Digital Ship
June/July 2012
www.thedigitalship.com

Thrane & Thrane takeover bid accepted

Cobham's on again, off again move to buy Thrane & Thrane is now very much on, as the Danish antenna manufacturer's board of directors accepted a bid for the company, which it has recommended to shareholders

Cobham, parent company of Sea Tel, has announced that it has reached agreement with the board of directors of Thrane & Thrane on the terms of a revised voluntary tender offer for the company.

Under the terms of the revised offer, Thrane & Thrane shareholders will be offered DKK435 in cash for each Thrane & Thrane share, an increase of DKK15 per share over Cobham's offer announced on 10 April 2012.

At the time of the initial DKK420 offer Cobham had said that this price was final, and that it would not be increased unless another party made a bid for the company.

Cobham says that its u-turn in offering an extra DKK15 per share is based on the value of a dividend that would otherwise have been declared in June 2012 in relation to the year ended 30 April 2012.

The revised offer values the share capital of Thrane & Thrane on a fully diluted basis at approximately £275 million (approximately US$445 million), a 2.6 per cent increase from the initial offer.

Lars Thrane, who founded the company with his brother and is currently a member of the board of management and board of directors of Thrane & Thrane, had stated at the time of the initial offer that he would not sell his share of the company to Cobham.

However, he also seems to have had a change of heart and has now entered into a binding agreement to accept the revised offer in relation to his holding of 1,349,084 shares, representing 22.7 per cent of the fully

continued on page 2

Management responsibility for Sea Tel would be transferred to Thrane & Thrane in Denmark once the takeover is completed

IN THIS ISSUE

satcoms

software

electronics and navigation

Digital Ship

Vol 12 No 9

Digital Ship Limited
2nd Floor,
8 Baltic Street East
London EC1Y 0UP, U.K.
www.thedigitalship.com

PUBLISHER
Stuart Fryer

EDITOR
Rob O'Dwyer: Tel: +44 (0)20 7017 3410
email: odwyer@thedigitalship.com

DEPUTY EDITOR
Julie Ann Chan: Tel: +44 (0) 20 7017 3414
email: julie@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

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

EVENTS
Diana Leahy Engelbrecht
Tel: +44 (0)118 931 3109
email: diana@thedigitalship.com

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

DIGITAL SHIP SUBSCRIPTIONS
€180 per year for 10 issues
Subscribe online at
www.thedigitalship.com,
contact subs@thedigitalship.com,
or phone Diana Leahy Engelbrecht on:
+44 (0)118 931 3109

UPCOMING CONFERENCES

DIGITAL SHIP HONG KONG
KITEC, Kowloon
10-11 October 2012

DIGITAL SHIP KOREA
Bexco, Busan, South Korea
30-31 October 2012

DIGITAL SHIP ATHENS
Metropolitan hotel, Athens
27-28 November 2012

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

diluted share capital of Thrane & Thrane.

In addition, the other members of the board of Thrane & Thrane have entered into an undertaking to accept the revised offer in relation to their respective individual holdings, amounting to, in aggregate, 17,040 shares - representing 0.3 per cent of the fully diluted share capital of Thrane & Thrane.

Cobham now owns or has received undertakings in respect of a total of 2,819,919 shares, representing 47.4 per cent of the fully diluted share capital of Thrane & Thrane, having already purchased 25.59 per cent from various institutional investors and on the open market before the bid was accepted by the Thrane board.

The board of Thrane & Thrane has now said that it will recommend the revised offer to its shareholders, and that it will "support and facilitate the making of the revised offer."

Cobham believes that this recommendation will allow it to secure a higher acceptance rate which will "enable a quicker and more effective integration of Thrane & Thrane into the Cobham group."

The offer price of DKK435 represents a premium of 48 per cent on the closing price per share from the Nasdaq OMX in Copenhagen on 24 February 2012, the last trading day prior to Thrane & Thrane's first announcement that it had received an unsolicited offer for the company.

The price also represents a multiple of 15.4 times Thrane & Thrane's operating profit for the twelve month period up to 31 January 2012, on the basis of an enterprise value of DKK2,621 million (approximately US$465 million).

"We are very pleased that, by increasing our offer to take account of the dividend for the year now ended, we have reached agreement with the board of Thrane & Thrane," said John Devaney, Cobham's executive chairman.

"Their recommendation will allow us to move quickly, and with certainty, with the integration of Thrane & Thrane into the Cobham group."

"We believe that this is an outstanding opportunity to bring together two world-class, highly complementary, commercially focused satcom businesses and is in line with our aim of prioritising investment that will bring more balance between our defence/security and commercial markets."

Next moves

Should the takeover of the company go ahead, Cobham says that routes to market for the two businesses will be combined and they will use a combined dealer network.

Cobham also notes that it intends that management responsibility for the combined maritime satcom business, which will include Sea Tel, Cobham's largest satcom business unit, would be transferred to Thrane & Thrane in Denmark "as soon as practicable."

Thrane & Thrane's Danish facility would be designated as a 'Cobham Principal Operating Location' and would receive further investment as part of Cobham's 'Excellence In Delivery' programme.

Assuming Cobham secures 100 per cent ownership of Thrane & Thrane, the company anticipates that the transaction would cover its cost of capital in the second full year of ownership, and that it would achieve a minimum of £4 million (approximately US$6.5 million) per annum of pre-tax synergies as a result of the transaction, in the areas of engineering, production, distribution and corporate costs.

Thrane & Thrane's satcom business has around 600 employees located in Denmark, the USA, Norway, Sweden, China and Singapore, working with a global network of distributors.

For the twelve months to 31 January 2012, the company generated revenue of DKK1,092.4 million (approximately US$193 million), with profit before tax of DKK169.4 million (approximately US$30 million).

For the same twelve month period Thrane & Thrane held net assets of DKK1,003.7 million (approximately US$177.5 million) and gross assets of DKK1,721.4 million (approximately US$304 million).

Cobham is substantially larger, employing more than 10,000 people on five continents and with preliminary revenues for the year 2011 of approximately US$3 billion.

Cobham has acquired nearly 50 companies in the last decade, including Sea Tel in 2003, which has since doubled both its revenue and R&D investment. DS

Satcom Direct has become a direct reseller for **TriaGnoSys** satellite communications products and equipment in the United States, and is now the only TriaGnoSys reseller partner in the country.

Intellian has appointed Vikaash Sukul as EU operations manager, to be located at the company's European sales and support office in Rotterdam, the Netherlands. Mr Sukul will manage European sales and support operations out of the office.

Marlink has appointed Shinobu Suzuki as its new Japan country manager. Ms Suzuki will be based in Marlink's Tokyo office and will have responsibility for the Japanese and Korean markets.

Thuraya has signed a service partner agreement with **Telespazio VEGA** of the United Kingdom, a subsidiary of **Telespazio SpA,** a **Finmeccanica/ Thales** company. Telespazio VEGA will distribute Thuraya's satellite communications products.

www.satcomdirect.com
www.triagnosys.com
www.intelliantech.com
www.marlink.com
www.thuraya.com

Danaos to install broadband system on 63 vessels

www.vizada.com

Vizada and its partner SRH Marine Electronics report that they have signed a 24-month agreement with Danaos Shipping Co Ltd to equip the company's fleet of 63 vessels with a broadband communications system.

The agreement includes the provision of 1 GB of connectivity to the fleet over Inmarsat FleetBroadband terminals, to be managed via Vizada's XChange and Crew PC services.

Greece-based Danaos Shipping provides ship management services to one of the world's largest fleets of containerships, with a number of additional diverse shipbuilding projects in the pipeline.

SRH will provide the Thrane & Thrane Sailor FleetBroadband terminals, while Vizada will provide its XChange platform, a piece of hardware installed onboard offering a user interface that will allow Danaos IT managers or captains to choose settings and configurations to make the best use of the FleetBroadband connectivity.

The XChange system also includes web compression and filtering capabilities, and optimised connectivity switching features.

The Crew PC system which will be installed onboard the vessels is a computer that comes preconfigured to match the communication needs of the Danaos crew.

Vizada's XChange platform will be used to manage the communications system

This will include elements such as web browsing and options for chatting with loved ones onshore during downtime aboard.

"In this difficult period, having a reliable cost effective solution onboard is vital for our business. As the IT manager of Danaos, I know that reliable ship-shore connectivity is key," said Vassilis Fotinias, IT manager, Danaos.

"Through Vizada XChange, I can control and monitor the on board IT infrastructure remotely. If this can be combined with crew welfare solutions, such as Crew PC, you can increase your business."

THOMAS GUNN navigation services ltd.

YOUR PERFECT PARTNER FOR THE TRANSITION TO DIGITAL NAVIGATION

Your next generation Voyager has touched down

The new Voyager 4 on-board chart management system with a host of additional new features:

- TGT E-Data
- Digital loose leaf updates
- ENC display
- Seamanship library
- Shipping Guides
- Weather routeing (SPOS)
- Touch screen technology
- Admiralty information overlay
- Route planning
- Regs4ships
- AtoBviaC
- Piracy data

Voyager Digital Update Service

Stand 4.205 Posidonia 2012

Posidonia Ποσειδώνια

Aberdeen
+44 1224 595045
info@thomasgunn.com

Istanbul
+90 216 493 7401
operation@thomasgunnyasden.com.tr

London
+44 1268 560066
londonsales@thomasgunn.com

Piraeus
+30 210 4060000
info@polythomasgunn.gr

Singapore
+65 6866 0688
info@thomasgunn.sg

Vancouver
+1 604 294 3944
tgms@maritimeservices.ca

Total Navigation Solutions

ADMIRALTY
INTERNATIONAL CHART AGENT

www.thomasgunn.com | +44 (0)1224 595045 | info@thomasgunn.com

Docking unit for Iridium phone launched

www.beamcommunications.com
www.iridium.com

Beam Communications has received certification from Iridium Communications for use of Beam's LiteDOCK docking stations with the Iridium Extreme satellite phone.

Beam says that it is the first manufacturer in the world to receive certification for a docking unit for the handset.

The range of docks extends the functionality of the Iridium Extreme so that it can be used for voice, data and tracking services on vessels and in other remote locations.

The PotsDOCK provides features such as external GPS connectivity, the ability to use standard telephone equipment such as corded or cordless handsets, and integration with a PBX for on-vessel use.

"Iridium communications devices and services are more vital than ever in the global communications infrastructure," said Greg Ewert, executive vice president, global distribution channels, Iridium.

"This is because of the ability of innovative partners, such as Beam, who make it possible to communicate through our network anywhere on Earth with tools that make connectivity possible where it was never before imagined."

"We appreciate the opportunity to act as a solutions catalyst for such forward-thinking on our partners' part. They truly understand – and meet – the global connectivity needs of customers in endless markets around the world."

Beam says that initial orders have already been received for the units and that shipping has commenced.

The dock extends the features of the Iridium phone

XpressLink dealers announced

www.inmarsat.com

Inmarsat has announced the first appointments to its global network of XpressLink dealers, with sixteen companies to offer the service via sales teams based in North America, Europe, the Middle East and Asia.

XpressLink is Inmarsat's integrated Ku-band and L-band solution, available for a fixed monthly cost. Up until now the service was only available from Inmarsat directly, via the channel consisting of its subsidiaries formerly known as Ship Equip and Stratos.

The company says that XpressLink supports always-on data speeds of 768 kbps, with a committed information rate of 192 kbps, when the VSAT service is active.

Customers using XpressLink will automatically be switched to the Inmarsat Global Xpress Ka-band service when it is launched, and will see their bandwidth double at that point.

'Several of the dealers have already closed deals' - Frank Coles, Inmarsat Maritime

In arriving at this list of sixteen new XpressLink dealers, Inmarsat says that in early March it issued an invitation to distribution partners, service providers and system integrators to confirm their interest in becoming a seller of the service.

This met with a positive response from more than 80 per cent of those contacted, according to the company, and negotiations with the majority of applicants are now at what it calls "an advanced stage."

The initial 16 dealers are:

- Anchor Marine
- AND Group
- Arskom
- DH-INTERCOM
- Elcome
- EosSat
- Hellenic Radio Services
- Jsat Mobile
- Navarino
- One Net
- Otesat-Maritel
- Satlink
- Selex
- Societa Italiana Radio Maritime
- Station Satcom
- Tile Marine

"We are excited by this endorsement of the XpressLink service as a gateway to Global Xpress," said Frank Coles, president, Inmarsat Maritime.

"[These] companies are at the forefront of delivering high-quality and cost-effective solutions to shipping fleets. They will not support a service unless they know it offers demonstrable value to their customers – value that is future-proofed with the transition path to Global Xpress."

"Several of the dealers we have announced [have] already closed deals, and we expect more soon."

Harris CapRock agrees 34-ship cruise VSAT deal

www.harris.com

Harris CapRock Communications has signed a five-year agreement with cruise operator Royal Caribbean Cruises to provide communication services onboard its fleet of 34 ships across the Royal Caribbean International, Celebrity Cruises and Azamara Club Cruises brands.

The hybrid communications set-up will feature a fully managed, end-to-end VSAT service as well as a terrestrial communications element, to enable access to Royal Caribbean's corporate network and business applications, as well as broadband internet and telephony services.

The system will combine Ku-band and C-band VSAT with shore wireless connectivity, so that the ships can switch from one preferred platform to another, maximising service availability and avoiding downtime.

Harris CapRock says that each ship will be equipped with two or three stabilised VSAT antenna systems.

"At Royal Caribbean, our goal is for guests to have the best experience possible while vacationing on our ships," said Bill Martin, vice president and chief information officer, Royal Caribbean Cruises Ltd.

"An important part of that experience is the communications service made available to them and making sure it performs above their expectations. We set a goal to change the market expectations for onboard communications, and with Harris CapRock's innovative solution, our guests will be able to remain connected with friends and family onshore in ways not possible on any other cruise ship."

Freedom of the Seas is one of the vessels that could feature Harris CapRock VSAT under the new agreement. Photo: Royal Caribbean

KNS launches 75cm VSAT antenna

www.kns-kr.com

Korean satcom antenna manufacturer KNS Inc has released a new 75cm VSAT antenna model, named 'Z7'.

Available now, KNS says that Z7 is one of the first 3-axis antennas of its size in the market. It features a 4, 8, or 16-watt BUC, a brake system, and an optional Co-pol kit.

The antenna is optimised for localised services, which KNS says would make it particularly useful for smaller ships.

"A 75cm antenna has an advantage of covering considerably more nautical miles than the prevalent 60cm models, while also being much more affordable than the large 85cm variety," said Noah Chung, marketing director for KNS.

"As such, Z7 provides consumers with a new high-end alternative that offers wide coverage at a fraction of the cost."

The Z7 antennas can be used with a spread spectrum modem, allowing for worldwide coverage, and are compatible with all modem manufacturers.

The 75cm Z7 Ku-band antenna from KNS

Vocality ships FleetBroadband Multi-voice unit

www.vocality.com

Vocality has announced that it has started shipping its BASICS Multivoice for FleetBroadband hardware platform, for use with the forthcoming Inmarsat Multi-voice enhancement to the satcom terminal.

The device has been designed for use alongside current FleetBroadband terminals, and enables users to extend the single voice capability, upgrading from just one phone call to support eight concurrent phone calls.

This is achieved without the need for any further equipment, beyond the Vocality device, and can be used with standard off-the-shelf analogue phones.

BASICS Multivoice for FleetBroadband can be connected to a PBX onboard a ship, or can have up to eight regular analogue phone handsets directly connected.

Vocality says it will be working with existing maritime distribution partners and service providers to connect to their own crew calling packages where possible.

The units will be operational upon launch of the service in Q2 2012.

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

Gigabytes onboard with 3G at sea

In an attempt to increase its vessel data traffic while reducing its costs, shipmanagement company Norbulk Shipping has implemented a 3G-based system that allows its ships to access gigabytes of data for just a few hundred dollars a month, when within range. Denis Dorigo, Norbulk Group, told *Digital Ship* about the technology

Like tax cuts, vacation time and birthday presents, there are some things that you can never get enough of. In the maritime world 'data' has joined that list, with an insatiable demand for internet, e-mail and a growing number of 'essential' applications pushing traffic ever upwards – and that's just for the crew.

However, like tax cuts in particular, if you do get more of what you want when it comes to bandwidth on your ships, you inevitably end up paying a price for it in one form or another.

Generally ships operate far from land, and cannot take advantage to terrestrial infrastructure facilitating cheap and plentiful internet access. As a result, satcoms is the backbone of ship communications – and the laws of supply and demand will tell you that traffic on scarce and expensive orbiting satellites is not going to come cheap.

However – all ships have to come ashore sometime, and, depending on trading routes, some vessels spend a significant amount of time within a reasonable distance of land. In circumstances like these the opportunity exists to leverage the terrestrial infrastructure to boost the data capabilities of the ships' satcom systems.

This was the approach taken by Norbulk Shipping Group, a ship management company with offices in Glasgow and Riga, which has 80 vessels under full technical management including tankers, bulk carriers, Ro-Ro's and multi-purpose / reefer ships.

Like most shipping companies, Norbulk is constantly on the lookout for new technologies that will improve efficiency and reduce operational costs, and communications plays a large part in that process.

In this regard, approximately 18 months ago the company began a fleet-wide roll-out of the Iridium OpenPort system to its ships, to replace its various existing satellite terminals and derive more value from its communications spend, as Denis Dorigo, IT manager at the Norbulk Group, explains.

"The OpenPort was chosen because of cost, it was very cost effective for us. Before that we were using a whole range of systems," he told us.

"We manage many vessels on which we had no involvement in the original choice of communication equipment, so we tend to have whatever type of system is onboard. We have ships with Mini-M, with Fleet 77, with Fleet 55, so a whole range of satellite systems. OpenPort has gone on as well as those systems, we got a very good deal from Iridium and left the old systems on as a back-up."

"The OpenPort is much more effective in many ways, it has some downsides but it has a lot of upsides also. It's been a win-win situation for us."

The roll-out of the Iridium system was completed in early 2012, but this was not the end of the company's communications upgrade.

