacturing published last May, Wohlers Associates forecasted strong double-digit growth over the next several years, expecting the 3D printing industry to be worth $4 billion in 2015, to approach $6 billion worldwide by 2017, and to reach $10.8 billion by 2021.

Modern 3D printers can be small enough to fit on a desk top, or as large as a refrigerator, depending on their complexity

With acceptance of the technology growing at such a rate, what might the implications be for the shipping sector?

In theory at least, the maritime industry should be among those with the most to gain from this kind of technology – when your business premises are travelling across the oceans, popping down to a supplier's warehouse becomes slightly more difficult so the ability to manufacture items on site has a certain appeal.

Modern ships are continually required to order and stock large numbers of spare parts and supplies to make sure that they are not caught short when needs arise out at sea. Could 3D printing change the way that this process is managed?

How it works

3D printing, or additive manufacturing, is a layering process. Rather than being created by casting or stamping, the object is built up layer by layer. Although the principle remains the same, the term covers a range of different techniques.

The birth of 3D printing, moving from the inkjet printers that printed with ink to those that could create objects using new materials, can be traced back to 1984 when Charles Hull invented a process called stereolithography – a type of printing that would allow a tangible 3D object to be created from digital data.

The early days of 3D printing in the 1990s saw the technology begin to be used for 'rapid prototyping', but evolved over the years into what is now called additive manufacturing.

The major difference in the systems moving in this direction is that in prototyping you are designing something with the parameters of the machine that will construct it later in mind, whereas additive manufacturing aims to create the finished article – letting you completely change the way you design parts.

RedEye, a 3D printing company already supplying services to the aeronautical and automobile industries, currently uses two main techniques in its 3D printing.

One of these, as Tim Thellin, project manager at RedEye, explains, is called Fused Deposition Modeling (FDM), while the other is Polyjet.

"(The FDM) process uses a thermoplastic material that is melted through a fine nozzle. It's like a hot glue gun except that a very precise and very fine extrusion comes out of that," he told *Digital Ship*.

"The other technology we use is called PolyJet. It's similar to 2D printing except that instead of printing out a pixel, you're actually printing out a voxel, which is just a three-dimensional pixel. It juts out the entire layer and then it 'cures' that layer with a UV light."

3D printing has many potential advantages over traditional manufacturing, including the fact that it can be used for the production of small numbers of items rather than the large numbers usually involved with a factory production line.

The items created using modern technologies can also be dynamic, including moving parts that do not need to be assembled – for example, in 2008 the first person successfully walked on a 3D printed prosthetic leg that had all of its parts, such as the knee, foot and various sockets, printed in the structure without any assembly.

"Complexity is not really an issue with this technology," says Mr Thellin.

"You can produce a complex shape that can't be injection moulded, for example. The shapes can have undercuts, internal holes, internal cavities, things that can't be injection moulded."

"You can build an assembled part all as one piece, without having to print them individually and then assemble it after. You can build that part, it's already functional, and you can put it right into end-use, into the application as needed, without somebody having to assemble all pieces together. So you reduce the labour and the time to get that part to where it needs to be used."

The RedEye project manager says that 3D printers could be taken on board ships and that the Fused Deposition Modeling technology could work even in rough seas. Smaller 3D printers are not much bigger than a 2D printer and can fit on a desk top, while others can be the size of a large industrial refrigerator.

"The FDM technology has been tested in zero gravity," he notes.

"And the FDM technology proved to work very well. The system itself could build under zero gravity for example, it could build with some movement to it and it didn't affect the part coming out of it."

It should be noted that, in contrast to FDM, competing technologies using resin or powder need a stable environment.

The type of spare parts in question would also have a significant effect on the viability of 3D printing technology in the maritime setting. From the outset at least, rubber or plastic items with reasonably simple designs would seem the most realistic target.

ShipServ's rankings of the top 20 Product category searches by maritime buyers on its ShipServ Pages system over last five years show that Auxiliary Engine parts are at the top of the list in terms of spares.

While this category might be quite specialised and feature parts a little complex for the early days of on board 3D printing, the second placed category, Valves, is probably more suitable in terms of what could be produced with reasonable ease today.

THURAYA MARITIME BROADBAND

Reliable | Flexible | Affordable

Cost of Ownership:

50%*

Network Strength:

100%

Quality or value?
Now you don't have to choose

Maritime Broadband from Thuraya MarineComms

Maritime Broadband (MBB) from Thuraya MarineComms has been designed to provide shipping industry customers with the connectivity they need to keep their ships running efficiently.

Combining a reliable L-band service with proven hardware, Thuraya MBB provides a very competitive price proposition for maritime users who want to enjoy broadband connectivity and also keep control over costs.

www.thuraya.com/MBB

Follow us on /thurayatelecom

THURAYA MARINECOMMS

From an engineering point of view a valve could be reproduced without great difficulty if it was done accurately and with sufficient strength to hold up to the pressure it would encounter when in use.

Other categories in the top 20 list, such as Pumps at number 5, Metal, Steel & Rubber Supplies at number 14, and Pipe Repair Products and Pipes & Tubes (numbers 17 and 18 respectively), could also conceivably benefit from the ability to 3D print spares on board as required using current technologies.

Limitations

The real limitations for 3D printing in its current state rest elsewhere.

"Because it's a layering process, it may not be as strong as an injection moulded part. Injection moulding is going to make more of a uniform part," Mr Thellin admitted.

"You don't want to have super-thin features or walls. You want to build those up so that there is enough volume there to have the strength requirement."

"(However), if you have a part that is designed correctly and built correctly, it will match pretty closely (to) the quality of an injection mould part. It could be anywhere from 80 per cent of the strength value or greater."

Mr Thellin also notes that, "today in general the process is slow." For instance, it may take four to six hours to make a small air louver for a car. He predicted however that speed would increase over time.

Another obstacle may reside in the size of the data necessary to build a part.

"Typically we start with a three-dimensional file that comes from a CAD (Computer-aided design) application. That file is then converted into an STL (STereoLithography) file; it's the industry standard file format, it's just a 3D representation of a CAD file," Mr Thellin explained.

"We take that file into our proprietary software, where we actually slice it into the layer resolutions we're going to build it as. It then calculates the tool path that it's going to use to lay down that plastic bead."

"So the STL file can range anywhere from a few hundred kilobytes all the way up to 200-300MB, they can get pretty big depending on how big the part is and how fine the resolution is on all the features. And that would be about the same for the tool path files we actually build on the system. Those typically range from a couple megabytes to 100-200MB in general."

Transmitting this amount of data to a ship would require a significant amount of bandwidth and, while it would presumably only be undertaken by someone using a flat-fee service and would therefore not directly impact any airtime bills, it would still constitute a large amount of traffic.

Therefore, the most likely scenario would see a ship maintain a local database of digital files for the specific spares on board, given that terabytes of storage is significantly cheaper than even the cheapest satcom contracts.

"For storage, all it would require is a simple file server. You would just have to have a lot of space to keep all the geometries you want to keep in a digital inventorial so to speak," said Mr Thellin.

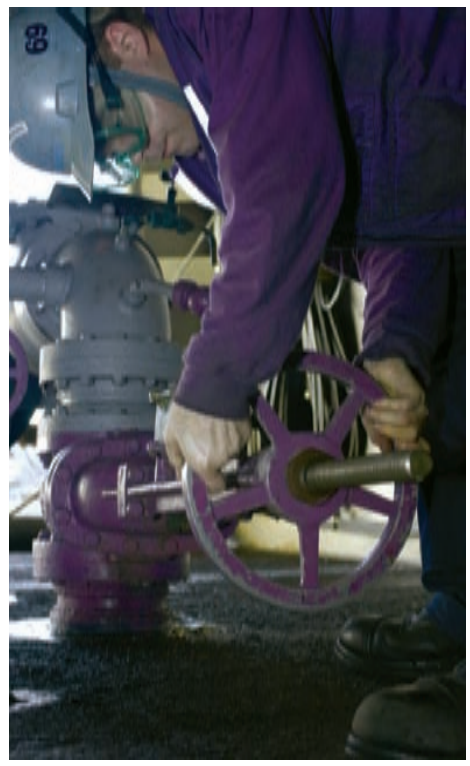
Potentially, such a set-up could link with something like the Shipdex initiative, the non-profit project aiming to create digital databases to simplify the effort involved in populating planned maintenance databases.