In assessing the various options available to squeeze as much data as possible from the communications budget, Mr Dorigo came across a company called Wavetec Marine that was offering 3G data communications services for ships travelling in specific areas, including travel between Canada and the US.

With four of its own vessels engaged in regular trade between Canada and the US Mr Dorigo decided to trial the service and see what kind of difference having this additional communications option onboard could make to operations.

"We're always looking to improve things in general and have many things in the pipeline to be explored, to see how they would fit IT wise, comms wise and so on. Some owners require certain data to come out from the ships, other owners need other things. We keep looking at the best deals that are out there to do this," said Mr Dorigo.

"For those four ships in particular it was very interesting that they had this mobile phone reception for a long part of their voyages, which basically made it intriguing to try and find something we could integrate with this."

"We've been looking to reduce costs for a long time, and we're also looking to give the crew a little more freedom onboard. This is something we're thinking of fleet-wide, but because those four ships are trading mainly near the coast and have 3G coverage we started to have a look at how we could exploit that situation."

The Wavetec Mobile service is a 3G/4G communication solution for vessels transiting between different countries. It has so far only been deployed on ships travelling between the US and Canada, but the company says that it is currently looking to start testing in other international locations.

Installing the system involves affixing a small antenna on the ship, with a cable to connect into the network. This allows for connections to 3G/4G mobile networks across multiple countries without any mobile roaming charges, as the user agrees a single subscription with Wavetec Marine for the service, while providing an increased reception range for the 3G/4G network.

In Norbulk's case, Wavetec Marine representatives attended the vessels to complete the installations, which are done within one day.

Once everything is set up, the amount of data that can be transferred for relatively small amounts of money is far removed from what can be done over satellite.

"We pay a monthly subscription to Wavetec of a few hundred dollars per vessel, and that covers 12 gigabytes of data transfer, independent of where they are," said Mr Dorigo.

"I would say that's pretty good when compared to a satcom contract. We usually have lots and lots (of our allocation) left over."

"Our standard Iridium contract is for 50MB and 300 voice minutes per month, and most of our fleet manages to keep within that."

Communications management

With both satcom and 3G systems installed onboard these four ships, Norbulk also required a system to manage switchover between the two, and to make sure that the ships don't transfer large amounts of data when outside the Wavetec Marine coverage area – which Mr Dorigo estimates to be 20 to 30 per cent of their time at sea.

'We pay a monthly subscription of a few hundred dollars per vessel, and that covers 12 gigabytes of data' – Denis Dorigo, Norbulk Group

This was provided by Norwegian company Dualog, which has installed its Connection Suite system across the fleet to manage business e-mail and automatic file transfers. This includes an optional CrewMail service, as well as the Dualog DuaCore Pro software firewall and router.

On the four ships using the Wavetec Mobile system DuaCore Pro handles routing of IP traffic between the Wavetec equipment and the Iridium OpenPort, which is designated as a 'backup' system within this arrangement.

"(Using 3G) makes sense, you get high speeds, you can browse the internet and have the crew happy. You just need to be careful because it's the ship's communications system, so the minute you lose the 3G reception you need to automatically switch over and lock all of that traffic," said Mr Dorigo.

"That's where the Dualog system comes in, with a firewall and their DuaCore Pro system. We have total control of what is happening onboard of the ship and outside the ship. We can control data going to certain e-mail addresses, we can quarantine it and wait for somebody to approve it. We're fairly flexible with everything, and I haven't had any complaints yet."

Mr Dorigo notes that it is vitally important to have a management system like this in place to effectively run two communications services, with widely varying costs, side-by-side on the ship without running up unexpected bills.

"They call it OpenPort because when you plug it in you have access to everything, so you need to be careful," he told us.

"We get (communications service provider) AND Group to also filter traffic on the shore side. The minute you get computers starting to talk on your net-

Norbulk Acadian is one of the vessels using the combined satcom/3G system onboard

Onboard Online

VISIT US AT POSIDONIA 2012
STAND 1.201 HALL 1

s@tGate Satellite internet services

- Crew pre-paid internet access and B2B post-paid
- Data compression and caching
- Remote and onboard management via a user friendly web interface
- One rate plan for business and crew
- No hub is required at customers' premises
- 24/7 Customer Support

otesat _maritel
MEMBER OF OTE GROUP

Keeping you in touch. Globally

Tel.: +30 210 4071111 • Fax: +30 210 4071110
e-mail: customer_care@otesat-maritel.com, marketing@otesat-maritel.com • www.otesat-maritel.com

work you're still going to have to pay for the computers trying to reach the shore. So the Dualog system will basically block all of that off and we say 'you're on Iridium, you can only connect to Dualog'. Those are the only ports that are open, and only e-mail can go through."

"When it switches over to the 3G side basically everything is open. Voice calling is always open, and we have calling cards – though those four ships never have to use them since they get 3G reception. Saying that though, Iridium is fairly cheap for making outgoing calls. Outside those four ships we give the crews calling cards, and we give them private e-mail."

The switching system is also available on the other ships in the fleet not fitted with 3G, though on those vessels switching is not particularly required as all of the onboard options are L-band satellite services.

"It doesn't really make any sense to switch over from Iridium to Mini-M, but every ship has two or three profiles, depending on how many communication systems they have, and we have full control of how it's going out," said Mr Dorigo.

"The switchover is absolutely no problem. We did have some slight problems, not with many, but some slight problems with a few of the OpenPorts and it just switched over."

"Dualog has profiles for a million things. Sometimes it can get overcomplicated, in the sense that you can say that if you're on the Mini-M you are only allowed to transmit certain file sizes and that kind of thing. But in the end it makes sense, actually."

Working with unlimited data

With the mixed 3G/satcom system up and running on its four ships Norbulk has opened the door to almost unlimited cheap data, when in range of the mobile phone service, and has the option to introduce any type of IT system it requires.

"With vessels that have high-speed data, where you don't look at the data consumption, the sky really starts to become the limit," said Mr Dorigo.

"What data do you want from the ship? You can do anything – maintenance systems, purchasing systems, forms, all those kinds of things. It just makes life much easier."

Remote access to the ships' networks for IT management is one of the applications that Mr Dorigo points to as an example of how the Wavetec communications system has made a big difference to operations.

"On the Canadian/US ships you just connect and you can hop from one PC to the other, you remotely access a master PC and that will let you in to the rest of the network," he said.

"With that we can fix problems before they happen, and of course you can see things yourself. It's difficult for people who are not really computer literate in a technical way to actually explain what's happening and the errors that they get. If you can do that you will reduce your travel a lot."

"On the rest of the fleet, I have been thinking about doing remote connections to the ship, but on satcom it can be fairly unreliable and I wouldn't like to know how much a remote connection to a ship would be if you were working on it for an hour."

With that in mind, Mr Dorigo is keen to implement similar systems on other vessels in the fleet trading in coastal areas, though he admits that he has struggled to find comparable offerings in other regions.

"We had looked at it previously and the technology was not available," he said.

"It would be something to look at for ships which have a standard trade, because you also need to look at the expense of installing the system and how long it would take to get your money back. But it's absolutely something we would like to look at – that's the way forward, I think. On the current installations payback was approximately one month".

Apart from 3G technology, Mr Dorigo is also keen to look at other new technologies coming into the market, and is hopeful that evolution in maritime communications will continue to bring faster, cheaper services to those at sea.

"There are always new technologies coming out, so you need to keep your eye open. 3G may be good today, but in a few years' time we might have even faster, more cost efficient satellite communication systems – and that's your need for 3G gone," he said.

"I'm pretty sure that if we give it a few years we'll have huge speeds out in the middle of nowhere, I think we're edging that way. Of course they have to recoup some money – but something like Iridium OpenPort, just a few years ago getting 64 kbps or 128 kbps for the money that we're paying now wouldn't have been thought about."

Installation involves this simple antenna, and can be completed in one day

"I've been with Norbulk for 15 years, and when I joined we had a few Linux terminals, and I recall that we started to install the first Windows 3.0 system – that's ancient. Our whole e-mail system could only hold 200 MB, then the server would be full and would crash. At last count of our e-mails I think we now had something like 600 GB. It's just amazing how everything has evolved – and it's a pleasure to be part of it." DS

Boatracs and KVH join forces to serve smaller vessels

www.boatracs.com
www.kvh.com

Boatracs and KVH report that they are to work together to deliver a communications service for small to medium sized businesses in the commercial workboat and fishing markets.

Sold through Boatracs, the Boatracs mini-VSAT Fleet Management Solution includes a TracPhone V3 (to be called the Boatracs mini-VSAT V3), as well as Boatracs' fleet management platform, Boatracs BTConnect.

BTConnect is a web-based solution that integrates message and mapping functionality, and includes features such as route planning.

Other software products like BTForms, an electronic forms system that automates vessel data collection, can also be included. The new service will be made available and supported through KVH and Boatracs' dealer network.

"We are very excited to partner with an innovative top-tier company like KVH to integrate the award winning TracPhone mini-VSAT Broadband system with Boatracs' software solutions for the commercial maritime market," said Irwin Rodrigues, president and CEO of Boatracs.

"With increased regulatory compliance reporting and heightened competition, the needs of our customers have evolved dramatically over the past few years. We're seeing a growing need for simple yet highly effective integrated solutions that drive operational efficiencies, vessel productivity and compliance."

"The Boatracs mini-VSAT Fleet Management Solution meets these requirements in an affordable package through a single provider known in the industry for reliable service and a dedication to customer support."

The package will include a KVH mini-VSAT and Boatracs software

Satcube announces satcom antenna development

www.satcube.com

Gothenburg-based Satcube AB reports that it is in the process of developing a new range of maritime satcom antennas, which it says will be aimed at "the next generation of satellite capacity."

The platform features an active dampening system, to eliminate shocks and vibrations and reduce the number of system failures.

"These satellite terminals need to be more accurate and demonstrate greater efficiency than the old L-band system terminals they replace," said Jakob Kallmér, Satcube CEO.

"Availability and robustness requirements continue to be extensive. However, customers aren't prepared to pay much more for the hardware. That's why you need to take a new approach when developing this type of terminal."

"We drew inspiration from the automotive industry, incorporating simple, inexpensive components without stretching the limits of function or quality. This approach has resulted in a number of innovations for which we have submitted patent applications."

Satcube says it plans to release a beta version of the system this winter to test the concept in the North Sea. It is expected that a fully industrialised product will be available by mid-2013.

Jotron Group merges Norwegian operations

www.jotron.com

The Jotron Group has announced that it will merge its remaining Norwegian companies (Jotron AS, Jotron Phontech AS and Jotron SatCom AS), following the sale of its Jotron Consultas AS software division.

100 per cent of the shares in Jotron Consultas AS were recently acquired by Kongsberg Maritime as part of a deal announced in March 2012.

The name of the new combined company will be Jotron AS, with an annual turnover of 305 million NOK (approximately US$53 million) and 150 employees.

"This merger and the sales of Jotron Consultas AS will allow Jotron to fully focus on our core businesses: communication products and systems for maritime, land and air applications," says Magnus Vold, managing director of the 'new' Jotron AS.

"It will allow us to consolidate our sales, R&D and production resources to expand the business and better serve our customers worldwide."

Jotron AS will be organised into divisions covering separate market segments, with a Maritime & Energy division responsible for all business with maritime customers worldwide.

The new organisation of the company will officially come into effect on July 1st 2012.

A world leading satellite operator

With 29 satellites, Eutelsat has pionnered the development of today's maritime telecommunications and continues to build its success on the reability 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.

www.eutelsat.com maritime@eutelsat.fr

eutelsat
communications via satellite

Cutting costs at Wisby Tankers

Having decided to change its satellite communications system in an effort to reduce costs and increase efficiency, Wisby Tankers installed the mini-VSAT service from KVH – and has managed to reduce its spend by 50 per cent on some vessels

Wisby Tankers is a first-generation tanker operation and management company, still owned and operated by its four founding members. Since its inception, the company has grown from a single ship to a full-fledged shipping company with more than 300 employees working onboard its vessels and at its offices ashore, developing and building its own ships along the way.

While a traditional company in many respects, Wisby is looking to be cutting-edge when it comes to technology and leveraging IT to drive efficiency in operations.

This philosophy was applied when it began to search for a new satellite communications system for its fleet that would drive efficiency and reduce costs, while also adding additional options for its crews to stay in touch with home.

Wisby operates 12 tankers, including chemical and oil tankers as well as bitumen tankers, ranging in size from 5,000 to 75,000 DWT.

In addition to their varied applications and sizes, these vessels also travel in various different regions, covering most of the world's shipping routes.

Communications

The company was using a variety of systems, including Inmarsat Fleet and FleetBroadband as well as CDMA mobile technology solutions, to meet the diverse communications needs of the fleet, but as monthly airtime costs were growing the company decided that this arrangement would not support its vision to enhance its business operations, IT management, and crew retention programmes with more onboard connectivity.

Wisby decided that it needed to find a new onboard communications solution, and this led the company to try out KVH's mini-VSAT Broadband service using its 60cm TracPhone V7 antennas. So far it has been very pleased with the results, according to Bo Olausson, IT manager for Wisby Tankers AB/Wisby Shipmanagement AB.

Wisby has installed the mini-VSAT service on its tankers, and has noticed a drop in its communications spend

"Our main goal was to lower our communications and IT support costs, with a secondary goal of supporting crew morale with an internet connection to use at their leisure," he says.

"We were looking for a small antenna size, with worldwide coverage and ease of installation on our smaller vessels."

"The TracPhone V7 system price was two-thirds the cost of the other VSAT system we have in use, and KVH's global support is vital because our operations are always in progress worldwide."

The mini-VSAT Broadband service uses ArcLight spread spectrum technology developed by KVH's satellite technology partner, ViaSat, to offer Ku-band connectivity via 14 Ku-band satellite transponders.

KVH says that this spread spectrum technology is what enables use of antennas of 37 cm for the Ku-band service and 1 metre for combined C/Ku-band coverage.

When coverage is not available, or the system is not in operation for any other reason, communications onboard Wisby vessels are strictly limited, as Mr Olausson explains, with the connection switching over to the previously installed satcom services.

"Our older communications systems are maintained only as backup, and when they are in use, only our e-mail service is allowed to be used," he says.

While operating on Ku-band, Mr Olausson notes that the fixed fee nature of the VSAT service has reduced the company's communications spend significantly on a number of ships.

"On some vessels, our communications costs are cut in half," he says.

"But on others, we have requested that the TracPhone V7 be installed immediately upon delivery from the shipyard, so that we could enjoy the lower costs from the beginning."

The satcom system is connected to dual WAN routers on Wisby vessels, making it possible for the company to use both static and dynamic WAN-IP addresses while also managing multiple local networks.

The company is also able to make use of Quality of Service (QoS) management and traffic prioritisation on its communications system.

In addition to these network functionalities, one further key aspect of the system for Wisby when deciding on a new communications service was antenna size, as Mr Olausson recalls.

"The smaller form factor of both the antenna and below decks unit was a major help when deciding final equipment positioning on the vessels, both above and below decks," he explains.

"The systems were easy to install because they came with clear technical instructions, and we received great support from Cordland, the KVH distributor in Sweden, before installation and during the initial setup. We continue to receive outstanding support from the staff in KVH's Denmark office, who always respond to our questions quickly and professionally."

Going forward

Wisby Tankers is committed to continuing to move its business forward, adopting the best in communications technology along the way. Based on the results so far Mr Olausson says that this strategy will include further adoption of VSAT technology in the future.

"As we move forward and grow our business, KVH's new 1-metre TracPhone V11 systems (for dual Ku/C-band coverage) are a major upgrade candidate for some of our vessels," he says.

"We are more than pleased with the mini-VSAT Broadband systems' performance – the system is just as stable and automatic as KVH advertises it to be, especially when compared to other VSAT services."

"In addition to the great performance and significant cost savings, this solution gives us better support for our IT operations. The user-friendly operation and ability to offer crew access means that we also have a happier crew, who are willing to return to our vessels for multiple contracts." DS

OceanLink VSAT from SELEX

www.selexelsag.com

SELEX Elsag, a Finmeccanica company, reports that it has launched a new OceanLink VSAT satellite communications system.

Primarily aimed at the commercial fishing industry and offshore renewable energy support operators around the UK and North Sea area, OceanLink60 and OceanLink80 will provide 'always-on' broadband internet and Voice over Internet Protocol (VoIP) calls at a fixed monthly cost.

"Since being launched earlier this year and following extensive sea trials, orders for both versions of the product have already exceeded initial expectations; with excellent customer feedback on the solution even when operating in the harshest of sea conditions," said Trevor Bond, head of marine sales at SELEX.

"This clearly shows SELEX Elsag's commitment to develop solutions that connect and protect right across our marine customer spectrum."

In other news, SELEX has also recently reported that has agreed two new satellite communications deals, with North Star Shipping and Viking Supply Ships Limited.

SELEX will supply three Sea Tel 4009 stabilised maritime Ku-band VSAT communication systems to North Star, on a five-year hardware rental maintenance contract.

The contract also extends an existing airtime agreement to accommodate the new installations.

North Star is building three new ships to add to its fleet of 32 vessels that SELEX is currently servicing.

Viking Supply Ships (previously SBS Marine Ltd) has also signed a similar fleet-wide five-year rental maintenance agreement for VSAT services and airtime.

Under the contract, SELEX will provide Viking Supply Ships Platform Supply Vessels with improved VSAT hardware and an enhanced broadband airtime package.

KVH® INDUSTRIES

MINI-VSAT BROADBAND℠

How did KVH become #1 in maritime VSAT?*

**Euroconsult Report, March 2012 and NSR, May 2012*

If you're tired of rising SATCOM costs, come on over to the **mini-VSAT Broadband world!**

Fast
Data rates up to 4 Mbps

Global
Unified C/Ku-band network covers 95% of Earth

Affordable
Offering versatile airtime options with metered rate plans at 1/10th the cost

Reliable
One manufacturer, one network, one end-to-end solution with 99.5% uptime

Small
Antennas 85% smaller than other maritime VSATs

YOU'RE INVITED

Cocktails & Innovation

"KVH mini-VSAT Broadband: a Better Alternative for Satellite Communications at Sea"

Thursday, 7 June, 17:30-19:00
Posidonia Conference Hall

Visit KVH at Posidonia 2012, Booth 1.332

Get KVH's new report
"Comparing KVH mini-VSAT Broadband to Legacy Solutions" at:
www.minivsat.com/one

Versatile one-dome hardware solutions for any vessel or application

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

Competition driving maritime satcom to higher bandwidth

Despite global economic difficulties and growing business pressure on shipping companies, the maritime satellite communications market continues to grow, both in terms of numbers of terminals and revenues, *writes Wei Li, Euroconsult*

The economic recession which began in 2007 has impacted the maritime sector in various ways including reduction of maritime traffic and reduced prices for maritime trading, leading to a difficult financial situation for shipping companies and fleet operators.