Shipdex files already include drawings and schematics for various shipboard components – why not also link a 3D printing file within the same database?

"Shipdex has standardised the exchange of technical manuals in electronic format, including a spare parts catalogue, which means we have an electronic XML file for every spare parts catalogue and the file contains the list of all spare parts with relevant information," said Marco Vatteroni, manager of Shipdex.

"For every spare part it could be possible (where requested) to attach the relevant 3D file and send them on board, together with all the Shipdex documentation."

"Moreover, Shipdex data can be automatically uploaded into a CMMS (computerised maintenance management system) and then the 3D files could also be available in (the software's) database."



Less complex machinery, such as valves, may be among the first spares that the technology could be applied to

Another alternative to maintaining a database of all of the parts on board would be to reverse engineer specific components as required, Mr Thellin says.

"If you could digitally scan the part, that would be another way to get it to a 3D file where it could be buildable as a replacement part," he explained.

Scanning would create a file within a CAD-type interface where you might have to do some slight editing, Mr Thellin says, with the file then converted into the STL format.

Of course, the cost involved with these technologies today are still an obstacle. Scanners cost a couple of thousand dollars for low end technologies, and up to $10,000 to $50,000 for high-end machines. A high-performance 3D printer itself may cost between $10,000 and $500,000.

In addition to the cost there is also the issue of compliance with various rules and regulations to consider – for example, depending on the classification society that the vessel is registered with there may be specific requirements or recommendations about the types of spares that need to be carried on board for various systems.

While machinery such as engines or turbines might be potentially be more flexible when it comes to changing the rules, safety systems in particular, such as fire safety systems for example, are likely to require physical stores of spares for a long time to come regardless of the ship's ability to 3D print these parts on board.

Time frame

The issue of how soon this technology might be ready to make a practical contribution to spare parts management on board is one that divides opinion, with some insisting that 3D printing has reached a stage where it could be used on-ship today, while others are sceptical of seeing any significant headway for the technology in maritime in the next decade.

Mr Thellin of RedEye is among those excited about the current possibilities, as he believes that a 3D printer could be used to produce a spare part at sea immediately.

"I would argue that that could happen right now," he said, adding that it could make sense financially in current conditions, compared to the costs of shipping a part to a distant vessel.

"If you compare those costs relative to the cost of having a machine on board being able to produce that replacement part on demand, it seems like financially you could put together a whole of a lot that would justify it. I believe you could do that today."

On the other side of the fence is Hans Oxvang Mortensen, senior manager at MAN Diesel & Turbo, a manufacturer of some of the systems and spare parts that would be part of any grand 3D printing future.

Mr Mortensen's company already has experience of 3D printing technology, having used such systems itself already as part of its production operations, though primarily as a prototyping technique.

"We have invested in 3D printing for the last year and half," Mr Mortensen said.

"The 3D printers are mainly used for design purposes - that means identifying design details and visualising design elements."

For example, MAN has already 3D printed the prototype of a water mist catcher and installed it on a test engine for evaluation purposes.

"Normally we would manufacture this in various forms of steel or iron," said Mr Mortensen.

"But in this case, we manufactured it on our 3D printer as a plastic component. This worked very well for our testing."

Mr Mortensen notes that using this technique saved the company "a lot of money" compared with creating the prototype in steel and iron, evaluating the cost difference in this case to be in the region of €5,000.

However, despite these successes, Mr Mortensen believes that the industry is still some distance from being able to apply this technology to replace spares in a practical manner.

"It wouldn't be relevant (for) spare parts at the present stage, but only as a prototype testing facility," Mr Mortensen said.

"We do look ahead to the very promising scenario but it is very much related to the development of material technologies, and also to the development of the size and price of the components you can print."

Mr Mortensen thinks that it is still more economical to store spare parts on board or have them delivered, rather than 3D printing them, and points to the continuing requirement to keep certain spare parts on board as likely to hinder 3D printing development.

"Anything related to the safety or propulsion of the ship, they have to have the spare parts on board. That would be a general requirement from all classification societies," he said.

Mr Mortensen also suggests that other spare parts are so large that they need to be made in a factory, while smaller items will suffer from the competition offered by current cheaper production processes.

"Why should a ship install a relatively expensive printer on board?" he asks. "In many cases, the logistics is far enough to support the ship with the spare parts."

Some of Mr Mortensen's strongest reservations about 3D printing in the marine environment, as it currently stands, relate to the materials available, particularly in relation to steel parts – obviously a major component in a variety of ship spares.

"It can be done today but the quality is not at a decent level. It still needs some technological development before that could be relevant," he said

"It could be relevant for emergency spare parts or prototype spare parts like fuel nozzles or different kinds of valves and so on."

"But very many of these components actually need a surface grinding also. We still need the improvement in the surface quality of 3D printing. Or you would have to, on board the ship, be able to do some grinding."

In the end, Mr Mortensen says that he sees possible applications for 3D printing in maritime only if material technology improves, and only for smaller components.

"Still, I would say, you are a minimum 10 years ahead of the reality," he said.

Regardless of which side of the argument is more convincing when it comes to the suitability of 3D printing for maritime use at the moment, the technology is certain to see significant development in the years ahead, likely to lead to better and stronger materials and the ability of the printers to handle more sophisticated designs.

Eventually this should lead to a scenario where most spare parts could be realistically produced on board the ship. However, by that time it may be too late – once the consumer can print their own flat screen TV or family hatchback without having to have it physically delivered from half the world away the shipping industry as we know it will be facing a whole host of new challenges to its survival.

Perhaps 3D printing an entire newbuild ship itself for the cost of a few tons of printer toner will then be the only answer… DS

Enav Centre adds HELM course

www.ecdis.org

The Enav Centre reports that it has recently delivered its first UK MCA approved Human Element, Leadership and Management (HELM) Course, and will add the HELM Course to its list of training programmes.

The company says that the course took over one year to develop and was only launched after market research and development by industry experts.

"HELM is crucial to the improvement of safety standards in the maritime industry, and as such it was a great pleasure to teach ECDIS Ltd's HELM course," said Ben Howard, Total HLM Solutions, who taught the course alongside Joe Sloly.

Joe Sloly, ECDIS Ltd, teaching the first HELM course at the facility

"HELM creates the space to think and discuss with a peer group, that would not otherwise be possible outside the classroom environment, and I believe the course was able to reinforce many of the good practices already undertaken, whilst discouraging those that were perhaps not so good."

Mr Sloly himself added the he is excited at the prospect of being able to deliver the Human Element Leadership and Management course in the future.

"This has allowed students to discuss in a controlled, measured environment how catastrophic accidents and incidents could have been easily averted simply using the tools and procedures that we practice during the HELM (Management) course, (and also) how to identify weaknesses in our own abilities and put in place measures that will help you to take them into account whilst at sea and in challenging environments," he said.

The Human Element and Leadership (HELM) Course has been developed by Total HLM Solutions Ltd in accordance with the UK Merchant Navy Training Board's (MNTB) guidelines.

TeamSurv gains support from ESA

www.teamsurv.eu

TeamSurv, a crowd sourcing project to create better nautical charts, has been awarded a place at the Business Incubation Centre (BIC) at Harwell, Oxford by the European Space Agency (ESA).

This provides TeamSurv with finance, with business and technical support, and with office space for the next year, enabling it to grow with the number of vessels and the amount of data produced.

TeamSurv has also come 2nd in the UK arm of the European Satellite Navigation Challenge (ESNC) run by the University of Nottingham's GNSS Research and Applications Centre of Excellence (GRACE).

TeamSurv notes that the surface of the moon is mapped in more detail than our seabed and considers that crowd sourcing is the best route for filling this data gap.

Having accurate depth data is important for a wide range of applications: safe navigation, scientific and environmental monitoring of the maritime environment, ensuring the sustainability of fishing, providing sea bed data for offshore oil, gas and renewables, and monitoring erosion and movements in the sea bed for planning and managing ports and harbours, dredging and sea defences.

Professional surveys are very expensive (at about £1,500 per square kilometre), and TeamSurv says that many areas of our seas are almost totally unsurveyed, for example over 80 per cent of the Pacific islands. With TeamSurv, mariners log depth and position data whilst they are at sea, and upload the data to the web for processing and display.

With its new resources, TeamSurv plans to upgrade its servers, recruit more participating vessels (with commercial shipping and fishing fleets now joining as well as leisure craft), and provide its data to a wider range of users.

TeamSurv asks mariners to log depth and position data while at sea before uploading it to the web

Inauguration of Bulgarian academy with Transas simulators

www.transas.com

The Bulgarian naval academy, equipped with new Transas simulators, has been officially inaugurated, marking the start of the academic year.

Bulgaria's president Rosen Plevenliev and other officials attended the ceremony at the N.Y. Vaptsarov Naval Academy in Varna, Transas reports.

The training centre recently received the extended Transas Navigational simulator NTPRO 5000, a full-mission Engine Room Simulator (ERS 5000), GMDSS Class simulator, and Vessel Management Traffic System (VTMS) simulator.

Transas says that the new set-up creates a "total ship" environment with a real-time connection between the navigational and engine room simulators, where two main units can interact with each other during training exercises.

The Transas Navigational simulator, which was installed at the academy several years ago, was expanded by transforming two workplaces of virtual class to two bridges with five and three visualisation channels each.

The bridges are also equipped with ARPA/Radar simulation and Navi-Sailor ECDIS modules. Transas says that its radar picture generation algorithm offers realistic relief and target reflection, weather conditions and noise simulation.

The Navi-Sailor ECDIS module allows for both IMO 1.27 and type-specific ECDIS training, while the VTMS simulator has been upgraded to the latest version and extended with additional workplaces for an instructor, a communication operator and a trainee. The GMDSS simulator is also to be upgraded and will offer work space for eight trainees.

The Full Mission Engine Room Simulator has eight workstations, and its software comprises ship models that make it possible to train the future crews of ANZAC frigate ships, diesel electric cruise vessels and diesel-engine product tankers. The existing ERS 4000 simulator was also upgraded to the ERS 5000 version for six trainees.

N.Y. Vaptsarov Naval Academy is the oldest technical school in Bulgaria. It trains specialists for the Navy and for merchant marine.

Transas simulators will form the centrepiece of the new Bulgarian academy

In related news, Transas has also installed a Full Mission Engine Room Simulator at the Institute of Technical Education (ITE), Singapore, on which students will be able to train to operate the machinery on a MAN B&W 60MC Tanker.

Trainees will learn to perform basic maintenance of electrical equipment, align, install and repair machinery, maintain control circuits, verify measuring instruments, perform quality control and assurance, design and fabricate jigs and fixtures, inspect ship systems and machinery components, supervise work on machining systems, and assist to execute commissioning and testing activities.

Once they have accomplished the course, they will receive a certificate, allowing them to advance their careers as a marine supervisor and foreman (mechanical).

Transas says that the configuration of the full mission simulator is designed to train advanced operation and troubleshooting, and it also includes resource management training as well as final training and certification.

One of the key features of the new platform is the advanced 3D visualisation. System diagrams can be displayed on a multi-display video wall for monitoring and control, and operations can be carried out from the 3D visual model.

Graham Wagstaff, business development manager, Transas Marine International, said: "The full mission simulator will be used to teach the operation and trouble-shooting of marine propulsion, auxiliary and electrical equipment."

"Having identified faults in the simulator, students from the Higher Marine engineering course will carry out repairs on real equipment located in the state-of-the-art training workshop. Transas is pleased to have assisted in the development of this unique training methodology".

The Institute of Technical Education (ITE), Singapore, was established as a post-secondary education institution in 1992 under the Ministry of Education.

In other news, Transas Marine has also completed the installation of simulators for the training department of the State Oil Company of the Azerbaijan Republic (SOCAR) and Girne American University in Cyprus.

In Azerbaijan, a Fast Rescue Boat simulator based on the Navi-Trainer Professional software (NTPRO) will be used to train the SOCAR personnel to ensure safety at sea. The SOCAR is involved in exploring oil and gas fields, and transporting oil, gas, and gas condensate, among other activities.

Training will be focused on Search and Rescue operations, in particular rescue boats operation, helicopter operation, and coordination of SAR operations in most adverse weather conditions.

Transas has also completed a project to supply the navigational and GMDSS simulators to Girne American University (GAU), in the Northern part of Cyprus.

The configuration at the GAU includes two navigational bridges based on NTPRO software.

The main bridge with five projector visualisation channels will enable training in various ship handling operations including bridge team management. The secondary bridge with one visualisation channel will be used for familiarisation and basic tasks. Both bridges are equipped with GMDSS workplaces for practising communications.

Evgeny Drumachik, Transas Simulation Sales director, Europe, commented: "We believe this medium-size simulation complex will significantly improve quality of education and training in the Girne American University, in accordance with the STCW and beyond the conventional courses."

Navis and Aker Arctic cooperate on DP systems for icebreakers and ice-class vessels

www.navisonctrol.com

Navis Engineering, a Finnish manufacturer of dynamic positioning (DP) systems, has announced that it has signed a scientific and technical co-operation agreement with Aker Arctic Technology covering the joint development of technology for DP systems for icebreakers and ice-class vessels.

The agreement was signed in St Petersburg at the end of September.

Navis and Aker Arctic believe that DP applications will be needed in ice-covered waters in the longer term and the partnership is looking to prepare the industry for upcoming demand. The aim is to improve the capabilities of DP systems in ice operation, taking into account energy efficiency and safety solutions.

DP systems manufactured by Navis Engineering have been installed on a number of icebreakers and ice-class vessels in recent years, including the Polar supply and research icebreaker SA Agulhas II, the Canadian Coast Guard Scientific icebreaker Amundsen and the Sovcomflot-owned multifunctional icebreaking supply vessels Vitus Bering and Aleksey Chirikov, operating for Exxon Neftegaz Ltd in Sakhalin waters in Russia.

Aker Arctic has created ship concepts such as the Aker Arctic DASTM supply icebreakers SCF Sakhalin and the Aframax tankers Tempera and Mastera. The Helsinki-based company is currently designing new Polar icebreakers for the Canadian Coast Guard and a Polar research icebreaker for the Chinese Polar Research Institute as well as a next generation icebreaker for the government of Finland.

NAVTOR ENC service dominates Norwegian offshore

www.navtor.com

NAVTOR, a Norwegian provider of ENC solutions, has reported a flurry of new contracts in the Norwegian offshore shipping segment.

Shipowners controlling 72 per cent of the national fleet are now rolling out its ENC service across their vessels, the company says.

Launched two years ago, the ENC service, which is compatible with all ECDIS, is offered for distribution on the pre-loaded USB-based NavStick, allowing navigators to instantly download global charts and licences to the ECDIS, while an online synchronisation feature ensures that the latest updates are always available on demand.

Among the Norwegian offshore operators that have signed up are Simon Møkster Shipping, Island Offshore, Troms Offshore, Havila Shipping and Siem Offshore.