Despite the recovery of the last 24 months, there is still an overcapacity of vessels, which could lead to low operating margin, difficult access to financing and eventually the bankruptcy and the restructuring of fleet operators.

Under such a difficult industrial circumstance, in 2011, the global maritime satellite communication market achieved almost 6 per cent growth in operating terminals count and about 1 per cent increase in revenues.

The total size of the market reached about 315,000 active terminals (including MSS and VSAT) and close to $1.4 billion at the tier-1 service provider level.

Despite some decreases in equipment sales and slowdown in new installations, a large number of service providers reported continuous growth in satellite usage and service revenues. Indeed, both the established MSS service and the emerging VSAT business contributed to the growth of the overall maritime satellite communication market.

Since 2008, the global market has been growing at a high single digit annual rate for both revenue and terminals.

Despite the phase-out of some legacy Inmarsat services (which is being accelerated by Inmarsat itself), the entire maritime satellite communications market remains active, and is still in the growth momentum.

Additionally, a large part of the maritime community is not yet well addressed by the satellite communication industry, and opportunities are still ahead in underdeveloped vertical segments, emerging geographic markets, and new applications.

97 per cent MSS

Reviewing the maritime market in the last few years, we see that VSAT is absolutely the hottest topic in the sector.

Announcements for new VSAT installations and new capacity leasing are being made almost every week, and by now almost all traditional Inmarsat service providers or resellers have VSAT services in their product portfolio.

However, according to the analysis of Euroconsult, the development of VSAT seems more or less exaggerated. In 2011, among the 315,000 active maritime satellite communications terminals, about 97 per cent of them were MSS terminals and only 3 per cent were VSAT terminals.

Indeed, the MSS industry has recognised a continuous growth in the maritime market over the last three years in terms of the number of terminals, from fewer than 255,000 active terminals in 2008 to more than 306,000 in 2011, corresponding with a 7 per cent CAGR (Compound Annual Growth Rate) over the three-year period.

At present, MSS services, especially legacy Inmarsat services, are widely used across the entire maritime market for a large range of mission-critical communications. At the MSS service provider level, total revenue represented roughly 60 per cent of the total maritime satellite communication service market in 2011.

The share of MSS revenue was much lower than that of terminals, primarily because of the lower MSS Average Revenue Per User (ARPU), dragged down by both low data rate tracking / safety communication terminals which normally generate low monthly fees and low usage terminals which are mainly used as back-up to VSAT services.

VSAT competition

Increasingly, the VSAT competition has significantly slowed down the MSS business. Inmarsat, in particular, reported that its maritime revenue decreased by 0.5 per cent in 2011, and it informed investors in March 2012 that it expects no growth in its core business over the next two years.

Other MSS operators, such as Iridium and Thuraya, are still relative newcomers to the maritime sector, and their maritime business is affected by the VSAT only to a very limited degree.

To adapt to the competitive market landscape, MSS operators are changing their traditional business model.

To illustrate, following the VSAT business model, in 2011, Inmarsat launched VLA (Very Large Allowance), which offers heavy consumers its FleetBroadband service with a monthly fixed fee.

In addition, in order to lock in customers, Inmarsat also launched, via its service subsidiaries and partners, hybrid FleetBroadband / Ku-band offers which are upgradable to the upcoming Global Xpress Ka-band system.

Iridium has also identified the opportunity to partner with VSAT players. In January 2012, Iridium announced that it would be teaming up with KVH in order to offer a global seamless maritime broadband service.

Facing the fact that most VSAT equipped vessels still keep MSS services (in most cases, Inmarsat ones) as the back-up, which generate very limited revenue to MSS operators, Inmarsat adjusted its service pricing from May 1st, 2012.

According to feedback from the end user community, Euroconsult understands that this price adjustment directly leads to a 15 per cent-30 per cent increase in cost for medium and light users of Inmarsat services.

With such a cost, the installations of Inmarsat terminals for VSAT backup purposes become economically uninteresting. However, many other moderate Inmarsat users which do not have VSAT on-board also get affected by this cost increase.

In the short term, this pricing change will directly improve the ARPU of Inmarsat maritime services, and therefore drive the maritime revenue upwards. For mid and long term, such a significant price increase should result in increasing churn rate.

Will the FleetBroadband bundles, Hybrid Ku-/L-band packages and later on the Ka-band service be successful enough to offset the negative perception from end users of this pricing change? We are keen to see the Inmarsat financial reports at the year end 2012.

VSAT growth

On the other side, the fast growing and strong revenue generating VSAT is increasingly growing in importance in the maritime satellite communications market.

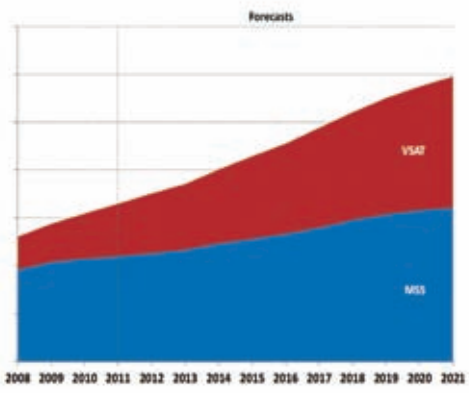
The number of VSAT maritime terminals increased significantly, from fewer than 6,000 active terminals in 2005 to around 9,000 in 2011, contributing a strong CAGR at 15 per cent over the three-year period. As of 2011, there were about 9,000 VSAT maritime terminals in operation in the world.

The new-generation Ka-band systems (especially the Inmarsat Global Xpress) in development will soon be launched onto the commercial market.

Several years ago, due to technical and cost issues, only a few capacity-hungry sectors, such as Oil & Gas offshore, had large-scale VSAT installations. However, the fast-increasing crew communications onboard merchant ships and the increasingly demanding passenger communication needs on cruise ships and superyachts in recent years have generated huge capacity requirements, which cannot be met by MSS services at an affordable cost.

For operational communications, new applications such as real-time monitoring, remote diagnostics, maintenance, route planning, electronic port declaration, etc. are being adopted by an increasing number of vessels, and all of these applications are driving the growth of on-board bandwidth requirements.

Consequently, the installation of broadband VSAT systems has become inevitable, especially for high-end vessels such as cruise ships, superyachts, offshore rigs, tankers, Oil & Gas survey vessels, etc.



MSS wholesale revenue vs VSAT capacity revenue

The business model for mobile VSAT on both satellite operator and satellite service provider levels differs from the typical business model used for MSS.

Basically, the model follows the logic of the FSS industry. Thus, satellite operators lease wholesale capacity in the form of dedicated transponder capacity in specific maritime beams, and service providers lease this dedicated capacity over a timeframe (in general, estimated at between one to three years; some could be for longer time or even the entire satellite lifetime).

In order to provide VSAT service globally, capacity from multiple transponders and possibly from several different FSS operators may be required.

As of 2011, the global maritime VSAT market represented 40 per cent of the entire maritime satellite communication industry at service provider level.

VSAT by 2021

Driven by strong demand for data communications, especially IP data applications, Euroconsult sees strong growth in the coming decade.

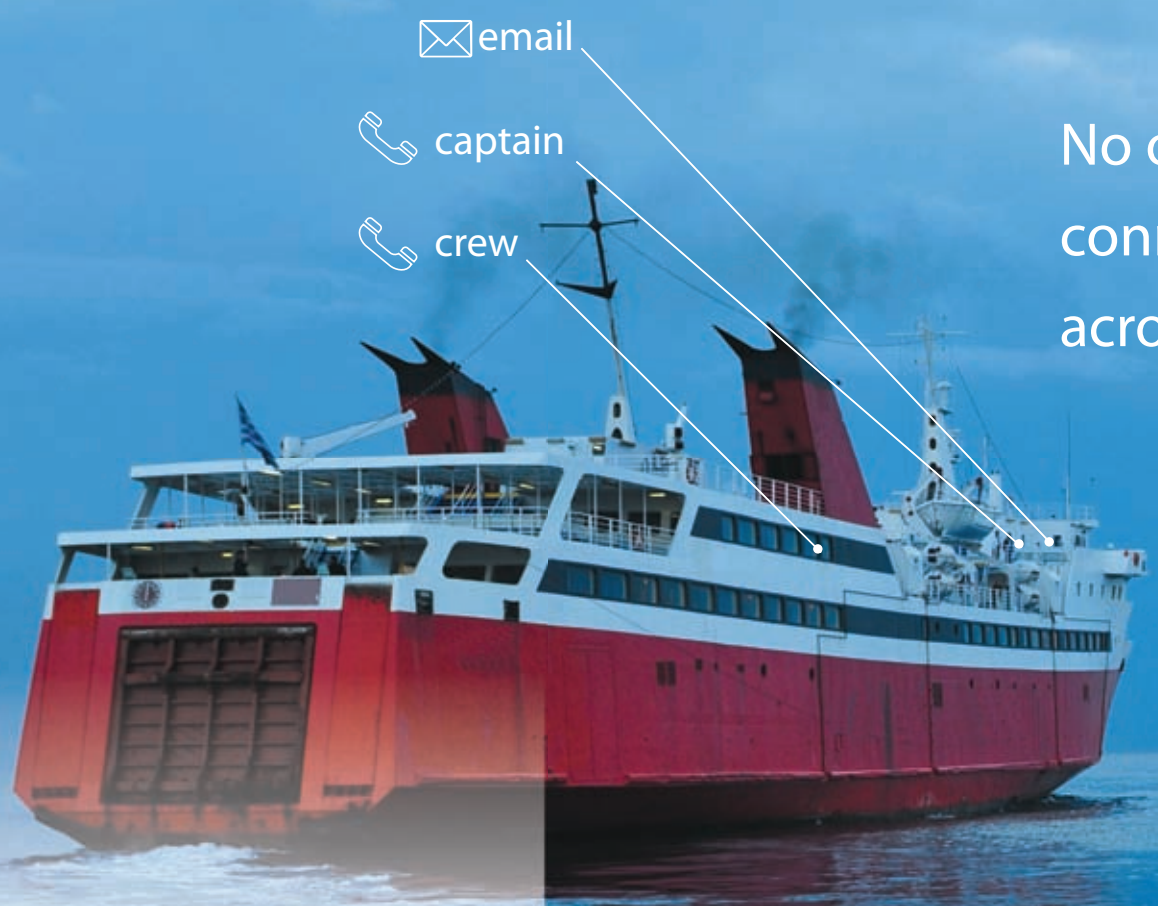
This demand is driven by applications in three categories, including safety & regulatory communications, professional communications for ship operations and crew welfare/entertainment.

Following the current market trend, VSAT service providers should gain market share in terms of revenue over the coming 10 years.

In 2021, the revenue of service providers in the maritime market should reach approximately $1.7 billion, of which MSS service providers account for 45 per cent and VSAT service providers account for the remaining 55 per cent. DS

About the author

***Wei Li** is senior consultant at Euroconsult and editor of Maritime Telecom Solutions by Satellite - Global Market Analysis & Forecasts, Aeronautical Telecom Solutions by Satellite - Global Market Analysis & Forecasts, Mobile Satellite Communications Markets Survey – Prospects to 2020, and Company Profiles – Analysis of FSS Operators.Mr Li can be reached at li@euroconsult-ec.com.*



No other company keeps you connected to things that matter across the entire globe

STANDARDIZED

- Satellite
- Real Global
- Real Reliable

OPTIMIZED

- Email
- Internet
- VPN
- Data Speed
- Three Voice Lines
- 5-Year Limited Warranty*
- Global Service Program

* One-year limited warranty on accessories.

Introducing

Iridium **Pilot**™

Engineered and built to perform in the toughest of conditions.

Engineered for durability and reliability, Iridium Pilot™ is powered by the Iridium OpenPort® broadband service and is backed by an industry-leading 5-year manufacturer's limited warranty*. Welcome to the next generation of global maritime communications.

iridium® Everywhere

IridiumPilot.com

KPI project passes 1,000 vessels

www.shipping-kpi.org

The Shipping Key Performance Indicator Project, initiated by InterManager but now administered by the independent KPI Association Ltd, has passed the milestone of adding the 1,000th vessel to the data system.

Performance statistics from these vessels are now being inputted into the project's website – enabling the KPI system to produce performance measurement statistics for the industry.

"This is excellent progress for the project and indicates a great deal of industry involvement and support," said Captain Kuba Szymanski of InterManager, on behalf of the KPI Association.

"By collating performance data from a wide range of shipping companies we are able to calculate key performance indicators to enable benchmarking against industry averages."

"The more information we have the more accurate these indicators are which will help to ensure the standards within our industry are kept high."

Started by InterManager, together with The Norwegian Research Council, Marintek and Wilhelmsen ASA, the Shipping KPI Project developed standard tools for measuring companies' and vessels' performance.

Now established as the independent, not-for-profit KPI Association Ltd, the project is working with a range of industry stakeholders and aims to develop a standard for ships' performance measurement that is common to the industry.

'The more information we have, the more accurate these indicators are' – Capt Kuba Szymanski, InterManager

The data which each company inputs is completely confidential and cannot be accessed by any other user of the service. However, the combined anonymised data enables the KPI Project to calculate industry averages to enable companies to benchmark their vessels' performance.

The KPI Project is now aiming to include 2,000 vessels in its database by the end of 2012.

Newcruz Offshore installs enginei

www.enginei.co.uk

Newcruz Offshore Marine Services, a Swiber Group company, has implemented the enginei fuel management system from Royston Limited aboard its new offshore support vessel, the Swiber Carinabe, the first company in the Asian market to do so.

The Swiber Carina was launched last year as the first in a building plan for 11 vessels that will provide oilfield support services around the Malaysian Peninsula.

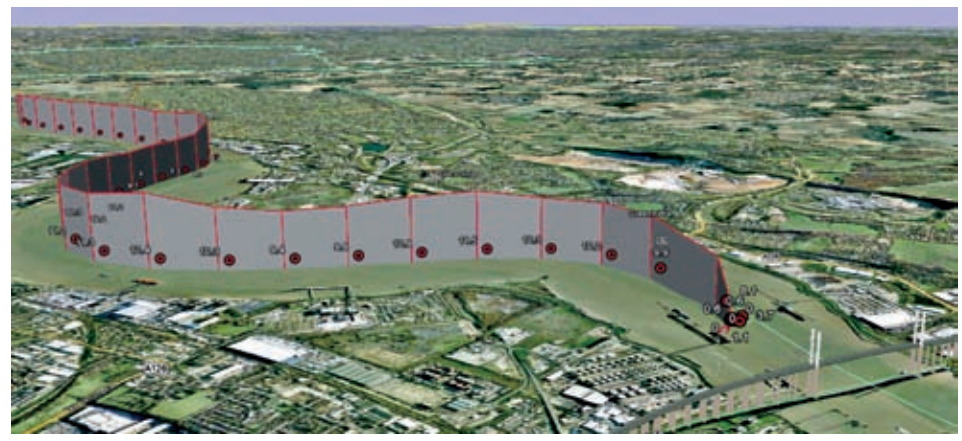
The system will be used to provide real time fuel consumption details on board and, simultaneously, at the company's head office. Royston says that, in separate trials, an enginei system has enabled some users to achieve fuel savings of up to 20 per cent.

Enginei can be applied to any diesel-powered vessel and works by measuring fuel flow and matching the data with the ship's GPS location. This information is used to continuously calculate a vessel's 'miles per gallon' and to correlate the information with its activity and speed.

A bridge display allows Masters to consequently be continuously aware of their fuel consumption, and make adjustments to improve the balance between their speed and fuel consumed.

Similarly, operations managers ashore can use the information to deploy vessels in a timely and cost effective way.

The data on the vessel, along with its GPS location, is relayed ashore to a satellite map display which provides the ship's superintendent with a real-time presentation of each vessel's location and fuel consumption. A graphic overlay shows the amount of fuel being consumed at any point along its track.



The enginei system presents real-time vessel locations and fuel consumption

Job site registers 50,000th seafarer

www.maritime-connector.com

Online maritime job board, Maritime Connector, reports that it has recorded the registration of its 50,000th seafarer.

Maritime Connector began as a regional service connecting Croatian shipowners with Croatian seafarers, before expanding through international collaboration with shipping companies looking for Croatian officers and crew.

The company says that the English version of the website continued to attract non-Croatian officers, leading Maritime Connector to completely redesign the platform, so that it is now available in English only and welcomes seafarers from all over Europe and Asia to register their CV into the database.

"Seafarers are very satisfied with the possibility of having information on the job openings with various ship operators, managers and crewing agencies at one place. This helps them to get information about new maritime jobs in time, and shortens the marine vacancies search. Also, they get the chance to send their CV directly to the company, which guarantees equality of opportunities and transparency," the company said.

"The companies that work with us are satisfied as well. The crew search is now more efficient, both in terms of time and money. Besides shipping operators, we collaborate with some of the largest and oldest crewing agents in the world – Wilhelmsen Ship Management, BSM and V.Ships and all of these companies use us both for crew search and PR."

"Furthermore, by getting a great number of applications to their seagoing vacancies, companies are enabled to choose the very best crew. It is simple – nobody can make a better choice for your company than you can."

The website has expanded from being a purely Croatian-focused service to welcoming seafarers from all over Europe and Asia

Oldendorff to implement BASS software

www.bassnet.no

Dry-bulk operator Oldendorff Carriers has agreed a deal with Norwegian company BASS, to implement its software system.

Oldendorff Carriers currently controls a fleet of some 400 chartered and owned vessels operating across the globe.

BASS's contract with Oldendorff Carriers comprises the complete BASSnet package of ten modules covering maintenance, procurement, dry-docking, safety, risk management, operations, crewing, payroll and services like database building and conversion.

"After a comprehensive comparison of the suppliers and their systems, the decision was clearly made in favour of BASS software because we think BASSnet is the fleet management suite in the market which best fits our requirements," said Oldendorff Carriers fleet manager, Charles Jan Scharffetter.

"We are confident that BASS Software's professional team will implement the complex project smoothly."

Oldendorff joins other companies like Stolt Tankers, TMT, Pacific International Lines, APL, NYK Ship Management, "K" Line, CMA CGM, Lamnalco, Wilhelmsen Ship Management and Hapag-Lloyd in implementing the BASS software system.

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 LIMITED

SEEMP tools launched

www.classnk.or.jp
www.napa.fi
www.marorka.com

Two new technology systems to assist in the implementation of Ship Energy Efficiency Management Plans (SEEMP) have been launched, one from Icelandic company Marorka and another as part of a collaboration agreement between ClassNK and software provider NAPA.

Last year, the IMO announced amendments to MARPOL that will make a SEEMP mandatory from 1 January 2013 for all ships over 400 gross tonnage.

The SEEMP solution from Class NK and NAPA will combine modules to optimise trim, route and speed optimisation and weather routing with an analytics service to offer operational efficiency and decision support.

The system aims to allow owners and operators to respond quickly and adapt operations in real-time to capitalise on latent efficiencies to increase eco-efficiency and reduce fuel consumption.

Class NK and NAPA say that they are working closely with Japan's largest shipbuilder, Imabari Shipbuilding Co. Ltd., which has been instrumental in shaping the development of the system.

A trial version of the new solution is expected to be completed within the year, and upon completion will undergo real world testing on vessels owned and operated by an Imabari Group shipping company.

Feedback from this verification testing will be used to further develop and refine the system prior to final release.

Imabari Shipbuilding will also make use of the system and the results from its verification tests to further improve the performance of new vessels built at its shipyards.

"Eco-efficiency lies right at the heart of NAPA's business, we are committed to providing environmentally sound solutions from eco-efficient ship design to our operations support software," said Juha Heikinheimo, president, NAPA Group.

"The partnership with ClassNK shows the potential of NAPA's software in supporting significant financial and environmental savings."

"Indeed, when married with sound management practice, improvement of latent efficiencies, optimisation of trim, ballast and floating position, and implementation of voyage optimisation systems, an electronic approach to SEEMP can achieve as much as 15-20 per cent in fuel economy, depending on the vessel type."

Marorka, meanwhile, has launched its own Marorka Online SEEMP system to assist shipping companies in ensuring compliance.

The new web-based product guides ship operators through the creation of their SEEMP, and aims to reduce the effort required in managing SEEMPs for an entire fleet.

The online service provides a fleet overview for measures and goals, with a calendar view for upcoming projects, and offers a central repository for document management, allowing crews to print the most recent version of the document from the web.

Marorka says that this should also help companies to perform continuous evaluation and improve their operations based on analytic reports and live measurements.

"We at Marorka are quite excited about SEEMP. We've been living and breathing energy management for ships for over a decade now, and it's our belief that SEEMP will prove to be an effective catalyst for improving energy efficiency," said Kristinn Aspelund, Marorka sales and marketing director.

"We have created an add-on for Marorka Online, our web-based fleet energy management solution, which allows SEEMP to become an integral part of ship management. Our development team has been focusing on making an easy-to-use tool for shipping companies to maintain their SEEMPs."

Yasushi Nakamura, ClassNK, and Juha Heikinheimo, NAPA Group, mark their collaboration agreement on the SEEMP system

Intergraph has opened its newly-expanded Intergraph Global Marine Center in Busan, South Korea, with a dedicated support team for customers aiming to implement SmartMarine Enterprise in marine and offshore projects.

AVEVA has opened a new office in Wroclaw, Poland, to offer sales and support for all of AVEVA's solutions and consulting services in the country.

www.intergraph.com
www.aveva.com

Mona Lisa for Carnival

www.monalisaproject.eu

The world's largest cruise company, Carnival Corporation, has joined the MONALISA project, led by The Swedish Maritime Administration, which aims to continuously track the locations of cruise and cargo vessels sailing in European waters.

The MONALISA project is a computerised tracking system that offers a continuous view of ship traffic in specific regions, and is designed to provide cruise and cargo operators with information that enables them to operate as safely and efficently as possible.

The latest phase of the project, called MONALISA 2.0, will include a renewed application to the European Commission's TEN-T (trans-European transport network) programme.

Carnival Corporation will work with the Swedish Maritime Administration to extend the current test area from the Baltic Sea to include the Mediterranean Sea.

A number of Europe-based ships from various Carnival Corporation brands are expected to participate in the initial pilot phase of the MONALISA 2.0 project.

"Due to Sweden's geographical position we are dependent on a strong and efficient infrastructure to a greater extent than other countries," says Jonas Vedsmand, marketing director at the Swedish Maritime Administration.

"The Swedish Maritime Administration is very proud to lead a project aimed at making a concrete contribution to creating efficient maritime routes, enhancing maritime safety and to reducing the environmental impact. The project has attracted a considerable international interest, which also confirms that we are on the right track."

Danish, Norwegian, Spanish and Italian authorities have already joined MONALISA 2.0, and authorities from several other countries are said to be interested.

Carnival ships will be tracked under the MONALISA initiative. Photo: WikiEk

Marubeni to implement Triple Point

www.tpt.com

Tokyo-based company Marubeni has deployed a cloud-based shipping software system for chartering, vessel operations, and freight risk management from Triple Point Technology.

Marubeni is an international trading company with 120 offices in 68 countries, and with interests including textiles, pulp and paper, chemicals, food products, energy, metals and mineral resources, transportation machinery, and power projects.

Triple Point's Chartering and VesselOps systems will act as an integrated platform managing Marubeni's chartering, post-fixture activities, and the financial aspects of vessel operations.

The software provides a global view of vessel movements, market cargo availability, and existing cargo commitments.

Triple Point says that the Chartering and VesselOps applications are currently used to manage commercial shipping operations at over eighty companies, with approximately 2,500 users across the globe.

Perma Shipping Line implements analytics system

www.quantum-bso.com

Perma Shipping Line has implemented the Qi-Liner analytics product from Quantum BSO for its liner and NVOCC business.

The software system is used to organise a variety of business data for display and analysis of performance in a range of operational areas.

It is built on Quantum's Business Intelligence engine Qlikview, and the company says it contains 13 dashboards, balanced scorecards, management reports, over 2,000 analytics, 200 reports and 10 different simulations.

Ali Meghami, managing director of Perma, says that the system will be used as a strategic management, planning and efficiency tool, with the aim of improving performance.

Arjun Vikram-Singh, CEO of Quantum, also commented that he hopes the system will provide dramatic returns for Perma in its commercial management, and organisational and asset efficiency.

Optimum network environment also for the future expansion of convergence

SWAN

Shipboard Wireless Area Network

- Wireless computer network
- VoIP System
- IP CCTV
- Mobile communication
- External Communication System
- IPTV(CAS, VoD, Satellite TV)
- IP Master clock

Converged IP Communication

Data sharing

VoIP Telephone

IP CCTV

Mobile communication

IPTV

Master clock

Ship & Marine Biz. Unit mail : sales@netjoiner.com

NET Co., Ltd. (NETWORK ESSENTIAL TECHNOLOGY)

Address : 3F, 190-6 Samsan-Dong, Nam-Gu, Ulsan, 680-813, KOREA

Resource management training systems from Videotel

www.videotel.com

Videotel reports that it has launched a new training series, Leadership and Team Working Skills, which aims to assist in building competence in resource management.

Produced in conjunction with The Steamship Mutual Underwriting Association (Bermuda), Leadership and Team Working Skills is available on DVD and interactive CD-ROM, and is aimed at all sea-going personnel, particularly watchkeeping officers in both the deck and engineering departments.

Topics include The Voyage Plan; both Bridge and Engine Room Watchkeeping; Working with Pilots; and Resource Management and Accident Prevention.

There is also a module featuring case studies of five incidents where the bridge team failed to keep the ship out of danger as a result of poor resource management. Incidents are re-created using actors and showing the data available to the bridge team.

The audience are invited to view each incident and then to stop and analyse what went wrong and discuss how things could have been done better.

"With continuing improvements in technology, human factors feature more and more frequently in the causal chain," said Nigel Cleave, CEO of Videotel Marine International.

"Forty years ago, the average cargo ship was manned by 40-50 crew – nowadays, even on VLCCs, we are seeing crews numbering in the low twenties. Individuals are required to operate ever more efficiently, adding further pressure on board."

"This series addresses many of the key issues defined by the STCW and SOLAS conventions, which provide a framework for safe and effective working practices."

Improved bridge resource management can help to prevent accidents

Marine Software supplies systems to Leighton Offshore

www.marinesoftware.co.uk

Marine Software Ltd in the UK reports that it has successfully supplied its Planned Maintenance, Stock Control and Purchasing software to Leighton Offshore.

The system has been installed on Leighton Offshore's latest DNV classed Cable Working Barge 'MPV1' (GRT 2,363), and at its Kuala Lumpur management office.

This delivery builds on previous software agreements to supply Leighton's existing Pipe Lay Barge fleet, including Leighton Stealth, Leighton Mynx and Leighton Eclipse, as well as its non-floating assets ashore.

All vessels are managed by Leighton's Malaysia head office.

"Leighton Offshore and the users of Marsoft are very satisfied with the efficiency and simplicity of the system," said Leighton Offshore, in a statement.

"We are also thankful to the prompt support system provided by Marine Software head office."

The Leighton MPV1 has installed the software

New contracts for ABS-NS

www.eagle.org

ABS Nautical Systems reports it has signed new contracts with TMS Bulkers and TMS Dry in Greece, and another with Samson Maritime Ltd in India, for its NS5 Enterprise software system.

The Greece-based bulk carrier operators, both part of the TMS group, will use the application to assist in the machinery and structural assessment programmes that they already have in place.

Both companies will implement the Hull Inspection and Maintenance & Repair modules as part of the ABS Newbuild Programme, which offers free software to ABS-classed vessels built after 1 January 2009.

The systems provide tools to monitor the structural condition of vessels while also helping to manage vessel maintenance functions.

TMS Bulkers will install the software on six of its bulk carriers, while TMS Dry will implement it on 19 of its own ships.

Earlier this year, TMS Tankers, also part of the TMS Group, began implementation of the NS5 Enterprise Hull Inspection module on 37 of its ABS-classed vessels.

In India, the contract with Samson Maritime Ltd is an expansion of a previous agreement for the NS5 Enterprise system.

Samson Maritime will be adding the Purchasing & Inventory module to six of its vessels, which it will use to identify inventory replacement needs, average transaction costs, delivery dates and turnaround cycle times.

The software will also link directly to Samson Maritime's accounting system.

The company had already been utilising the ABS-NS Maintenance & Repair, Hull Inspection and Drawings Management modules on four of its platform supply vessels.

These installations have also been delivered as part of the ABS Newbuild Programme.

AVEVA launches Enterprise Resource Management

www.aveva.com/aveva_erm

AVEVA has released a new software product family for the marine market, called AVEVA Enterprise Resource Management, which will be aimed at shipyards in particular.

Comprising the products AVEVA Material, AVEVA Planning and AVEVA Production, the applications support the project management and execution process.

AVEVA says that they should help shipyards to benefit from lower material and production/construction costs through improved project efficiency, shortening timescales and increasing project quality and control.

The applications incorporate procurement, project control, logistics, materials management, production planning and construction management.

“AVEVA Enterprise Resource Management combines the proven plant and marine capabilities of world-recognised products AVEVA VPRM and AVEVA MARS,” said Lars Riisberg, vice president, enterprise resource management, AVEVA.

“By bringing together the best of these technologies, including the ability to manage multiple projects within a much larger programme, we are helping our customers dramatically enhance their business performance.”

“AVEVA has built its reputation on delivering innovative software solutions in the marine and plant markets and is creating a new generation of applications that offer even greater project management efficiencies.”

In addition to this Enterprise Resource package, AVEVA has also recently introduced its AVEVA Electrical application, which aims to cut the man hours required for ship design.

The company says that the system has demonstrated man-hour savings of up to 30 per cent in the ship design process during pre-release customer testing, when compared to traditional applications.

The software can also be implemented as part of AVEVA’s Integrated Shipbuilding strategy, which aims to optimise the entire shipyard by improving the design, planning and production process through information sharing and workflow management, using the AVEVA Marine portfolio of solutions.

“AVEVA Electrical is very quick and easy to deploy, both on new projects and also on refit projects where access to legacy data is essential,” said Bruce Douglas, senior VP marketing & product strategy, AVEVA.

“We have worked with numerous marine customers to ensure the highest quality and accuracy of electrical data from design to commissioning. This product enables electrical engineers to collaborate fully across inter-discipline design to produce automated deliverables which are completely consistent and accurate.”

“With its advanced graphical user interface and sophisticated design rules, we believe AVEVA Electrical will quickly become the preferred choice for all sizes of marine projects.”

Fortune Maritime Solution

THE UNDISPUTED SOFTWARE LEADER IN THE SHIPPING ERP MARKET

A unique maritime Add-on solution
featured in the Microsoft Dynamics-NAV add-on catalogue
especially designed for the Shipping industry.

Utilizing **Microsoft-Dynamics NAV** platform, we deliver:

- Complete range of integrated Ship management applications critical to deliver customer value.
- Usability and User Interface Consistency.
- Rich Functionality with High Adaptability at Low Cost.
- Implementation and Go-Live fast with measurement in days and weeks rather than months and years.
- Worldwide support through Microsoft Business solution Partners.

FORTUNE TECHNOLOGIES

CERTIFIED FOR Microsoft Dynamics NAV

Microsoft GOLD CERTIFIED Partner

Microsoft Business Solutions
ISV/Software Solutions

www.frtntech.com
tel.: +30 210 6101290

Tidal optimisation simulation shows bunker savings

www.tidetech.org

Tidetech has released the results of simulations of its tidal optimisation system on coastal shipping routes, showing significant time savings on optimised voyages.

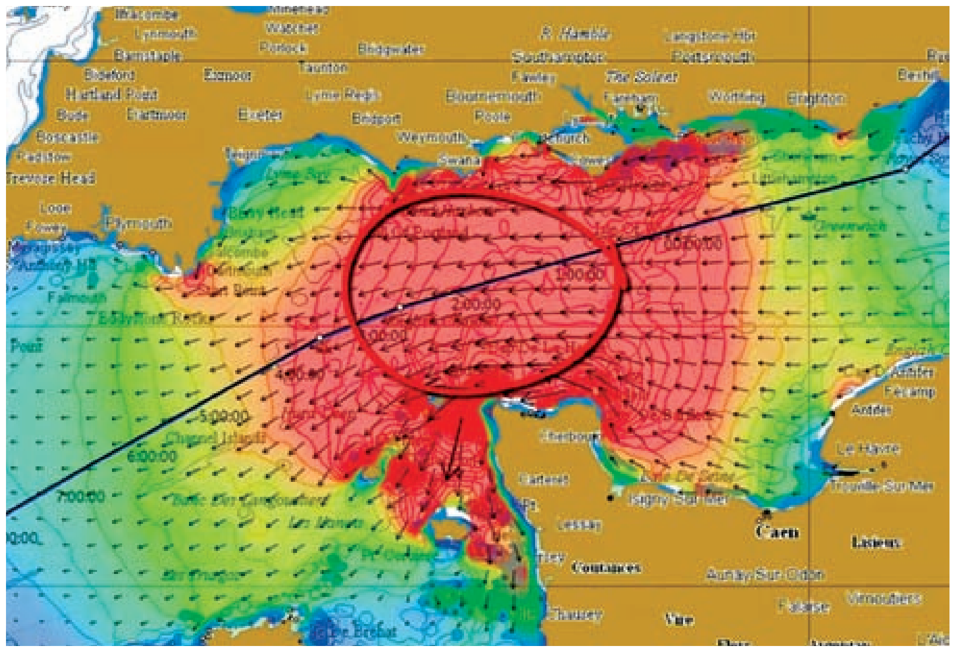
The company says that, in simulations developed for transits through the English Channel, a time difference of 12.8 per cent was shown between 'best case' and 'worst case' passage times when using optimal tide and current (based on an 8,000 TEU container ship steaming at 21kt).

Tidetech notes that this is the approximate equivalent of US$9,400 of bunker costs saved on one journey.

Speed optimisation using accurate tidal stream data differs from weather and route optimisation in that it is about choosing the best time to transit a passage where a choice of route is limited or restricted (channel transits, controlled shipping lanes, ferry routes, etc).

With route restrictions and the presence of tides, efficiency is found in timing the journey relative to current/tide – leaving/arriving at the right time to take advantage of the best current and optimising speed to maximise the positive effects of the current.

Using the English Channel as an example, timing a vessel's arrival at the entrance to the channel correctly means that the ship can make the most efficient passage through the Channel by going with the optimal flow of water.



Timing arrivals and departures to take advantage of favourable currents can make a big difference to power usage

Tidetech's English Channel simulation showed that the best case transit at slow steaming speeds of 19kt is 32 minutes faster than the worst case transit at 21kt. Based on an 8,000 TEU container vessel, the company says that this is a difference of approximately 35.8 tons of bunkerage (or approximately $25,000).

"It's clear that no stone is being left unturned in the drive to improve efficiency of shipping – the influence of tide and current is an obvious challenge to address," said Tidetech managing director, Penny Haire.

"The reason it's not been addressed before is that the information just hasn't been available – now it is and can make a significant difference if applied correctly."

"Our accurate, high-resolution global tidal data can be integrated into bridge systems allowing ships to make use of advantageous current, steam at more efficient speeds and minimise fuel used and time spent in transit."

Ship waste management system introduced

www.ship-waste.com

French company Ship Waste Agency has introduced its SWANET platform, an internet-based tool for ship waste management and optimisation.