"Our goal has always been to simplify complicated tasks and enhance user experience," said Børge Hetland, NAVTOR sales and marketing manager.

"By reducing the administrative workload for navigators we give them the chance to focus on what should always be their key task, navigation. This increases efficiency, while making operations simpler and, crucially, safer. Norwegian offshore companies, which operate in some of the most demanding environments on earth, have clearly demonstrated that they appreciate this focus."

NAVTOR offers both standard subscription and Pay As You Sail (PAYS) licensing models.

"It was the first DNV type-approved PAYS service available, levying charges only for charts used during voyages, while making all charts freely available for planning purposes. This flexibility has genuine appeal for the offshore segment," Mr Hetland said.

Gudmund Hellesfjord, a vessel Captain for Island Offshore, said: "NAVTOR's system is excellent, cost-effective and simple, both to use and to update. Charts are available instantaneously for planning purposes, without having to go through a lengthy ordering process, and, using PAYS, you only pay for the charts you actually use."

'Our goal has always been to simplify complicated tasks and enhance user experience' – Børge Hetland, NAVTOR

"There's a complete overview of what charts are used, and when, which makes cost control much easier. The updating process is also quick and effortless, with no files to be copied, or emails sent or received."

"The system provides what we need when we need it, giving us a complete sense of control."

NAVTOR says that it is now looking to new sectors, such as the cruise and ferry segment, which fall under the IMO's ECDIS Carriage Requirement (ECDIS Mandate) in July 2014. The firm has already signed up Crystal Cruises and RCL Cruises.

Imtech Marine introduces SeaPilot 76

http://imtech.com

Imtech Marine has introduced SeaPilot 76, which it says can be turned into a fully approved combined sea and river pilot and can be connected to both proportional and on/off valves.

Imtech's new SeaPilot

SeaPilot76 is suitable for different kinds of steering or rudder systems and heading sensors and has an integrated pilot watch alarm output.

As with its predecessor SeaPilot75, SeaPilot 76 was developed in co-operation with Radio Zeeland DMP. Imtech Marine says that it is suitable for the fishing industry, for inland, coastal and deepsea shipping, and is an addition to the Sigma-line of Radio Zeeland.

The pilot complies with the requirements of the Marine Equipment Directive and the Shipping Inspectorate. By connecting a rate of turn indicator and a FU steering handle, SeaPilot76 becomes an approved riverpilot system.

US Coast Guard awards polar navigation contract

www.northropgrumman.com

Northrop Grumman Corporation has been awarded a service contract for navigation systems and software to support polar ice breakers for the US Coast Guard.

The $5 million, five-year contract covers support for two Coast Guard vessels, the Polar Star and the Healy. These polar ice breakers are used to clear pathways for supply ships and support research missions.

Northrop Grumman notes that it has provided comparable support for the Coast Guard's polar ice breakers since 1999.

The deal will include the supply of hardware configuration management, remote technical support and training classes. Northrop Grumman will also participate in what it calls the maintenance 'grooms' performed on the two ice breakers prior to each polar deployment.

This will include tuning integrated bridge system (IBS) equipment, upgrading autopilots, adjusting tolerances, improving software and replacing parts as needed for maximum system performance.

"For 14 years, Northrop Grumman has provided quality long-term navigation systems and support for the Coast Guard's polar ice breakers," said Bill Hannon, vice president of the company's maritime systems business unit.

"This new support contract, which covers direct installs, field testing and personnel training, will allow us to keep ahead of the navigation and training needs for these critical vessels."

Assembly of the IBS hardware and related equipment will be done in Charlottesville with installs and field testing done directly on the ships. Work has been scheduled to begin during October on the Polar Star and in the summer of 2014 on the Healy.

WatchStander against piracy

www.watchstander.com

American company WatchStander has announced that it has completed development of an automated system designed to prevent pirates from boarding ships.

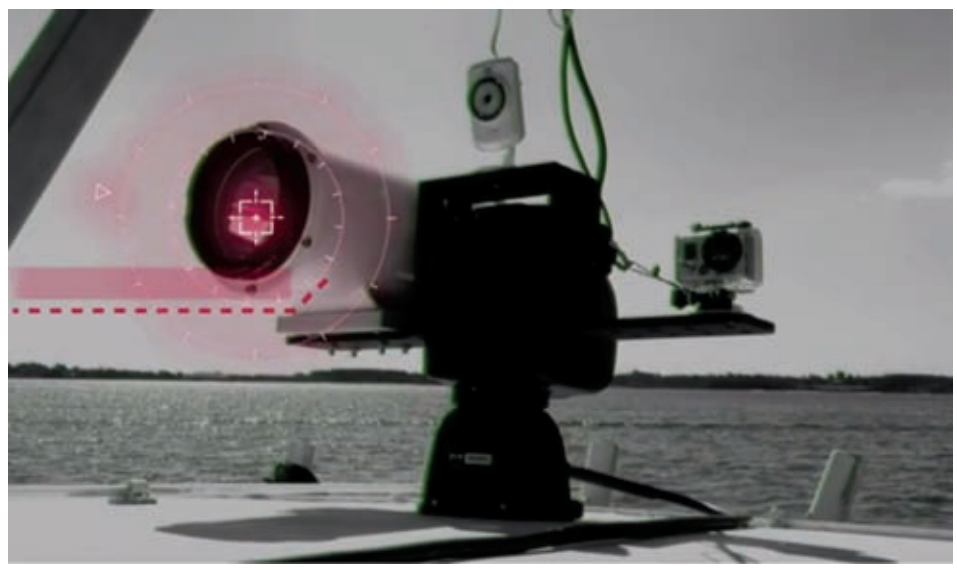
Now ready to be installed on commercial ships, the WatchStander system uses Simrad radars to check surrounding traffic and identify suspicious behaviour.

If a nearby vessel is manoeuvring in a way that suggests it is preparing an attack, the system starts tracking it and notifies the ship's crew of the upcoming threat. It also starts capturing data and video of the incident.

At the same time, the WatchStander directs a powerful spotlight at the suspicious boat. Company president David Rigsby says that this lets pirates know that they have lost the element of surprise and that the ship's crew are alert.

If the suspicious boat keeps on approaching, WatchStander will implement non-lethal countermeasures of increasing intensity, unless the captain overrides the system. Besides the spotlight, which can also be used in strobe mode, these countermeasures may soon include: a laser, dye balls, malodorant balls, or pepper spray balls.

"What makes our system unique is that it disrupts the attack without burdening the crew in a way that is affordable," said Mr Rigsby.



The WatchStander system includes a range of anti-piracy measures

Net-Logic has announced **Sambronie and Cie** as the principal distributor in France for the Net-Logic Wireless BNWAS, WatchKeeper+.

Valery Ermakov has taken over the responsibilities of CEO of **Transas Group.** Prior to joining Transas, he served as first deputy CEO – chief operating officer at **MegaFon**, a Russian telecom operator.

www.net-logic.co.uk
www.transas.com

BCG updates Rapid Radar Plotting aid software

www.buffalocomputergraphics.com

Buffalo Computer Graphics (BCG) has released an updated version of its Rapid Radar Plotting software to assist those tasked with teaching Rapid Radar Plotting or the use of Manoeuvring Boards to maritime students.