The system includes a vessel-based solution (SWABOARD), set up on a computer onboard via a single CD or download link, and a shoreside internet platform (SWASHORE) which acts as the link between local operators and vessels.

The application is used to manage communication flows between involved parties and issue the electronic documents imposed by the IMO regarding waste management, such as the Advance Notification Form (ANF) or Waste Delivery Receipt (WDR). These documents can be filled in on the vessel or ashore.

Additional services such as an Onboard Waste Management tool and a reporting tool for onboard waste flows (including log books) are also available, as is a WUR (Waste Unloading Request) option, a form sent directly to the collector underlining all waste specifications.

Stakeholders can have 'live access' to vessel waste specifications and all updated technical data, with the aim of speeding up the issuing of electronic waste delivery receipts after unloading.

A Port Portal is also offered, with information on all port reception facilities worldwide, including availability, which equipment and tools are being provided, their cost, and schedules.

Ship Waste Agency says that the tool will offer shipping companies the chance to share details of their waste management with the public, to demonstrate the environmental friendliness of their operations.

The SWANET platform is available with a yearly subscription.

Condition monitoring for thrusters launched

www.skf.com

SKF has launched SKF Thruster Monitoring, an integrated condition-based maintenance (CBM) system for propulsion and positioning thrusters (tunnel and azimuthing thrusters).

The solution is based on SKF's range of condition monitoring products and services, including on-line technology for vibration, lubricant and data monitoring.

The company offers installation and commissioning of the systems, as well as remote data analysis and reporting services, offering suggested reliability improvements based on the monitored results.

"There is a clear desire and trend to integrate existing separate systems onboard a vessel," said Gerald Rolfe, SKF marine executive business manager.

"The SKF Thruster Monitoring solution combines all required information in one system, which can be integrated with both the thruster and ship management systems."

Globe *i*Fusion® VSAT

Looking to Save Money During Rough Times

inmarsat
Distribution Partner

Save with Globe *i*Fusion VSAT

- Highest Uptime surpassing the industry average
- Remote Access reducing attendance & travel cost
- Automated VSAT Recovery with no onboard/onshore intervention required
- Intelligent Switching between VSAT & FleetBroadband

Please visit us at Posidonia 2012
Hall 3 - Stand No. 326

www.globewireless.com
Phone: +1 (321) 308-0112
sales@globewireless.com

Smit Marine puts OCTOPUS Onboard

www.amarcon.com

Smit Marine Projects B.V. has extended its relationship with Amarcon, with an order for the OCTOPUS-Onboard system for the vessel Taklift 7.

In 2010 OCTOPUS-Onboard was already installed on the Taklift 4 after a lease period, and the recent installation on the Taklift 7 provides similar functionality to the previous one.

The system will be used to assist the master and the crew of the floating sheer legs during heavy lift offshore operations and transport of project cargo by providing motion monitoring, response prediction, heavy-weather decision support and weather window evaluation.

The software supplied to Smit Marine also includes an interface with weather forecast providers Nowcasting and Octomar for local weather reports.

All measured data from the bridge is stored, enabling the Smit Operations & Tender department to monitor the motions of the project cargo.

Amarcon says it is currently developing a new version of OCTOPUS-Onboard - version 6 - which is expected to be released later this year.

Sinokor to install stowage optimisation technology

www.cyberlogitec.com

Sinokor Merchant Marine Corporation in Korea has agreed a deal to install the OPUS Stowage system from CyberLogitec to optimise its container loading and discharge processes.

The data management system organises planning-related information in a database, offering an automatic optimisation function and allowing information to be extracted for stowage planning improvements.

CyberLogitec says that the technology can be implemented at the shipping company within one month.

CyberLogitec is a subsidiary of Hanjin Shipping Holdings, and operates a network of branches which includes the USA, China and Spain.

Sinokor will use the CyberLogitec system to manage its container data

Dalian Ocean Shipping to install Port-IT Antivirus

www.port-it.nl
www.ddit.net.cn

Dalian Ocean Shipping Company in China, a subsidiary of Cosco Group, is to equip 24 vessels with the Port-IT Antivirus service.

The contract has been agreed via Shanghai based maritime IT company DDIT, which has recently reached agreement with Netherlands-based Port-IT to act as a reseller of its services.

DDIT already acts as a systems provider for the entire Dalian Ocean Shipping fleet, offering services including IT management.

"We are delighted to add DDIT as a reseller to enter this new local market and we have confidence that this will be a fruitful relationship between the two companies," commented Youri Hart, managing director, Port-IT.

'We are delighted to add DDIT as a reseller' – Youri Hart, Port-IT

Taking charge of your IT

The challenge of integrating all of the various types of technologies available to a shipping company IT manager can be a daunting task, and often acts as a reason why organisations persist with older versions of applications rather than suffer the pain of upgrading. However, working with a service orientated architecture (SOA) can help to change all that, *writes Lars Fischer, Softship*

Shipping companies wouldn't survive in the modern world without information technology. We are so reliant on software applications that many aspects of our businesses would simply grind to a halt if these were taken away.

But rather than adopting an ordered approach to IT, it seems that most shipping companies have accumulated their software applications in a fairly haphazard way.

This is not surprising when we remember that the IT world moves at a furious pace, causing some technologies to become outdated within months of making it to market. It is not easy for a shipping company to predict what IT wizardry might become available in the future and the impact it might have on their business.

Many companies simply take whatever is available at the time they need it and try their best to integrate it with existing technologies, platforms and software.

Most technology networks in large shipping companies have evolved in this way resulting in disparate IT structures supporting mainframe, midrange, UNIX and/or Windows technologies. Added to this, each platform will host a variety of applications which all require their own set of database, system and collaboration software.

The end result is often a mind boggling array of hardware and software that must work together if the overall network is to maximise value and minimise workload.

Linking technology

To generate the best results from technology, these disparate systems will need to communicate and share information with each other – and that is not easy to achieve.

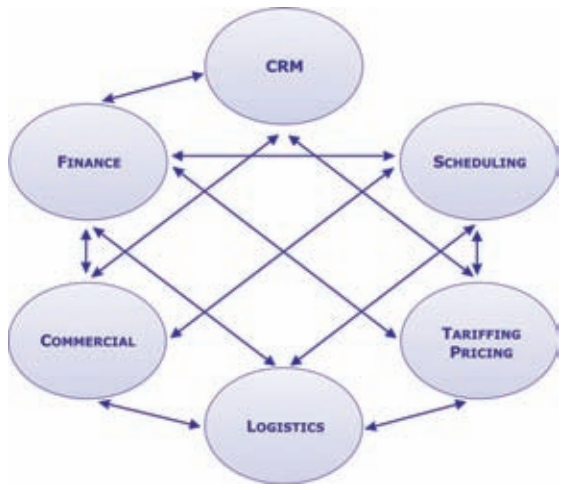
It will usually require separate links from one platform or application to another. Each application - and there may be many of them - will need to link to most of the others.

Achieving a many-to-many integration will generally require the information to be exchanged using data interface files or through an API based data exchange. API (Application Programming Interface) is basically a set of instructions that allows one application to interact with another in a defined language and message format

But the problem with these linkages is that they are clunky and very hard to maintain. Achieving seamless integration with so many applications, technologies, platforms, languages and interfaces is resource intensive, expensive and inefficient.

Added complications arise when new applications are required to replace or enhance the existing architecture.

From the diagram above (left) imagine replacing the finance module with a more up-to-date application. The links with the five other applications will need to be re-engineered and re-installed and re-tested.



Traditional architecture

Service orientated architecture

Depending on the technologies of the existing applications, this will cause compatibility problems as well as a significant resource requirement to develop five new interfaces. Cost and business interruption are also significant factors.

A disparate architecture such as this is generally inefficient as each application will maintain its own master data such as customer/supplier details, commodity information or location masters.

This results in having to store and maintain the master data in multiple places leading to inconsistencies across the applications. Standard maintenance and administration tasks are also duplicated.

Service orientated architecture

A neat solution to this problem is to adopt a service orientated architecture (SOA).

In simple terms, an SOA enables widely different applications to integrate with each other and organises them as independent, interoperable services. It separates the individual functions (such as finance or scheduling) into distinct units called services and re-sites them in the central SOA infrastructure.

This allows users to combine and reuse these services in a variety of applications without having to duplicate them.

To achieve this, there needs to be an underlying structure to manage the information flow, to standardise how information is passed, to create and execute business rules and to publish the services across the network.

This structure is a middleware creating the typical architecture shown in the diagram above (right). Immediately it can be seen that each application requires just a single link to the SOA middleware and that the middleware is responsible for sharing information with other applications.

In practice, the SOA infrastructure usually comprises three components:

- The actual implemented service. This is independent and provides a clearly defined business orientated functionality
- The service bus. This manages the interfaces and the information flow between the different services
- The business process layer. This allows the mapping of business processes against the available services

Introducing an SOA solution into a company that is operating an evolved, disparate architecture needs careful managing. It is often an incremental process that begins with identifying the systems and applications that will form part of the new architecture.

The legacy system will require a degree of re-engineering to expose and separate the relevant functionality or service. In most cases this requires the skills of a solutions architect who can balance the capabilities of the legacy systems against the needs of the new SOA.

It is not necessary to migrate all the applications to the SOA solution at once, often it is more manageable to link one application at a time.

But when complete, the SOA solution delivers a range of benefits. Information flow between the applications is streamlined and efficient. Data is exchanged in a standardised format and is fully traceable. This ensures all the applications within the architecture communicate effectively with one another and data is reused.

Services (or core functionality) can also be reused. By offering these core services within the middleware, all applications can use that functionality rather than each application duplicating core functionality and then having to establish links across the network.

Because each application is loosely coupled to the SOA infrastructure, it becomes relatively easy to replace an application when it reaches the end of its useful life.

This means that companies can upgrade applications with new versions as they become available without having to deconstruct and rebuild the network. Not only is this much more efficient in terms of cost and resources, it also minimises business interruption and encourages a company to benefit from advances in technology.

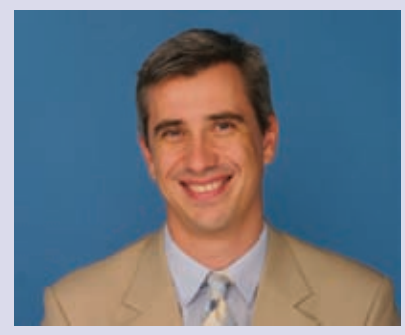
New technologies

Technology exists to automate and streamline our businesses allowing us to re-direct resources to more profitable areas.

But the pace of advance in IT has left many of us with outdated and incompatible systems and networks that are just too difficult to upgrade. Often, we are not prepared to take a step backwards in order to achieve the two steps forward that our businesses require.

Implementing innovations such as service orientated architecture gives us the tools to enhance information flow across the organisation without interrupting business or learning how to use new applications. It also allows us maintain pace with new technologies as they become available.

In short, SOA helps us take charge of our IT rather than letting IT take charge of our business. DS



About the author

***Lars Fischer** is managing director of Softship Data Processing Ltd, Singapore, a wholly-owned subsidiary of Softship AG, a provider of software solutions to the international liner shipping sector*

H2O Satellite

wherever you are, we are.

wherever you are, we are.

Independent Maritime Communications Specialists

- Quality one to one customer support 24/7 – 365
  We care about your ships communications, wherever you are
- Innovative Value Adds
  Real airtime saving products because we're independent
- Consultative independent advice for your ships communications
  A bespoke solution for your business

Call us now

Telephone: +44 1925 818918

Email: sales@h2osatellite.com

www.h2osatellite.com

Using CBT to meet training requirements

As crew training requirements continue to mount, with pressure from legislators compounding the growing shortage of qualified seafarers, training technologies that can extend the scope of crew education are becoming increasingly important. Shipping companies Höegh Fleet Services and MOL Tankship Management (Asia) are among those using these new systems – they explain how CBT has made a difference in their organisations

In many people's eyes, onboard training for officers and crew will increasingly become the only way of meeting the growing volume of requirements demanded by various new and amended international maritime legislation.

As owners and managers find they are unable to send seafarers ashore to complete all of their training obligations, the industry's means of recruiting, training, assessing, promoting and retaining the right people has never been more important.

Shipping companies Höegh Fleet Services AS and MOL Tankship Management (Asia) Pte Ltd are among those leveraging technology to find solutions to deal with these issues within their own organisations.

Despite their operations being based on different sides of the globes, both companies found common ground in their belief that IT can assist in improving seafarer competence while far away from shore, and have installed training systems from Seagull to enhance the education and qualifications of their crews.

Höegh Fleet Services

Norwegian owner Höegh Fleet Services AS was one of the early participants in the development programme for computer based training modules in the early to mid-1990s, and the company has continued to use the technology ever since.

Höegh initially used CBTs and video-based training packages from a number of providers, but decided in 1999 to focus its training activities with one provider and began to develop an extended relationship with Seagull.

"We find this type of training to be a useful addition to shore-based and onboard-based training," says Terje Lorentsen, senior manager, fleet personnel at Höegh Fleet Services.

"Höegh has been actively involved in developing company-specific training modules as well as providing Seagull with material for developing commercial modules."

"A central collection system was part of Höegh's vision to simplify data collection from training and to prepare for a centralised system for competence management for all crew. The other providers were not active in pursuing a management system."

In its use of training technology Höegh had a number of specific requirements, particularly with regard to compliance with impending maritime legislation. This involved the creation of an integrated set-up that would allow information to be accessible within different applications.

"We had a close dialogue with the development section of Seagull and they were willing to adapt several of our requirements in order to provide for data exchange from the Seagull Training Administrator to our Maritime Personnel System," says Mr Lorentsen.

"A good relationship was developed between Seagull and the provider of the Personnel System and full integration was established. The systems were adjusted and configured in order to facilitate a training management matrix to be available both onboard and ashore."

"The crew and officers use the STA to review their training data while the personnel department utilises the Maritime Personnel System to do the same."

This customised set-up has allowed Höegh to streamline its personnel management and more effectively manage the competence levels of its pool of seafarers.

"As we now have a xml - based data transfer system we only record data in one system and have full overview of all training in both the Seagull Training Administrator and the Maritime Personnel System. The Maritime Personnel System is the master for personnel info while the STA is master for CBT and company-specific training," says Mr Lorentsen.

"Virtually no administration is needed in the replication of data between the two systems. Previously we had two encoders of data entering training information for our [then] 1,500 crew members. This job is now fully automated and the encoders are used to enter other relevant data for our current pool of 1,000 crew members."

Höegh began to use computer based training as far back as the mid-1990s

"We have a full replication interface so, with regard to follow-up training, my role has changed from data encoding and development of functionality to control and verification that training is conducted according to guidelines given from the company."

As to the future, Mr Lorentsen is looking for the development of modules that move the training required by the STCW Manila amendments from being purely shore-based to a module-based onboard training system, in areas such as ECDIS and Electro Technician Rating training.

The target is to have a system comprising 60 per cent questions and written tasks using the vessel as a classroom (and with senior officers as instructors), 20 per cent interactive simulations, and 20 per cent theory and questions as part of CBT.

Mr Lorentsen would also like to see the data exchange capabilities between shore-based and onboard databases enhanced, and the library of CBTs expanded to facilitate further training for officers and ratings as requirements change.

MOL Tankship Management

MOL Tankship Management (Asia) Pte Ltd, the subsidiary responsible for meeting the training requirements of MOL's fleet of 50 tankers, including 33 very large crude carriers (VLCCs), has used Seagull's training services since early 2007.

"We opted to use Seagull for training purposes because the company was the only competitive provider in the industry recognised and approved by the relevant maritime authorities," says Captain Harminder Singh of MOL Tankship Management (Asia) Pte Ltd in Singapore.

"MOL's objective was to use computer-based self assessment tools for onboard training and monitoring purposes which, at the same time, met Tanker Management and Self Assessment (TMSA) standards. The only other provider in the market at the time lacked depth with computer-based training."

The use of this technology in particular was beneficial as it allowed for flexibility in incorporating the company's own training standards into the system as required, and as regulated by various flag states.

"MOL Rank STEP competence evaluation was incorporated as part of Seagull Training Administrator (STA), which meant that company-specific training requirements and various courses were being offered onboard in a particularly cost effective manner," said Captain Singh.

"Seagull provides us with regular annual upgrades which incorporate the latest developments in regard to maritime legislation such as the International Convention on Standards of Training, Certification and Watch keeping for Seafarers (STCW)."

"Annual user meetings take place in Singapore during which Seagull presents latest developments in line with international standards and requirements while keeping abreast of MOL's new and specific requirements."

According to Captain Singh, one of the key benefits for MOL in using training technology is in the ease with which seafarers can be trained and monitored by ship managers.

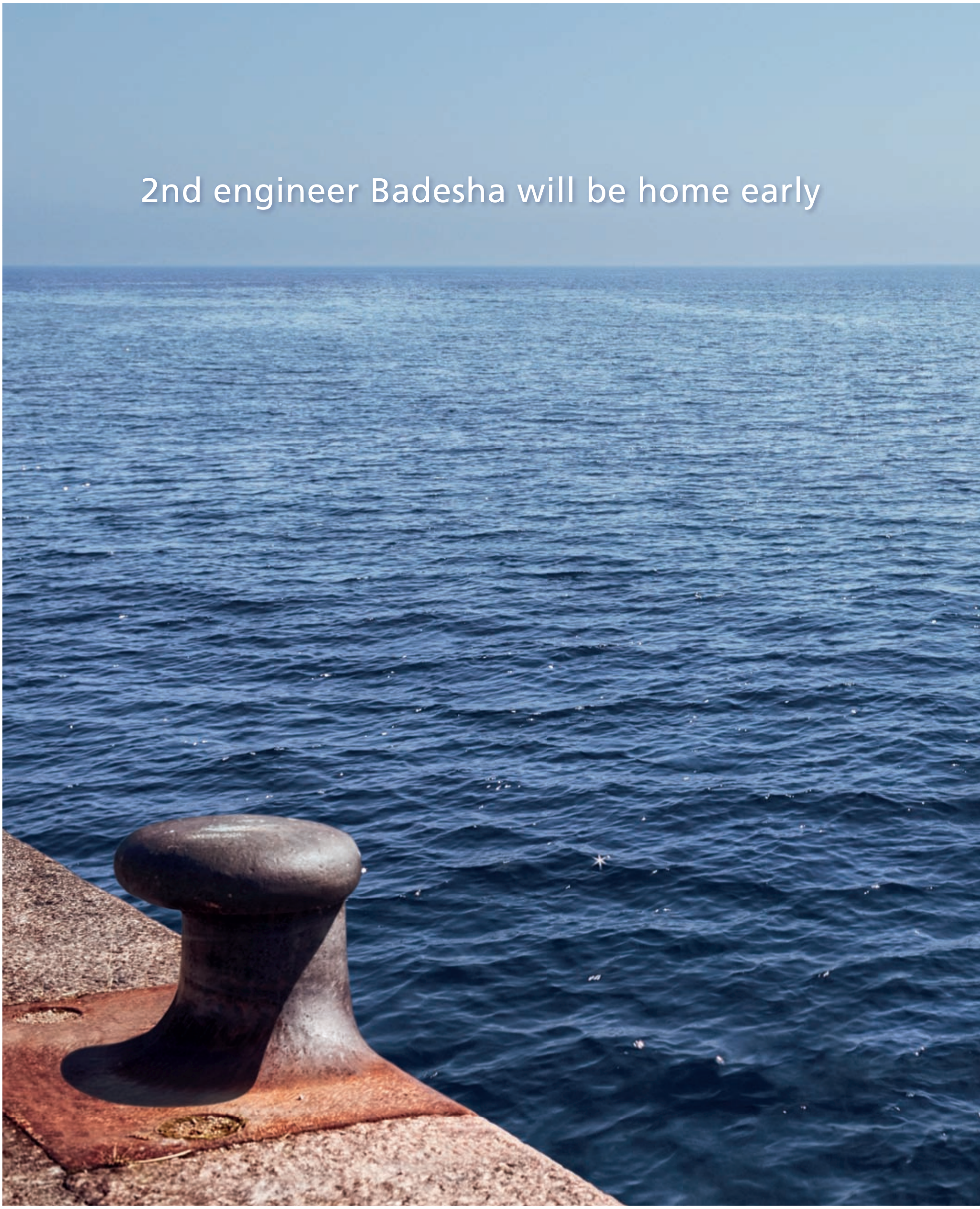
Seafarers have the opportunity to undertake various certified courses such as CBT while onboard ship, and also to use the STA Online facility while ashore. A tailor-made customised monthly and annual report is created for every work station, and analysis of these reports is available via the online component of the training system.

"The Seagull training database of MOL seafarers helps us indentify easily every individual crew member and each vessel's overall performance with the click of a button," says Captain Singh.

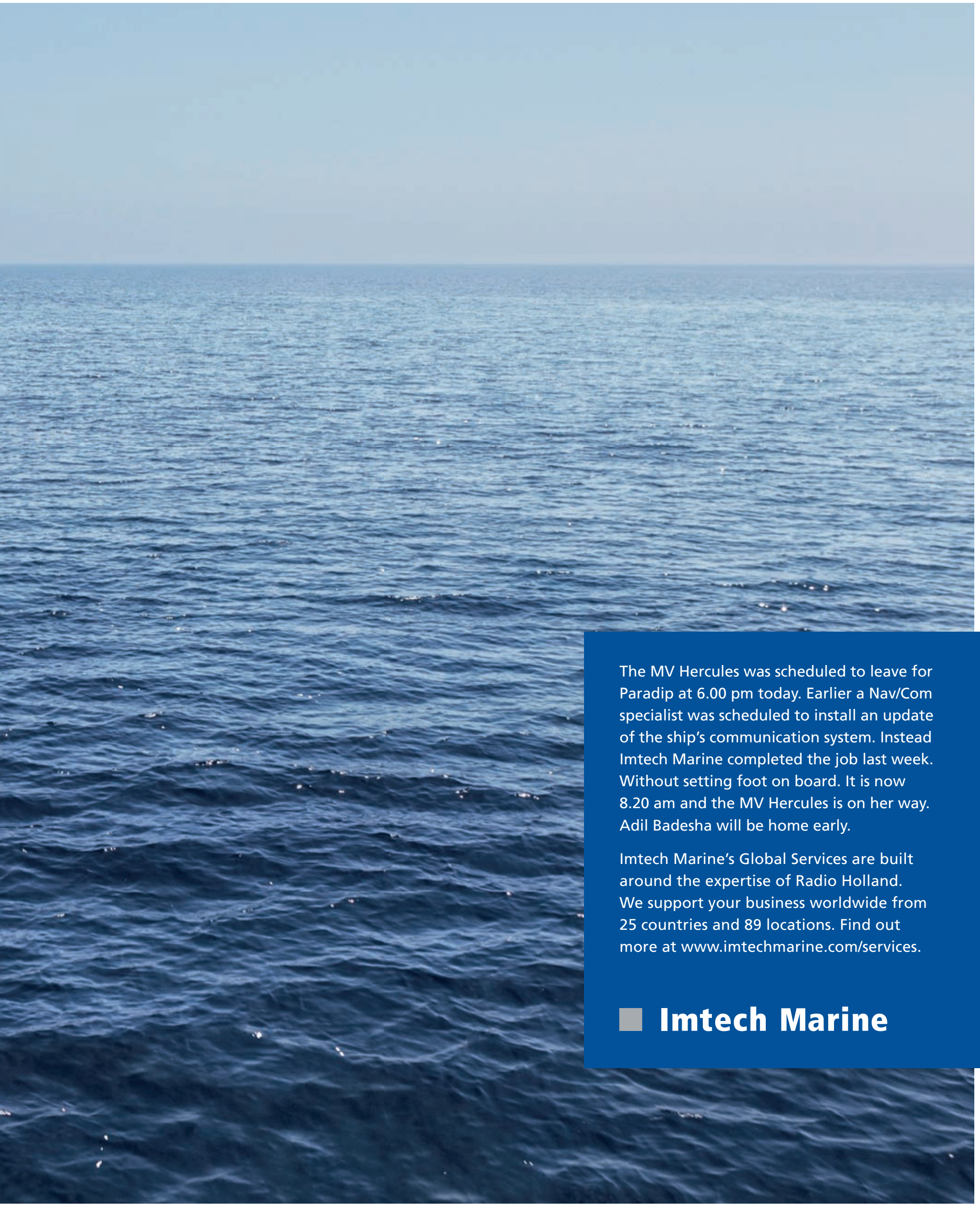
"Being a pioneering shipping company we impart to our seafarers the best onboard competence and training solutions and standards as provided by Seagull STA." DS

MOL has integrated its own training standards for crews on its tankers into the computer-based system

Imtech



Radio Holland



The MV Hercules was scheduled to leave for Paradip at 6.00 pm today. Earlier a Nav/Com specialist was scheduled to install an update of the ship's communication system. Instead Imtech Marine completed the job last week. Without setting foot on board. It is now 8.20 am and the MV Hercules is on her way. Adil Badesha will be home early.

Imtech Marine's Global Services are built around the expertise of Radio Holland. We support your business worldwide from 25 countries and 89 locations. Find out more at www.imtechmarine.com/services.

Imtech Marine

Fuel savings – high as a kite

Shipping companies are increasingly under pressure to reduce CO2 and other emissions, and there are a range of technologies available to help achieve this goal. One of the more unusual is the SkySails propulsion support system – Raymond Fisch, BBC Chartering, and Arno de Groot, Reederei Wessels, spoke to *Digital Ship* about their recent experiences with the kite-based innovation

In order to stay competitive in a challenging market and to meet the increasing number of national and international regulations with regards to emission reduction, more and more shipping companies are searching for effective measures to reduce their fuel oil consumption.

Amongst the numerous options available on the market is a form of propulsion support that has been effectively used in the shipping industry for centuries – wind power.

Although crossing the oceans under sails is a long outdated method of transport, SkySails, a Hamburg-based company specialising in the research and development of auxiliary wind power propulsion support systems and vessel performance management, has developed a towing kite to be deployed on modern oceangoing commercial cargo vessels.

The Hamburg-based company equipped the first vessel, Reederei Wessel's MV Michael, with a first generation SkySails system at the end of 2007. Since then the propulsion support solution has been tested under real-life conditions, the results of which have led to further developments in the technology.

At the moment, SkySails is finalising the product development for SkySails Generation III, which features a towing kite of 400m² capable of creating tractive forces of up to 16 tons.

The first system of the pre-series will be installed on MV Aghia Marina, owned by the Greek shipping company Anbros Maritime and under long-term contract with US charterer Cargill Ocean Transportation.

With its continuously evolving towing kite solution, SkySails aims to provide renewable energy propulsion support, while at the same time reducing both fuel oil consumption and greenhouse gas emissions (GHG).

According to the company's own field studies, the potential cost savings are substantial; the company states that at a price of US$ 0.06/kw, 1 kwh of SkySails power costs half that of a kw produced by the main engine.

On the environmental side, the International Maritime Organisation (IMO) has published estimates suggesting that towing kite technology has enormous potential to reduce greenhouse gas emissions, by up to 100 million tons every year.

The SkySails propulsion support system consists of three main components: a towing kite with a rope, a launch and recovery system, and a control system for automated operation.

The solution is controlled through a software-based system, which the company installs on a control panel on the bridge.

In addition, although it might seem absurd to think that the handling of the kite should require use of the satellite communications system, modern communication technology nevertheless plays an important role as the availability of live weather data is essential for the effective deployment of wind propulsion systems.

In order to maximise the effectiveness of the kite, live weather data obtained via satellite is needed to adapt the voyage planning aspect of the system in cooperation with staff onshore during the voyage, according to changes in the weather situation.

Real-time information on vessel performance

In order to support shipping companies in efficiently saving fuel oil consumption and sustainably reducing their vessels' greenhouse gas emissions – in short, to improve the vessels' operational efficiency – SkySails has developed the SkySails Performance Monitor.

Reederei Wessels was the first to implement the kite propulsion system

The software-based decision support system automatically provides shipping companies' head offices, and the crew on board, with real-time information on vessel performance data.

In addition, it combines this real-time vessel performance data with additional economic information and offers practical recommendations to the officers on board.

The solution features a monitoring device, which is installed on the ship's bridge.

This display provides the captain with a variety of information on vessel performance, such as the actual ship speed (in knots), the actual fuel consumption (in kg/nm), a graph that visualises actual ship speed and actual fuel consumption over the past 60 min, the optimal ship speed (in knots), the actual fuel consumption rate (in t/day) and the fuel consumption over the last 24 hours (in tons).

The suggested optimal ship speed is calculated on the basis of the prevailing conditions, which are continuously compiled and computed in real-time. In addition, the calculation takes into account other essential information, such as bunker price, operating costs and charter rates, which are fed into the system by the on-shore staff.

The display offers a range of nautical data to the master, such as position and speed of the vessel, or the weather situation with regards to wind and waves. The SkySails Performance Monitor can also be customised according to the user's specific needs, to collect additional information such as rudder position or torque, as well as data from the main engine and the generators.

The SkySails Performance Monitor display is divided into three sections, of which the main section contains all relevant parameters for monitoring the fuel oil consumption. Data is collected in short, ten-minute intervals.

The recommended economical speed is displayed as a green line in the 'Ship Speed' chart, whereas the speed curve of the last 60 minutes is shown as a black line.

All of the collected and compiled data is automatically sent to a specified recipient onshore once per day, for example the shipping company's head office.

The solution also includes the SkySails Data Management & Analytics service, which automatically creates an end of voyage report containing all collected data. This report is sent via e-mail to the shipping company's head office at the end of each voyage.

This compiled data can be used for a number of purposes, such as to analyse and optimise ship operations through comparison with other vessels in the same fleet.

Benefits

The implementation of the SkySails Performance Monitor aims to deliver a number of advantages for shipping companies. The company promises not only significant fuel savings, but also substantially reduced greenhouse gas emissions.

In addition, the software systems can be used to provide data monitoring and analyses that can form the basis for the implementation of the Ship Energy Efficiency Management Plan (SEEMP), which is one of the mandatory measures adopted by the IMO in 2011 to reduce the emission of greenhouse gases that stem from international shipping.

It is hoped that the decision support system will provide greater transparency of the ship's performance through the compilation and computation of a large amount of performance relevant information.

In addition, SkySails strives to offer both ad hoc decision support, for ship owners, operators and crew, and the basis for retrospective performance analyses that can detect room for improvement and optimisation.

Apart from the implementation of a fleet-wide, systematic fuel-saving approach, shipping companies can also use Performance Monitor data in order to determine what corrective actions are suitable and to assess if these were taken effectively.

In addition, all information needed for the preparation of the voyage report is automatically compiled and communicated to shore, which should decrease the additional workload on crews created by regulatory demands.

The information from the monitoring software can help to increase awareness among crew and shipping company employees with regards to the optimisation of ship operations and fuel efficiency improvement, as well as emission reduction.

First users – Reederei Wessels

German shipping company, Reederei Wessels is continuously on the lookout for efficiency improvements and has also looked into a variety of solutions to optimise its ship operations.

Apart from using special paint for the underwater part of the vessel or nozzles that improve the vessel movement during the voyage, Reederei Wessels was the first shipping company worldwide to test the SkySails towing kite propulsion support.

As early as 2007, Reederei Wessels introduced the use of a 160 m² kite on its

Find the port you want,

when you want,

in the format you want...

The Findaport Suite

The ports and terminals you require can be found with just a few simple clicks.

Shipping guides LTD
The Port Information Specialists

From the publishers of
Guide to Port Entry and **The Ships Atlas**

Reigate Hill House | 28 Reigate Hill | Reigate | RH2 9NG | United Kingdom
Tel: +44 1737 242255 | **Fax**: +44 1737 222449 | **email**: info@portinfo.co.uk | **web**: www.portinfo.co.uk

Follow us on twitter view our profile at twitter.com/ShippingGuides

MV Michael, a geared 3600 dwt multi-purpose vessel, in cooperation with SkySails.

A comprehensive testing period was completed successfully in 2009, and led to the installation of the SkySails SKS160 Kite System on other new buildings, such as the MV Theseus, MV Telamon and MV Peleus.

Reederei Wessels says it is satisfied both with the results of the towing kite implementation and the daily handling and maintenance of the system.

"We are proud to say," says Arno de Groot, IT manager at Reederei Wessels, "that we are the first shipping company who is using this kind of technology."

"The positive results of the MV Michael A were the reason that Reederei Wessels decided to install the technology on further ships. Of course, one of the progressive effects of this sort of propulsion support is the emission reduction of our vessels. Green shipping is something that is very important for Reederei Wessels."

The implementation of the towing kite propulsion support technology has led to a significant reduction of fuel oil consumption across the participating vessels, with Reederei Wessels witnessing a saving of 10 to 15 per cent on the MV Michael alone.

In addition to the towing kite system, Reederei Wessels has also implemented the SkySails Fuel Performance Monitor, which had been developed as a result of the companies' joint SkySails SKS160 towing kite experience.

"There were several reasons why we chose to implement the SkySails Fuel Performance Monitor," explains Mr de Groot.

"One of our key drivers was that we wanted to obtain valuable assistance of the human element. We also wanted to sensitise the ship's officers regarding the continuously rising fuel oil costs."

With the installation of the software solution being scheduled and executed during two days of general cargo operation, no extra time needed to be spent on the implementation. To simplify the process further crew were also trained on the use of the Fuel Performance Monitor within that time frame.

Reederei Wessels says it is pleased with the overall smoothness and simplicity of the implementation process, though for further reference or in order to clarify questions a detailed manual is available and SkySails has set up a 24-hour helpline for support.

There are a number of hardware components and additional prerequisites required for the implementation. For example, vessels using the fuel monitoring system need to be equipped with a fuel computer as well as a flow meter and sensors.

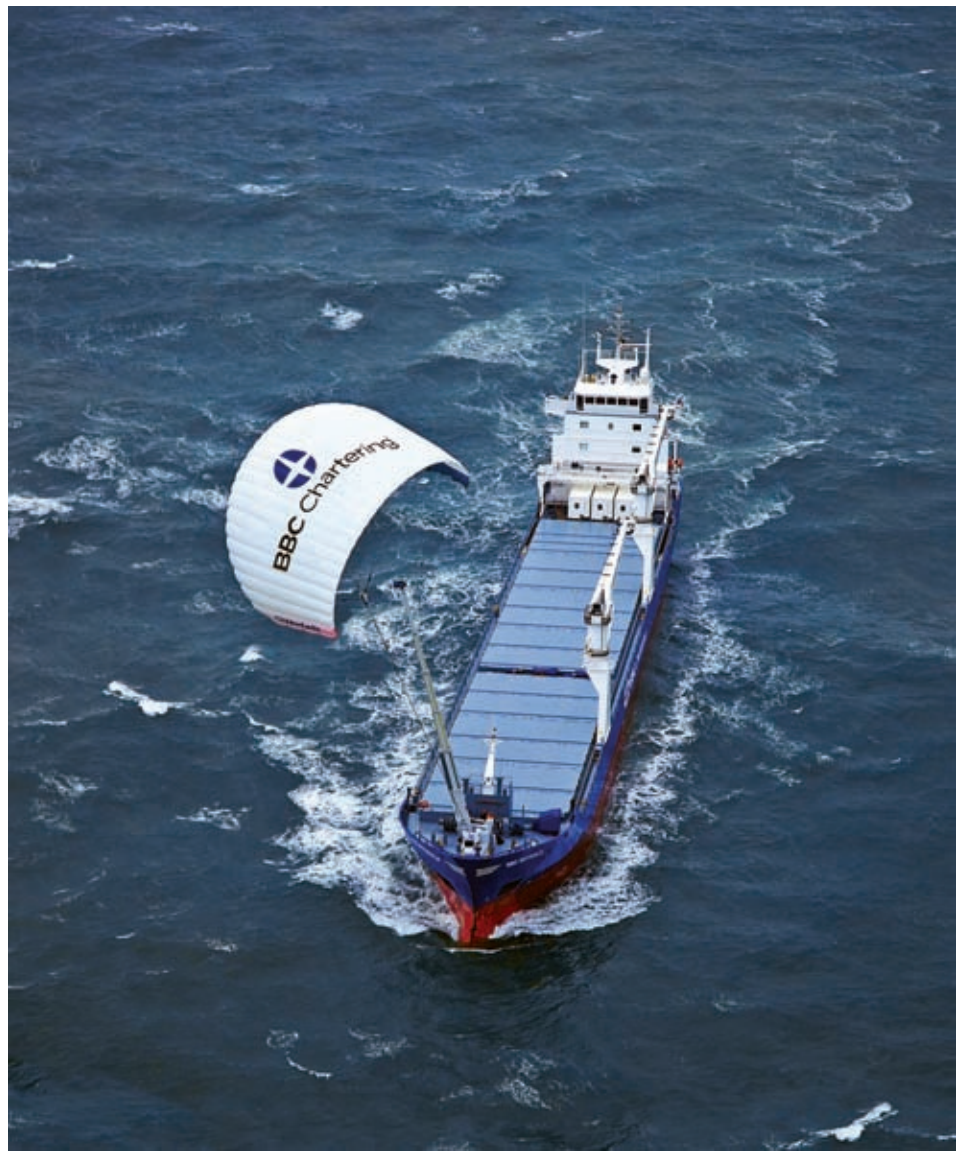
A further prerequisite is adequate internet connectivity. The satellite communication system needs to be able to transfer large attachments of up to 60 kb. In order to cater for all necessities, Reederei Wessels uses both Inmarsat FleetBroadband and Fleet33 as satellite communication devices.