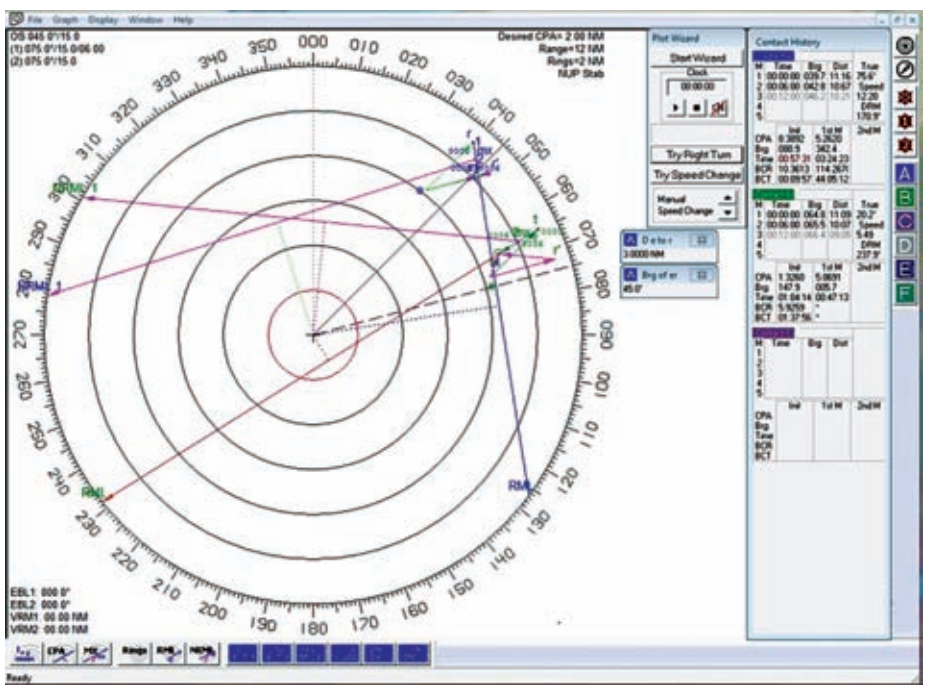
The software can be used as a plotting program with printed output or as a teaching tool. Techniques can be demonstrated for using radar to plot contacts and for determining information based on plots.

Plots, for up to six contacts, are produced by entering points graphically with the mouse, or numerically using range and bearing entries. From these plots, the program displays the relative motion of contacts and determines information about the system of plotted points.

The 'E-R', 'R-M', and 'E-M' vector lines are automatically displayed and updated as course/speed changes are made.

Scott Pugh, Simulation Sales and Marketing for BCG, said: "This software would be ideal for any classroom that currently uses older teaching aids like a large laminated plotting sheet or an overhead projector with grease pens."

Students can still use pencil and paper plotting aids and the instructor can use the Rapid Radar Plotting Software to quickly and cleanly illustrate the radar plot solution on a computer connected to a projector, or each student can alternatively have their own copy of the software to learn the fundamentals in a digital environment.



The software can be used for training in Rapid Radar Plotting

Pole Star and Risk Intelligence partner

www.polestarglobal.com
www.riskintelligence.eu

Pole Star Space Applications, a provider of fleet management systems, and Risk Intelligence, a security intelligence specialist, have announced that they have entered a strategic partnership.

The companies say that they plan to launch their first product, combining tracking and piracy intelligence in a single system, in the first quarter of next year.

"By combining the information that our two companies provide, we can offer something very valuable indeed – actionable intelligence for the routing of ships to avoid current or predicted hotspots," said Hans Tino Hansen, managing director & CEO at Risk Intelligence.

"We first collaborated with Pole Star in 2009. Since then our relationship has evolved, and we are pleased to announce (that) we will join forces in a strategic partnership to offer our mutual customers some powerful new features."

Pole Star and Risk Intelligence say that they want to allow their customers to combine the benefits of real-time fleet information with the latest intelligence on piracy and security incidents around the world.

Andrew Peters, CEO at Pole Star, said: "There is a natural synergy between what we do (offering customers fleet information they can use to make decisions quickly) and what Risk Intelligence do (providing maritime companies with the latest intelligence on the location, details and assessment of piracy and security incidents)."

"By combining tracking and piracy intelligence in a single system, we can give our customers more meaningful information that they can use to make decisions quickly."

Transas ECDIS and chart service for Hellenic Carriers

www.transas.com

Transas has announced that it will supply ECDIS and official charts to Hellenic Carriers, with the operator's fleet to be equipped with the Navi-Sailor 4000 ECDIS and Transas Admiralty Data Service (TADS).

Transas says that all vessels will shift to paperless navigation immediately after installation is completed. Hellenic Carriers expects to do that by the end of next year.

Two newbuilds have already been commissioned and now sail with Transas ECDIS. After all the newbuilds are equipped, the other vessels will be retrofitted to also shift to paperless navigation.

Capt Nikos Athanasakos, marine manager at Hellenic Carriers Corporation, said: "It is our management's decision to invest in technology that will contribute to safety and efficiency of our fleet. We rest assured that with the excellent cooperation and support from Transas Hellas, our fleet will be ready to use ECDIS as prime means of navigation by the end of 2014."

Hellenic Carriers owns a fleet of five vessels transporting iron ore, coal, grain, steel products, cement, alumina, and other dry bulk cargoes.

In related news, Transas has installed a vessel traffic management system in Bahia Blanca Port, in Argentina, replacing the previous Vessel Traffic Service (VTS) equipment with its Navi-Harbour system.

Navi-Harbour makes use of sensors like Radar, CCTV and AIS to provide visibility of the marine traffic situation in and around the port.

The system consists of two operator workstations, one recording and playback station and three VHF stations. It also includes an online portal allowing authorised users to view, in real time, the marine traffic in the port and the surrounding areas.

Transas will supply ECDIS to the Hellenic Carriers fleet (left), and a new VTS system in Argentina (right)

Australia DSC station

www.vhf-dsc.info

Dunstan and Associates and TransOceana have commissioned Australia's first purpose-built VHF Digital Selective Calling (DSC) coast radio station.

Located at the Australian Volunteer Coastguard base at Sandringham, Victoria, the station provides automatic distress and safety services on VHF marine channel 70 for vessels operating in Port Phillip Bay.

"This is Australia's first fully-featured, purpose-built VHF DSC Coast Radio station," said Glenn Dunstan, director of Dunstan and Associates.

Most new models of VHF marine radio sold in Australia are equipped with DSC. If a vessel is in distress, with the push of one button, its position and the nature of its distress are broadcast to all ships and shore stations in range.

"The Sandringham station uses the TransOceana DSC system, which we have installed in many marine radio stations throughout the world," said Mr Dunstan.

The station's DSC identity number (MMSI) is 005030126.

Solid State Radar

Low maintenance, Superior target detection

JMA-5372-SA

A new generation marine radars that displays targets with high accuracy while transmitting at just 1/100th of the power of a conventional radar.

jrceurope.com

One of the most common mistakes in maritime eLearning

Maritime eLearning systems have the potential to offer great benefits to people and companies across the industry – but the distance involved can make it difficult to validate the integrity of any assessment, *writes Murray Goldberg, Marine Learning Systems*

As in any human endeavour, it is easy to make mistakes in the implementation of maritime eLearning. Being aware of the potential will help in terms of avoidance.

In my work over the last six or so years implementing eLearning in the maritime industry (and in the 10 years before that as an eLearning user, researcher, developer and business owner), I have become very aware of many of the more common implementation mistakes - many of them made by me.

While it is true that making them can be very damaging to an eLearning programme, they are all pretty easily avoided with just a bit of thought and knowledge. Thus, this short series of articles covers some of the most damaging, yet some of the most easily avoided mistakes when implementing eLearning programmes in the maritime industry.

This first article could be very short - even just one sentence. That is, of course, if someone else were writing it. As a former academic I am not sure I've ever explained anything in only one sentence.

My argument is that there are many details and intricacies that are missed with that kind of brevity. But let me start this article with the sentence I would use if I were forced to write this using only one sentence. Here it is:

If you deliver exams to assess the knowledge of your seafarers, make absolutely sure that someone in a position of authority is supervising the trainees as they do their exams.

I'm pretty sure I'd pass out if I were forced to stop there. So I won't. Instead, I'll explain why I say the above, and explain why it is important.