Data usage

Reederei Wessels is satisfied with the system and the way it is operated via a display on the bridge indicating a number of operating parameters, including vessel speed, fuel oil consumption and additional navigational data, remarks Mr de Groot.

The shipping company is also benefitting from the Fuel Performance Monitor recommendations for economically optimised ship operations.

"The core function of the SkySails Performance Monitor is to calculate the ship's efficiency, from data containing a number of different parameters," notes Mr de Groot.



BBC Chartering took over a SkySails-equipped ship following the demise of Beluga Shipping in 2011

"We are pleased to have deployed a software system that enables us to optimise our vessel's routes effectively."

"The performance monitoring device records the amount of fuel oil consumed during a voyage and matches this with the conditions under which the consumption took place, such as speed, current and wave height. This information is very valuable for the master."

In addition to optimised routes, the SkySails Performance Monitor calculates the so-called profit speed.

"This is a commercial aspect," explains Mr de Groot.

"The calculation takes into account the vessel speed, the route and the estimated arrival time at the destination port. According to this information, the vessel's earnings are calculated. The master can read off the display if a speed reduction would save costs and make his decisions economically."

The SkySails software solution also supports Reederei Wessel's reporting system by providing a set of standard forms for voyage and position reports for the ship operator. This, says Mr de Groot, has notably simplified the data collection process for the crew on board.

In addition to standard forms, users can create individual reporting forms according to their specifications. Reederei Wessels has made use of this opportunity and created individual reporting forms for the fuel oil consumption and position reports, which are sent to the shipping company's broker, Arkon Shipping.

In addition, explains Mr de Groot, more detailed reports with all available parameters are sent to the owner at regular intervals.

Aside from these operational benefits, the software implementation has also benefitted the crew onboard the Reederei Wessels ships, says Mr de Groot.

"We have had a very positive reaction from our crew," he says. "Especially the fact that less manual input is required is very appreciated."

"This saves time and provides good additional decision support. According to the voyage parameters the system evaluates if the earnings are higher when going faster or slower and makes recommendations accordingly."

Mr de Groot points out that the included one-off training on the system upon installation has been sufficient for the crew. New members of the seagoing staff are henceforth instructed by the master of the respective vessel.

Reederei Wessels, says Mr de Groot, is also satisfied with the SkySails support department, which assists the customers whenever necessary.

"The support hotline is available 24h a day," explains Mr de Groot. "The support collaboration is excellent."

Having been the first to adopt this technology, Reederei Wessels says it has worked on modifying and updating the Performance Monitor software in conjunction with SkySails.

"Close contact to the developers," explained Mr de Groot, "made it easy for us to improve the system to the company's requirements."

"We have changed to a software solution so that the master has now the possibility to enter the density at 15°C (kg/m^3), for example 991.0 when using Fuel RME180. The individual bunkered quality is considered."

Since the implementation of performance monitoring on the first vessels, Reederei Wessels has closely monitored the financial benefits of the system, and field studies on the MV Theseus have led to interesting results with regards to the cost-saving potential.

Over a test period of 152 days, the vessel was able to achieve cost savings of €49,100, compared to the regular fuel costs of €348,100. This equals 14 per cent, or cost savings per calendar day of €323.

BBC Chartering

German multipurpose and heavy lift ship operator, BBC Chartering, had been following the development of the SkySails technology for some years before adding a 9,821 dwt multipurpose ship fitted with an auxiliary wind propulsion system by SkySails to its fleet in 2011.

"As a consequence of Beluga Shipping's demise in 2011," says Raymond Fisch, senior vice president, BBC Chartering, "we had the chance to integrate the MV BBC SkySails and market it as part of our vessel portfolio."

"This allowed us to test the technology and experience its application."

BBC Chartering, says Mr Fisch, is satisfied with the comparatively small amount of additional effort required for daily handling and maintenance.

The towing kite system is fully automated, he says, and after training the existing crew can operate the system without additional support.

However, as Mr Fisch points out, the operation of the system onboard the vessel is only one part of the equation.

"Our efforts," he notes, "push also at improving the collaboration and communication between ship-owner, crewing partner, operator and commercial management, so each party perceives the benefit of using the propulsion support and is hopefully motivated to support the kite-launching when this makes sense."

The BBC Chartering vessel uses the towing kite's auxiliary propulsion support whenever the wind conditions allow.

BBC Chartering is anticipating a significant reduction in fuel oil consumption through the implementation of the towing kite solution.

"We are expecting a reduction of 10-15 per cent, once the system is in full operation," explains Mr Fisch.

"If the weather conditions are favourable, we expect this to contribute even up to 2,000 kW engine load relief. This technology not only helps us save on fuel oil costs, but also supports our environmental policy with regards to emission reduction."

evidanza3

evidanza
Business Information Solutions

BLUE DYNAMICS

Bringing business intelligence to the shipping industry!

High-end standard business intelligence specifically adapted for the reporting needs of ship managers.

app3 shipManagement

- **Access to maritime BI - following a standard**
- **No capital costs, low investment and operation**
- **Quickly earn profits**
- **Integrate BI into your software**

inspiration technology innovation

For more information please visit us at www.evidanza.de/shipping

For direct link to the app store please visit www.evidanza.de/shipping-app

As the current system is being upgraded by SkySails, the chartering company is looking forward to testing the effects of these changes in the future. Although BBC Chartering is anticipating a substantial benefit from the upgrade of the technology, notes Mr Fisch, there is currently not sufficient data to confirm all numbers.

Should the outcome of a test period be positive, BBC Chartering does not rule out implementing the towing kite technology on further vessels. However, Mr Fisch notes that wind propulsion is only one of numerous opportunities to increase energy efficiency in the shipping industry.

"We regard wind as one of these opportunities," he says, "and expect that intelligent solutions will play a role in supporting future ship propulsion."

"As a commercial operator of a MPV/HL fleet we have an interest to charter in fuel efficient and modern tonnage from vessel owners that apply 'forward thinking' technology."

Changing attitudes

In addition to testing the benefits of the towing kite propulsion support, BBC Chartering has also embarked on the implementation of the SkySails Fuel Performance Monitor.

Now that the technical manager of the vessels has installed the required hardware, the chartering company is expecting information generated by the system to be put to work. The objective, says Mr Fisch, is to integrate the relevant data generated by the Fuel Performance Monitor system into the company's operating procedures.

The main driver for the chartering company to install this new software was to create a behavioural effect through visible performance monitoring.

"As we can only improve what we can measure," says Mr Fisch, "this tool offers an interesting means of communicating and managing vessel performance, especially regarding fuel oil consumption and carbon emissions."

The installation of the required hardware was performed without complication during port operations. However, Mr Fisch explains that the hardware installation is the smallest challenge.

The core challenge, he says, is to put the system to use successfully and integrate the software and its results into the vessel management process, rather than following a mere hardware oriented installation process.

Although BBC Chartering is keen on fully utilising the Fuel Performance Monitor, the chartering company takes a realistic view in terms of when it expects the system to yield the first results.

In conjunction with the onboard kite system, a software application is used to monitor fuel performance

"We simply don't now know how long it will take to put the system to work effectively so that each party involved can take away expected benefits," notes Mr Fisch.

Seagoing staff on the BBC vessel have reacted positively to the implementation of the new technology.

Mr Fisch recalls that the initial interest of crew during training and handling exercises was positive. However, he also points out that, from his commercial point of view, the Fuel Performance Monitor needs to attract the attention of all parties involved.

Only then, he says, can the company avail itself of the full potential of the system and optimise operations successfully.

BBC Chartering, although so far pleased with the outcome of the SkySails system, is still in the process of customising and adapting the solution to company-specific requirements.

"We are still working on specifying the data requirements, such as for voyage and noon reports," explains Mr Fisch.

"We aim at using the given features as much as possible, in order to minimise the amount of work put into the modification of the software."

"As it looks today the system possess the flexibility to be used without having to change the software fundamentally. Certainly we will know more once the process of using the data has been defined and fine-tuned."

DS

SingTel Shows A True Mark of Confidence and Leadership with its iExperience Program

For shipping companies who have a real Satcom need, SingTel dares to invest in the relationship by offering not just a free round-trip flight and hotel stay to visit Singapore and SingTel, but time with their Executives with a tour to Sentosa and dinner.

Ship owners and ship managers today face an increasing amount of challenges. Especially with a slowdown in the maritime industry, shipping executives are working harder to maintain profitability with the demand-supply imbalance and to keep vessels seaworthy by meeting growing crewing, manning and regulatory demands.

Yet they can hardly get peace of mind to focus on their core business with a relentless surge of technology call-for-actions. Cloud Computing. ECDIS. Broadband. ICT. VoIP. MVSAT. Social Media. FleetBroadband. Just to name a few.

How do ship owners and ship managers plough through this clutter to choose what is relevant to make communications onboard seaworthy and entrust that there is an upkeep of satcom technology onboard and between ship and shore year after year?

The Winning Edge

To be a leading maritime service provider in Asia Pacific and Singapore, the world's third biggest port[1], is no minor feat. Where it is easy to provide bandwidth and a suite of maritime ICT solutions to shipping companies, the crux is the ability to provide peace of mind by taking this technology clutter out of the equation for ship owners and ship managers.

SingTel Satellite has been serving the global maritime industry for more than 35 years with customers from over 50 countries. With the advantage of owning global connectivity from satellite to IP to fibre, SingTel Group has achieved $18.1 Billion revenue in 2011 with an average growth of 7% YoY over the last 5 years. The maritime industry recognises SingTel's innovation and contribution with awards, the latest being the Seatrade Asia Awards 2012 – The Technical Innovation Award, for CrewXchange@SingTel, its crew welfare ICT solution.

However, the winning edge does not only lie in the infrastructure or the innovation. It is the end to end customer care, from solutions development to professional consultation to global deployment to operational excellence through proactive monitoring and 24x7x1.5hrs response time to customer request through the Global Service Support and Network Operating Centre, which makes the ultimate difference.

Dare to Experience – SingTel Pays for Your Flight and Hotel Stay to Visit Them

As a mark of confidence to deliver peace of mind to ship owners and ship managers through meaningful Satcoms and ICT solutions coupled with customer service excellence, SingTel now runs the iExperience program. Under this program, SingTel flies in the customer, regardless of location, for free to visit the Satellite Solutions Centre (SSC) at the Bukit Timah Earth Station in Singapore for demo and hands on experience in the latest maritime ICT solutions, and the opportunity to interact with their Global Service Support and Network Operating Centre. The program completes with a hospitality extension of a trip out to Sentosa and dinner with the SingTel Executives. The program includes the night's stay in a hotel in Singapore's prime shopping district.

The SingTel iExperience program successfully takes care of opportunity costs, risks and builds confidence in shipping executives by offering a level of transparency unprecedented in this industry. To obtain the peace of mind you desire to focus on your core business, put up an entry for the SingTel iExperience program at **www.singtelofficeatsea.com/iexperience**

[1] *Based on Marine Insight, Top Biggest Port in the World in 2011*

Navis Engineering has opened a new office in Singapore, to act as its regional sales hub for South East Asia and Oceania. The office will be headed by South East Asia Area sales manager, Yuri Krivtsov.

Raytheon Anschütz reports that its Synapsis Bridge Control system has become the world's first navigation system to be type approved according to IMO's new Performance Standards for Integrated Navigation Systems (INS). The approval was issued by **Germanischer Lloyd.**

Marine safety equipment supplier **Ocean Safety** has appointed Paul White as sales office manager. The newly created role will see Mr White supervising the internal sales team.

Imtech Marine has opened a new office in Aberdeen, which will provide services to international and locally based vessels and platform operators. Imtech already has offices in Newcastle and Glasgow in the UK, and the opening of the Aberdeen office brings Imtech Marine's total number of service and outfitting centres to 89 worldwide.

The Raytheon Anschütz Synapsis bridge control system has gained INS type approval from Germanischer Lloyd

Art Thomas and Mike Kelner, new appointments at W R Systems

W R Systems has made two new appointments in its maritime technologies division, with Arthur Thomas Senior joining as vice president – maritime business and Mike Kellner joining as director – maritime business.

Hatteland Display has appointed **Alphatron Trading (Shanghai)** as its sales agent in China. The company will act as the support office for customers in China in addition to providing sales facilities for all Hatteland products.

Hatteland Display has also appointed **Jason Electronics Pte. Ltd**. as its sole agent in Indonesia, Malaysia and Thailand.

Thomas Gunn Navigation Services and **Transas Marine** have announces a new partnership, whereby Thomas Gunn will offer Transas NaviSailor 4000 ECDIS as part of its total navigation solution, whilst Transas will offer Thomas Gunn's paper chart management service as a part of its ECDIS package.

www.hatteland-display.com
www.wrsystems.com
www.navisincontrol.com
www.raytheon-anschuetz.com
www.gl-group.com
www.oceansafety.com
www.imtech.eu/marine
www.transas.com
www.thomasgunn.com

Students Kinect with new simulator

www.kongsberg.com

A new simulator designed to train engineers and crew in seismic streamer deck handling using the Kinect motion sensor system from Microsoft has been installed at Vestfold University College in Norway.

The Seismic Streamer Deck Operation Trainer was developed as part of Kongsberg Maritime's Offshore Vessel Simulator, in co-operation with Petroleum Geo-Services (PGS) following an agreement signed in Q4 2010.

The system passed its Site Acceptance Test at Vestfold University College in March 2012 and is now fully operational.

The Seismic Streamer Deck Operation Trainer utilises the Kinect for Windows motion sensing device, which is equipped on student stations to track their movements in order to display them within a simulation of the stern streamer deck.

This enables students to physically walk around the deck area, completing set tasks according to the specific exercise.

They are equipped with a virtual toolbox presented on a touch screen close by and are also equipped with a winch/block control device, which is a physical device worn around the waist, allowing them to select and control the correct winch/block for the job.

The simulator is based on the PGS seismic vessel Ramform Viking, and features an accurate hydrodynamic model, 3D hull design and realistic stern streamer deck to ensure that students can relate to the simulated vessel environment during training.

A typical simulation scenario involves three students. One is assigned supervisor, responsible for controlling winches, using a real winch control terminal interfaced to the simulator. The other two students operate auxiliary winches and are equipped with the virtual toolbox, with the equipment needed to complete the operation simulated on screen.

"Back-deck operations have been increasing in complexity over the years and personnel are getting less exposure to these critical operations, so we decided that simulator training was a natural step to ensure safety and efficiency," said Einar Nielsen, vice president projects, Marine Acquisition PGS.

"This has been an interesting and challenging project for both parties and I would say the techniques employed with the system represent a step change in simulator training for the offshore environment."

The installation at Vestfold University College consists of two Instructor stations, one navigation bridge, winch and block control terminals, a common info station for all three students and three streamer deck crew operator stations (student stations).

Each student station consists of three 65-inch TFT-LCD screens mounted vertically, which displays their simulated position on the streamer deck and the actions they are carrying out with the virtual toolbox.

The centre display units are fitted with touch screens, allowing the student to open and close valves and winch locks, power on/off winches and blocks together with enabling lines on the helper winches in the scene.

The Kinect technology detects trainee movements and depicts them within the simulated environment

Partnership agreement for exactEarth and VesselTracker

www.exactearth.com
www.vesseltracker.com

VesselTracker GmbH, a provider of global coastal AIS data and maritime information, has agreed a partnership deal with space-AIS company exactEarth, under which VesselTracker will market services deploying exactAIS satellite data into the global commercial applications market through its web services platform.

VesselTracker's current customers include Port Authorities, fleet management operators, insurance companies and ship brokers. The new deal will enable VesselTracker to globalise its service and provide visibility into ship movements out of the range of existing coastal stations.

A new custom data solution will also be made available to provide solutions based on XML Web Service data delivery.

"We are excited to sign this deal with VesselTracker," said Peter Mabson, president of exactEarth.

"This agreement is a great step forward for exactEarth and means a whole new set of customers worldwide will now have access to our exactAIS data and will see the value of truly global coverage of maritime traffic."

"We see this as a new chapter in the evolution of satellite AIS and look forward to working even more closely with VesselTracker in the future to deliver premium services to our joint markets."

In other news, exactEarth has also announced that it has been awarded a new multi-year contract by the Canadian Government for its exactAIS data service.

The $4.59 million order renews a current annual subscription and includes a licence for data usage throughout the whole of the Canadian Government.