A bad practice – but common

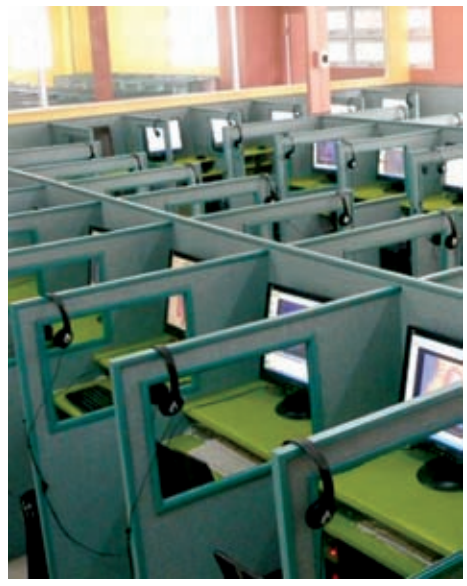
eLearning is becoming incredibly common in the maritime industry. This is great - at least when it is done well. And it is not hard to do well. All that is required is a little bit of knowledge and planning.

Something that has arisen alongside the implementation of eLearning in this industry is the delivery of computer-delivered multiple-choice assessments. This is good. Really good in fact (again - if done properly) because when used to assess knowledge they offer critical advantages that cannot be had with paper-based assessments.

Those advantages include the ability to randomise tests (so no two candidates receive the same exam) and - most importantly - the ability to derive metrics and analysis not possible with paper-based exams. These metrics and the resulting analysis can alert organisations to problems before they become performance or safety issues.

Again - all of this is hugely positive if the exams are delivered properly. The problem is, they are often not delivered properly.

And the most common issue I have seen, which is also the one I get asked about the most, is the delivery of multiple-choice exams without supervision. That is - letting the trainee do an exam at the end of their computer-based training while alone. No supervision.



A student could study alone at a computer – but assessments should be done in front of a trusted figure

While this practice is not unique to the maritime industry, it seems much more common here than I've experienced elsewhere.

I believe the main reason this has become a common practice is because the advent of web-based or CBT (CD-based computer) training has allowed trainees to learn independently - without supervision.

For many training organisations they have set up their training this way and then simply extended the practice to allow trainees to also perform their assessments independently. The same organisation, which would never have considered sending someone home with a paper-based multiple-choice exam, seems perfectly happy to allow a trainee to perform an online multiple-choice exam at home (or onboard without supervision).

In most environments, including where I come from in higher education, this would be unheard of except in special circumstances.

Unsupervised exams?

Is it always bad to deliver unsupervised exams? The answer to this question is "no" - it is not always bad to deliver unsupervised exams. But it usually is. So when is it OK to do so?

The first circumstance in which unsupervised exams make perfect sense is when the exams are formative exams, not summative exams.

What's the difference? Formative exams are essentially self-tests. They exist for the benefit of the trainee, not the assessor. They are there to allow trainees to periodically test their own knowledge to determine whether they are learning the material to the degree expected by the trainer.

These exams should be taken independently. And since the results are for the benefit of the trainee, and because they are the only ones likely to see the score, there is no incentive for them to cheat. In fact, cheating defeats the purpose of the formative exam.

The other common scenario where exams are often performed without supervision is in the case of in-depth written exams used to test reasoning rather than knowledge retention. This is a practice that is sometimes seen in higher education.

While this is likely still not an optimal practice when it comes to relying on the results, there are reasons for it to be done this way.

One reason is because it allows the trainees to spend more time thinking about their work - often required for tests of reason. Another reason to allow these kinds of exams to be done independently is because it is easier to detect cheating for these than it is on multiple-choice exams.

So here, the benefits of allowing the exam to be done independently can be considered to outweigh the reduced ability to rely on the integrity of the results. Even so, using this kind of exam in isolation and relying on the results would be a mistake.

Both of these scenarios are 100 per cent applicable to the maritime industry.

Alternative supervision

Is there a way around having to supervise? This is a question I often hear because it is expensive to have a remote trainee travel to the training centre in order to write an exam (or to have a trainer travel to the trainee).

In fact, there have been many efforts aimed at allowing students to take exams without supervision while ensuring that the answers are their own. It is my personal opinion that none of them work. They all simply present an entertaining challenge to the would-be cheater.

For example, I have seen systems where a camera affixed to the computer sends video of the student to a remote supervisor, or records the video in order to encourage the student to perform honestly. This scheme cannot capture what is happening outside the field of view of the camera - such as a cheat-sheet sitting on the desk or a knowledgeable helper off to the side.

There are also biometric solutions such as fingerprint readers aimed at verifying the identity of the test-taker. These do ensure that the actual student is present for the exam, but do nothing to ensure that the answers entered are his or hers.

In short, there are techniques that can be used to make it more difficult to cheat on unsupervised exams, but I've never seen one I believe to be fully effective.

So - what can we do about this? In my view there is only one solution to this problem. If you care that the exam being given provides an accurate representation of the knowledge of the trainee, then you must have a trusted person in a position of authority supervise the taking of the exam.

It need not be a trainer - any trusted person will do. Only this way can you ensure the integrity of the assessment results.

This is not a new problem, nor is it unique to electronic assessments. Universities and colleges have been offering distance education for eons. They have largely arrived at the same conclusion and as a result, test centres have been set up to solve the problem.

Students visit a local test centre where the university sends the exam and the test centre employee (often called a proctor or invigilator) supervises the exam. Some universities have reciprocal agreements to proctor one another's exams for distance students. Both of these techniques could be applied in the maritime industry.

So - the bottom line is "don't do it". If you allow trainees to take assessments without supervision then the results cannot be trusted. If you care about the integrity of the results, you must have supervision.

The second most common mistake

This brings me to a related problem which I believe to be the second most common mistake in maritime eLearning. But rather than discuss it here, I will leave this topic to the next edition of *Digital Ship*! Please check back here for that article.

Until then, thanks for reading and keep safe!

DS

About the author

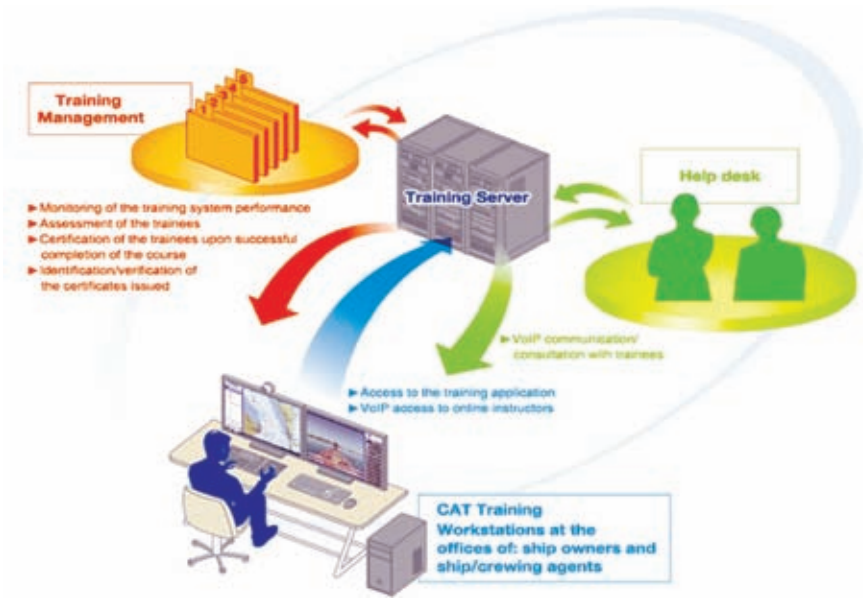
Murray Goldberg *is the founder and president of Marine Learning Systems, the creator of MarineLMS, a learning management system designed specifically for maritime industry training. Mr Goldberg has adapted this article for Digital Ship from a blog post originally published on www.maritimeprofessional.com.*

Bringing training to the cloud

Modern advancements in cloud computing could help to move beyond the benefits of computer based training (CBT) systems using physical storage such as DVDs to something closer to the full classroom experience,
writes Mads Friis Sørensen, FURUNO

Cloud computing is much more than a place to share data; it is a new place where people can easily and proactively interact with each other in a protected environment.

Considering the benefits of cloud computing, such as accessibility and the secure interaction environment, it can be viewed as an ideal platform for distance learning schemes. This new type of training platform, based upon cloud computing, is termed 'Computer Aided Training' or in short 'CAT', which combines the strengths of distance learning and classroom training.



Cloud based CAT training should add VoIP communication to traditional distance learning

Distance learning systems that are currently available, such as Computer Based Training (CBT) and Web Based Training (WBT), are often used for ECDIS familiarisation training and are widely recognised as alternatives to classroom training – hoowever, they lack the two-way communication capability provided in a classroom, which helps the trainee to benefit much more from the training course.

With the add-on of Voice over IP capabilities in the CAT concept, CAT can bring distance learning to a different level, because it allows for live communication by which an instructor and the trainees can communicate directly with each other.

It can also allow the instructor to log into a training session directly and demonstrate and guide the trainee through an exercise.

Updates

By using a centralised cloud computer to run the training applications, it is easy to maintain and update the training application whenever necessary without affecting on-going training sessions at all.

The most striking difference between CAT and CBT in this respect is that the CAT training application only has to be updated in one place, whereas an update of CBT would require replacement of all the training DVDs in use around the world.

This is a very costly and inefficient process and there is no guarantee that every single training DVD in ships and training centres across the world could be replaced.

A practical example of the successful implementation of a Computer Aided Training solution is the CAT-based ECDIS familiarisation training currently offered by one manufacturer, introduced in autumn 2012.

The use of CAT in tandem with classroom training has provided wider, multi-tiered access to ECDIS familiarisation training in a way that can be better aligned with the ship owners' individual needs and demands.

By using the CAT technology, it becomes possible to incorporate the actual user interface (control panels/keypads) from the ECDIS into the distance learning scheme. This means that it is possible to avoid the challenges often encountered when using local laptops and desktop computers with different operating systems, browsers and hardware configuration.

The CAT workstations are tailor-made for the purpose of familiarisation training and include the actual user interface device of the particular ECDIS models required.

In the case of ECDIS familiarisation training, the workstation can also offer two displays – one functioning as the ECDIS screen and the other providing the operational platform of the training system, including access to training documents and information on the exercises.

In the future this set-up could also look to incorporate ship simulation screens, to enhance the experience even further.

Proliferation

CAT platforms should be versatile enough to easily be modified to accommodate new requirements and needs.

Since the processing power is concentrated in the cloud application server the demands on the workstations used locally are not too excessive. With increasing bandwidth becoming available and the constant expansion of the internet, CAT-based training could be made available in more rural and remote locations in the foreseeable future.

By using standard solutions and a common configuration, it can be installed and operated by people with basic IT experience locally, and because the workstation could be set to automatically connect to the server when booted up, the trainee would not have to manually intervene during this process.

The trainee is only obliged to log into the training programme with their account and the training could start rolling automatically.

By using CAT solutions, manufacturers will more easily be able to develop and offer maritime familiarisation training for their products, allowing the trainees to access the training application at the click of a mouse.

This may lead to more widespread and cost effective training for crews, allowing them to gain much deeper knowledge and operational expertise of the equipment they use on board a vessel.

Cloud technology allows for much more than data storage and data exchange. The possible applications of cloud computing are almost limitless – and even though the globe has been fully discovered, there are still huge white areas in the cloud just waiting to be explored. **DS**

About the author
Mads Friis Sørensen *is branch manager at the FURUNO European Branch Office.*

Why be anti-ECDIS?

Some companies in the maritime industry may fit ECDIS when mandated and yet still carry on formally navigating on paper charts – a disappointing prospect, *writes Dr Andy Norris*

Imagine a parallel world where satellite positioning systems had been invented but the concept of charts was only just being thought out.

Somebody would have said "let's put a portrayal of an area onto an electronic screen and then we can accurately and continuously show own ship's position on that."

If anybody had suggested that a better solution was to use a printed image of an area overlaid with a coordinate system on which you could manually plot the position from information shown on a separate 16-digit numeric display the reaction would have been no less than incredulity.

The limitations of the latter, that is using paper charts, are self-evident. Not least, there is no built-in check on the correct manual transfer of the positional coordinates onto the chart.

Also, because it takes a lot of human effort, the frequency of plotting is low, the latency of the displayed information is high and the detailed plotting effort tends to take the eyes and mind of the mariner away from the bridge windows and other navigational data sources.

Given a good implementation, the basic value of an electronic chart appears to be impossible to argue against.

This has certainly been acknowledged in the shipping industry for some time, with most ships being fitted with at least a 'non-approved' ECS.

However, on the face of it, the negativity about electronic charts continues to surface and is especially directed against the mandated version, ECDIS.

The latest example is that a number of shipping companies are apparently considering requiring their bridge staff to continue to use paper charts for formal navigation and not use any mandatorily fitted ECDIS.

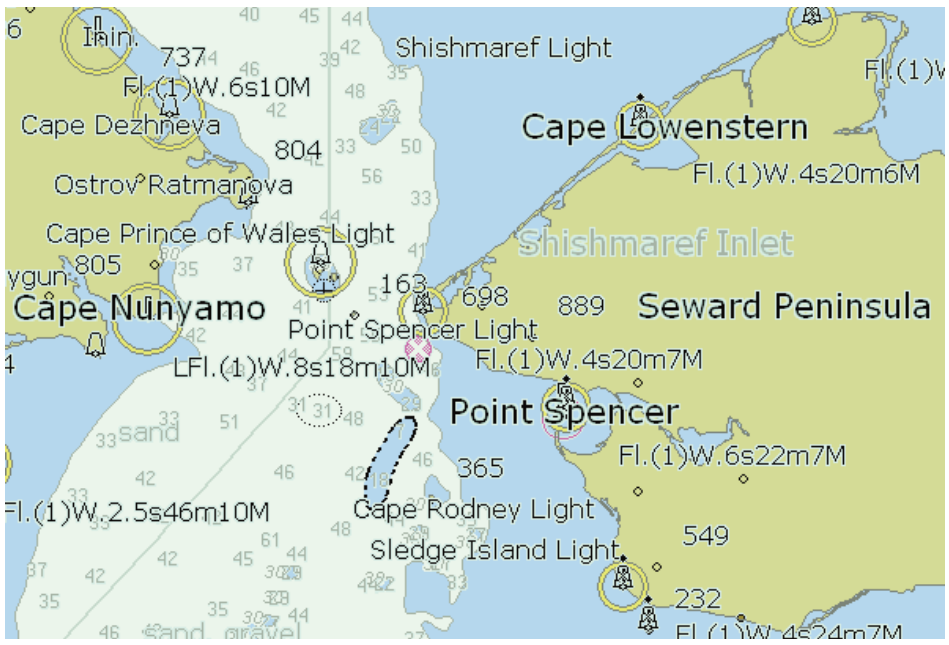
The commercial reasons behind this appear to be directed at the cost savings that will accrue by not having to train and familiarise staff in the safe use of the fitted ECDIS equipment.

Perhaps it is also considered that the benefits to the company of using electronic charts are effectively embedded within the already fitted ECS equipment, conveniently ignoring the lack of any regulations concerning the standards and use of ECS.

Electronic Chart Systems

When ECS is fitted, as has been common for many years, route monitoring is inevitably based around it – at least in effect – even though the vessel is stated as being formally navigated using paper charts.

This is because an ECS generally gives the needed information in a timely, clear and easily accessed manner, compared to paper chart use.



ENCs offer a number of advantages that paper charts cannot match

But the problem with ECS is the lack of regulation in their design and use. Some systems may be exemplary but others could have major defects in their design.

The displayed charts could be out of date and, furthermore, typically come from non-official sources. Also, port authorities are unlikely to check out any aspects of an ECS installation, not least whether bridge staff are knowledgeable about its use and potential fallibilities.

In fact, there is no formal guidance available on their safe use – after all, ECDIS is the only electronic chart system that meets the requirements of IMO.

Despite all this, the widespread use of ECS in conjunction with paper charts over the last 10 years or so has not resulted in a flood of accidents, even though there are good reasons why the potential remains.

Ironically, the growth of ECDIS is likely to make any continued use of ECS with paper charts more problematic. For instance, the paper chart skills of many bridge staff will become eroded.

Also, a user's expectation of the ability of ECDIS could be wrongly ascribed to an ECS when changing vessel.

IMO's ECDIS programme is designed to make an impact on safety and so any moves to retain less appropriate navigational methods should be resisted.

Of course, it remains important to question the current requirements for ECDIS. Such questioning will help future improvements and if actually due to any misconceptions, it will result in better information being disseminated.

Some arguments, however, may be instigated by people who are mainly concerned with saving money today, rather than them having real fears about its navigational safety.

This may explain the weaknesses in many of the continuing arguments against its adoption and use.

Benefits of paper charts?

Quoted by many are the indisputable but isolated advantages inherent with paper charts.

For instance, their large size can be very useful in getting a quicker appreciation of an area. ECDIS is easily scrolled and scaled by an experienced operator but we await the affordability of large high resolution displays to be able to match this particular advantage of paper charts.

Of course, this has to be directly compared to the difficulty of working near the edges of a paper chart, which greatly complicates both route monitoring and planning processes – and which is a non-issue with ECDIS.

Another quoted negative is that ECDIS is electronic. It is therefore subject to failures. For this reason we need at least two systems on board – or other appropriate back-up facilities – and the necessary procedures to enable a rapid change-over in use.

Detractors then go on to say "but what if the second ECDIS also fails?" Indeed this creates an emergency situation but not one, if handled correctly by trained staff, that would result in an accident except in the most extreme and rare situations.

Another common criticism points to its susceptibility to failures in the connected position fix system.

Strangely, no mention is made of the equal susceptibility of paper charts to exactly the same problem, nor of the good practice and easy use of ECDIS in checking for such problems.

For instance, facilities are provided that enable the plotting of radar and visual bearings of charted objects to help keep a regular check on the displayed electronic position.

Some detractors wrongly assume that this cannot be done and, furthermore, that the equipment cannot be used when the electronic position has failed or become inaccurate.

A more valid criticism concerns the ease with which the display can either be overcluttered or have essential information missing.

The good thing about paper charts is that, through the skills of the compiling cartographer, they show all the information considered necessary for that area and scale of chart in a form that is readily assimilated by a skilled user.

The display rules for ECDIS today are influenced by the technical problems of showing detailed information on a limited resolution display, together with providing facilities to avoid information overload.

Indeed, it does take a properly trained user to ensure that the appropriate detail is always clearly shown on the display. Cited problems in this area appear to arise when users have insufficient knowledge about this important feature.

ECDIS anomalies

For good reasons ECDIS has recently been criticised when it was found that many in-service models would give an incorrect display of information in certain specific situations, despite being appropriately set up. Not surprisingly, this added to many people's negativity.

It was embarrassing for all involved, prompting examination of how the future details of ECDIS and other complex navigational equipment should be defined, implemented and tested.

It now appears that all the identified problems have been resolved by appropriate software updates.

On the positive side, it usefully highlighted to all involved that complex navigational equipment does require a coordinated process to ensure that any necessary software updates are readily implemented.

In fact, the need for a software update structure was identified in IMO's requirements for ECDIS back in 2006 but few had taken notice of this.

ECDIS is a good concept that will continue to evolve, not least with greater user experience. We need to carry on pointing out where improvements should be made but we should not continue to assume that continued comparison with paper chart use should be the main driver for this.

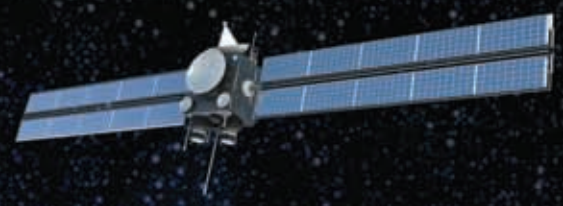
The information technology world of the 21st century is not a passing fad. It should not be surprising to anybody today that the technical concept of a paper chart, with its origins going back several thousand years, is now in the process of being totally superseded by intelligent, data driven systems. DS

Dr Andy Norris has been well-known in the maritime navigation industry for a number of years. He has spent much of his time managing high-tech navigation companies but now he is working on broader issues within the navigational world, providing both technical and business consultancy to the industry, governmental bodies and maritime organizations. Email: apnorris@globalnet.co.uk

KNS

THE NEW STANDARD OF MARITIME COMMUNICATION

www.kns-kr.com



High Throughput Satellites

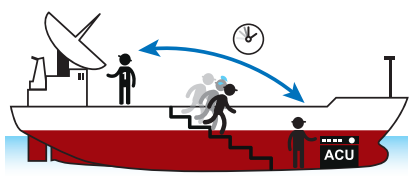
KNS, a market leader in design and integration of marine communication systems introduces the Next Generation Antenna designed for HIGH THROUGHPUT SATELLITES and KA-BAND beams.

SuperTrack Z10MK3

SuperTrack Z18MK3 C-Band

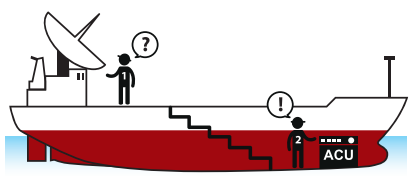
KNS WIRELESS CONTROL SYSTEM

Time Consuming and Inefficient



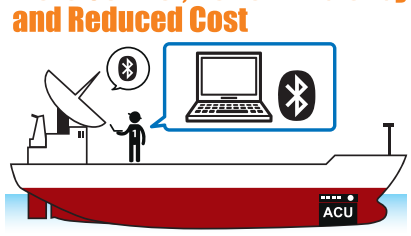
One Person

Labor Costs Increase and Efficiency Reduced



Two Person

More Control, Better Efficiency and Reduced Cost



One Person with Bluetooth

WIRELESS ACU CONTROL SYSTEM

The new MK3 antennas are accessible via Bluetooth technology. Connectivity via Bluetooth eliminates the time and energy for a technician to run below deck and make adjustments to the ACU and run back above deck to check all settings. KNS MK3 antennas can be connected via wireless Bluetooth technology up to about 100 meters from the radome.
The **KNS Self Diagnostic mode** can be selected from the paired computer to check all settings and movements of the antenna after service has been conducted through a wireless Bluetooth connection.

Hwaam-dong, 59-5, Yuseong-gu, Daejeon, South Korea, 305-348 | Tel +82 42.932.0351 Fax +82 42.932.0353 www.kns-kr.com

DESIGN FOR THE FUTURE

High performance Ku-band system prepared for rapid Ka-band conversion

Aptus software for ease of control and system monitoring

Three year global warranty

Global service and support network

Available from stock

From installation to operation, consider yourself connected to better RF performance, better reliability, better warranty, better ideas and higher surfing speed.

The all new v100GX is a high performance, 1m Ku- to Ka-Band convertible VSAT antenna system. Providing world class performance in a simple to convert package, ready for the future. Experience the latest designs in VSAT antenna technology with Intellian.

3 YEAR GLOBAL WARRANTY

Aptus

Learn more about the Intellian v100GX at http://www.intelliantech.com

Intellian®