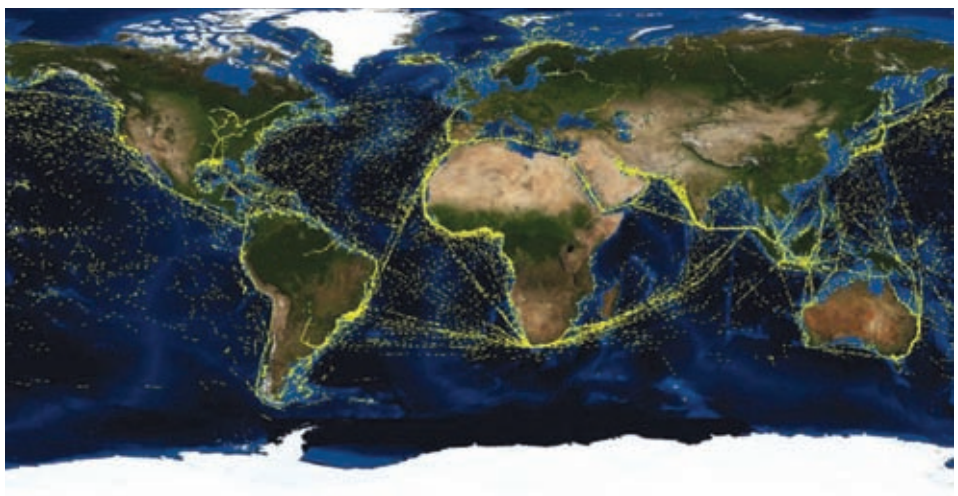
exactAIS is already used by the country's Marine Security Operations Centre, which consists of multiple departments and agencies including the Department of National Defence, Transport Canada, the RCMP, the Canada Border Services Agency, the Department of Fisheries and Oceans and the Canadian Coast Guard.

The space-AIS data is typically used to enhance maritime security and surveillance, monitor and analyse arctic vessel traffic, and for Search and Rescue (SAR) support.

"This renewal order, won in a competitive bid environment, continues to demonstrate how exactAIS is gaining traction in many government departments with uses spreading beyond the traditional maritime agencies," said Mr Mabson.

"It shows that the exactAIS data service is now being recognised as a vital part of mission-critical decision support systems."

"We expect to gain further renewals and wider market penetration worldwide throughout 2012 as more and more customers realise the value of our service, and as we add to both our in-orbit and ground-based infrastructure."



Global AIS data will be marketed via the VesselTracker web-services platform

New Seacor ships to install Kongsberg DP systems

www.kongsberg.com

Seacor Marine is to install Dynamic Positioning systems from Kongsberg Maritime on two new 190-foot CrewZer Class Crew boats (also known as fast supply vessels).

The Seacor Lynx and Seacor Leopard are under construction at Gulfcraft Shipyard, located in Louisiana, US, and are scheduled for delivery in the first half of 2013. The ships will be the first Crew boats to operate using an ABS Class DP3 system.

A triple redundant Kongsberg K-Pos DP3 system will be installed, integrated with position reference and environmental sensor systems.

"Dynamic Positioning offers significant station keeping improvements compared to manual control," explains Joe McCall, project manager, Seacor Marine.

"In order for a DP system to be effective, it has to be completely reliable in even the most extreme weather conditions, so we are enthusiastic about the installation of Kongsberg DP3 aboard our new CrewZer class vessels."

"The system is designed to offer the highest redundancy and reliability which allows for safer transfers of cargo and personnel."

The SEACOR Lynx and SEACOR Leopard will be the first Crew boats to operate using an ABS Class DP3 system

SMA installs ECDIS training systems

www.kelvinhughes.com

Kelvin Hughes has supplied Singapore's largest maritime training institution, the Singapore Maritime Academy (SMA), with 25 ECDIS training systems under a new contract.

The 25 MantaDigital ECDIS Training Systems will be incorporated with Chartco's Passage Manager, providing SMA with one of only three training centres approved for generic ECDIS training by the Singapore Maritime Port Authority.

SMA recently updated its facilities, opening a new training laboratory at the end of August last year.

"We are committed to ensuring that our simulators are always updated, so that our graduates always meet the exacting standards of IMO and industry," says Captain Gopala Krishnan, SMA's senior manager, SMART Center and maritime simulation division.

The ECDIS training system is 'student-proof', in that it doesn't allow access to the main operating system or changes of parameters, and can connect to a vessel simulator for expanded training options.

Kelvin Hughes has upgraded SMA's existing ECDIS master station with simulation software to output vessel movements to the individual ECDIS workstations.

Condor Ferries crews receive ECDIS training

www.ecdis.org

ECDIS training company ECDIS Ltd reports that it has completed delivery of ECDIS training courses to the crews of Condor Ferries.

The training consisted of generic 5-day ECDIS courses, as well as type specific training for the equipment that is fitted onboard the vessels.

Condor Ferries operates the Condor Vitesse, Condor Express and Condor Rapide fast cat ferries, and the car, passenger and freight carrying vessel Commodore Clipper. Each year the company carries more than 1 million passengers and 200,000 passenger vehicles.

"Over the last six months we have been working with EDCIS Ltd to provide our officers with generic and type specific ECDIS training, and to refine our ECDIS operating procedures," said Captain Fran Collins, operations director at Condor Ferries.

"Feedback from those attending the courses has been very positive with regard to the facilities and in particular the way the training is delivered. Even those who have had extensive experience with the equipment have found the five day course worthwhile."

IBS for polar research vessel

www.raytheon-anschuetz.com

Raytheon Anschütz has completed the supply of its latest generation of Integrated Bridge System (IBS) to the SA Agulhas II, a new polar research ship owned by the Republic of South Africa's Department of Environmental Affairs (DEA).

Sea trials, including ice trial tests in the Gulf of Bothnia, were successfully concluded during March 2012.

The 134 metre vessel was designed and built by the STX Finland shipyard at Rauma, and will conduct research activities and expeditions in the polar region. It is also designed to serve as an icebreaker, a passenger ship and a supply ship for the South African research centres in Antarctica.

The Integrated Bridge and Navigation System consists of six widescreen workstations for radar, chart radar, ECDIS and conning, as well as a NautoPilot, a redundant gyro compass system, a package of navigation sensors, navigation data management and a complete radio station for GMDSS A4 operation in the polar region.

One of the radars provides Ice Radar functionality with ice imaging capabilities, to assist the navigator in finding the optimal route through icy waters and reduce fuel consumption and the risk of hull damage.

The bridge system also integrates a Dynamic Positioning (DP) System, which shares information such as waypoints with the navigation system to allow precise operation within ice fields.

A helicopter console with a Chart Radar slave display and equipment for the SRTP Room complete the package.

The bridge and navigation equipment was installed by technicians from AT Marine Oy in conjunction with RH South Africa, both certified service partners of Raytheon Anschütz.

The SA Agulhas II has installed an IBS

ChartWorld launches new ENC service

www.chartworld.com
www.adveto.com

ChartWorld International has launched ACES, a new SENC ENC data service for ships with ECDIS or ECS navigation systems, based on the Admiralty ENC chart data set from the UKHO and using the SevenCs EC2007 Kernel.

This Kernel is used by a number of ECDIS OEMs, including ChartWorld itself for its own eGlobe ECDIS.

The eGlobe ECDIS product will be produced under a new ECDIS OEM licence agreement with Swedish manufacturer Adveto, with a value of 2.5 million SEK (approximately US$372,000).

"ChartWorld International and Adveto signed an agreement in November last year regarding the new cooperation where Adveto's accumulated knowledge is fitted into the new eGlobe ECDIS," explains Jochen Rudolph, managing director of ChartWorld.

The deal with ChartWorld represents Adveto's largest single order since the company was founded, in the mid-1980s.

ChartWorld says that its ACES (Advanced ChartWorld ENC Service) charts load quicker than standard S.57 ENCs, allowing ECDIS chart loading or updates to be completed in a much shorter time than was previously possible.

For example, it claims that the loading time for a set of ENCs in SENC encrypted ACES format was only three to six minutes, compared to approximately 60 minutes for the same set of native ENCs encrypted in S.63 format, to be loaded into an ECDIS using the SevenCs Kernel.

In other news, ChartWorld has also launched a new micro-site (www.ecdis-as-a-service.com) to mark the introduction of its 'ECDIS as a Service' concept for supplying ECDIS and digital chart data services to the SOLAS shipping market.

The site provides visitors with information about the concept and its specific service components, such as the eGlobe ECDIS, but also offers the opportunity for shipping companies to submit their own information in order to receive a customised service quotation.

"Shipping companies must implement ECDIS, which requires considerable planning and investment, as well as radical changes in operating procedures and training requirements," said Oliver Schwarz, ChartWorld International's business development director.

"The current industry approach is to burden the shipping company customer with full responsibility for addressing all this myriad of problems themselves. Our approach is to take those problems away from the customer and present them with a clear and simple packaged service solution that is easy to understand, easy to implement and affordable."

AWT and Transas integrate navigation technologies

www.awtworldwide.com
www.transas.com

Applied Weather Technology (AWT) and Transas Marine have announced that they have integrated AWT's BonVoyage System (BVS) for on-board weather routing with Transas' ECDIS, to assist in voyage optimisation.

This integration will allow users to transfer data from BVS to Transas NaviSailor ECDIS, and vice-versa.

BVS is used by approximately 4,000 ships and provides data on weather and sea conditions that can be used to improve voyage planning, reducing fuel costs and CO2 emissions. It offers 16-day forecasts updated four times daily, and 10 years of historical climate data.

"The combination of these two industry-leading systems is a key advantage for our clients," said Skip Vaccarello, president and CEO for AWT.

"Now, Captains can see their routes optimised by BVS plotted into the ECDIS navigation system. This will give Captains the ability to navigate with pinpoint accuracy the safest and most efficient routes for their specific vessels."

Singapore and Norway to collaborate on maritime R&D

The Maritime and Port Authority of Singapore (MPA) and the Research Council of Norway (RCN) have signed a Memorandum of Understanding (MoU) to renew their bilateral agreement on maritime Research and Development (R&D), education and training for another three years.

The first MoU between the two parties was signed in 2000, and has since been renewed in 2003, 2006 and 2009.

Since that first agreement, MPA and RCN have co-operated in research in areas such as the maritime environment, sustainable energy technology, offshore and marine engineering, and maritime operations and info-communications technology.

One of these research programmes is the collaboration between MPA and Det Norske Veritas' Clean Technology Centre (DNV CTC) for R&D on the maritime environment and clean technologies.

"An increasing number of Norwegian maritime companies have established their presence with headquarters for operation and strategic coordination in Singapore in the last few years," said Arvid Hallen, RCN director general.

"Norwegian R&D institutes and universities see Singapore as a strong collaboration knowledge hub for the future development into the Asian market."

"Research and innovation is global, and I believe that Norway and Singapore represent two of the most complete maritime clusters in the world - a good basis for joint collaboration."

Furuno ECDIS ready for launch

www.furuno.com

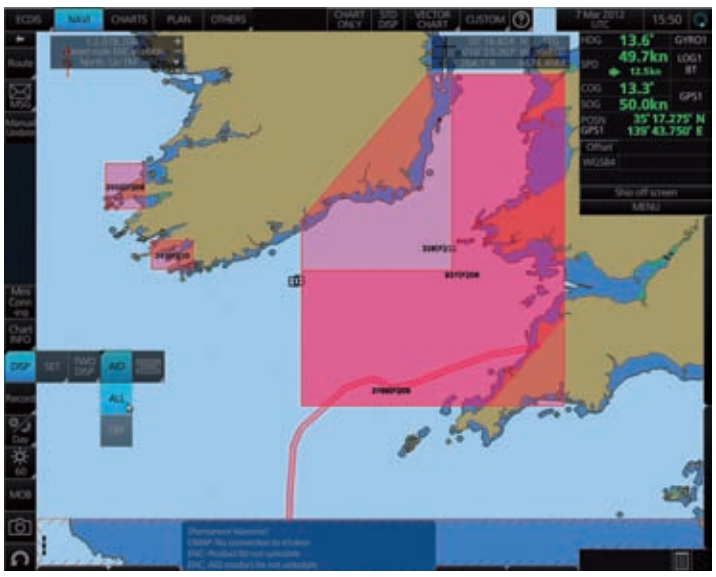
Furuno has announced that its new FMD-3200 and FMD-3300 ECDIS models will soon be ready for launch.

The FMD-3200, with a 19-inch LCD screen, and the 21-inch FMD-3300 will include a chart management system, independent of chart providers and compatible with Jeppesen Dynamic Licensing and the Admiralty Information Overlay (AIO).

The new ECDIS also have new Graphic User Interface elements, with a Status Bar and InstantAccess Bar providing what Furuno calls a "task-based operation scheme" to offer direct access to necessary operational procedures.

The Status Bar at the top of the screen provides operating status, including modes of operation and presentation, while the InstantAccess Bar, on the left edge of the screen, provides quick access to functions available in each of the ECDIS operating modes.

The contents of the InstantAccess Bar change according to the operating modes selected on the Status Bar.



The new Furuno ECDIS has added access options on the top and side of the screen

Superior simulator training

www.kongsberg.com

Superior Energy Services of Houston, Texas, has taken delivery of a new maritime training simulator from Kongsberg Maritime which will be used to provide integrated, real-time training for Superior's offshore marine personnel at its new facility in Anchorage, Alaska.

Under the terms of the contract Superior Energy Marine Technical Services has been supplied with a full mission trainer in support of critical operations including ship bridge manoeuvring and navigation, anchor handling, ROV operations and crane operations.

The simulator features two full offshore service vessel bridges, with 360 degree field of view, an offshore crane simulator, a DeepWorks ROV simulator, and a separate Process Simulator, for operator training and control system checkout.

"At Superior Energy Services, we believe in ensuring our people are as prepared and properly trained as possible. It makes sense from a safety perspective, from an environmental perspective and from a business perspective – it is simply the right thing to do," said Captain Scott Powell.

"Partnering with Kongsberg Maritime provided a depth of engineering capability that allowed us to mirror a physical model-based simulation solution. This is the closest we can come to creating realistic scenarios without facing these circumstances first hand."

"Our people will be the best prepared in the industry and will have full confidence in the critical skills they will learn with this state-of-the-art simulator. This multi-team training capability will have a net positive effect on our preparedness and our commitment to health, safety and the environment."

Letter to the Editor – Response to IHB claim that ECDIS 'not functioning as expected'

Dear Sir,

In response to the article published in May 2012, and the recent reports that manufacturers' ECDIS systems were not displaying certain data, Japan Radio Co., Ltd. (JRC) is pleased to update industry on its own immediate investigative actions to determine the impact and any necessary corrective action for JRC ECDIS systems.

It was brought to attention by the IHO ENC data presentation and performance check (check data set), issued by the IHO in October 2011, that key navigational marks such as complex lights were not being displayed and that with some ECDIS models, types of partly submerged wreck symbols were not being displayed - although JRC has had a software upgrade to resolve this anomaly since September 2010. It is calculated that approximately 30% of all manufacturers' current ECDIS models are not upgraded to the latest software.

Any ECDIS, which is not updated to the latest version of IHO's [continuously updated] performance software requirements, may be unable to correctly display the latest charted or indication features when using ENC charts. Additionally, the appropriate alarms and indications may not be activated, even though the features have been included in the ENC.

The IHO ENC data presentation and performance check response data shows that from over 5,000 JRC ECDIS users, there was a return rate of less than 0.7% who replied to the IHO. In view of this it was suggested that it be brought to the attention of mariners and vessel owners via the March 2012 Navarea. For any vessel owner/operator that has not carried out the IHO ENC data presentation and performance check on their ECDIS, it is recommended that this check is completed and information returned to the IHO at the earliest opportunity.

JRC was the first manufacturer, together with the appropriate authorities, to pro-actively have greater contact with ships' staff, owners and managers of vessels, advising them to regularly have their ECDIS checked and if necessary, update the software. Thereby trying to find the best solution for ECDIS software updates with our customers.

Today, ECDIS performance, its mandatory carriage requirement and in particular the matter of software upgrades is the topic of many international meetings now being held. The IHO check data set project has highlighted the importance to have a requirement of ECDIS software version upgrades being promptly completed within possible time limits and schedules, to ensure that all manufacturers' ECDIS systems are fully upgraded.

All JRC customers should rest assured that JRC will continue to do the best it possibly can to ensure the correct and timely updating of onboard ECDIS. JRC was also pleased to receive compliments from various authorities with respect to the way the above was handled in a prompt and professional manner.

JRC has made readily available software upgrades for current and legacy ECDIS models at www.jrceurope.com.

Kind regards,
JRC

Guide to ECDIS training regulations

Whether you like it or not, ECDIS is coming. Ensuring compliance means having the right equipment on board, but also having crews that are properly trained in its use – however, the actual training demanded varies depending on your vessel's circumstances. *Digital Ship* looks at some of the different requirements

As most people in the industry are well aware, IMO mandatory carriage requirements for ECDIS will begin to be phased in, for certain types of vessels, from July of this year. From this date and over the subsequent six years of the implementation schedule a huge number of ships will have to be fitted with the technology to remain in compliance.

Of course, fitting a piece of equipment on a ship and using it to improve the safety of operations are two different things – and so, training in the use of ECDIS is a key part of the implementation process.

However, while the directive as to what equipment to fit and when to fit it is relatively straightforward, the type of training that is required by those that will use the equipment onboard is a little less so.

One of the major issues that continues to vex operators when implementing ECDIS is the question of type-specific training – is it required, and what kind of qualification does a seafarer need to achieve to prove they are competent in the use of the particular equipment onboard?

Even with the mandatory carriage requirement approaching, the answer to this question is not entirely clear.

The standardised IMO Model Training Course on the Operational Use of ECDIS, IMO Model Course 1.27, was approved by the IMO Committee on Standards for Training, Certification and Watch-keeping (STCW) in January 1999.

Since then this standard has been the main requirement in demonstrating a required level of competence to operate ECDIS onboard ship, though the 1.27 Model Course is again currently under review at IMO with a view to updating its requirements.

Initially developed by the Institute of Ship Operation, Sea Transport and Simulation (ISSUS) in Hamburg, Germany, the primary objective of the Model Course was to ensure proper use and operation of ECDIS, through a thorough understanding and appreciation of its capabilities and limitations.

The one-week Model Course, comprising 40 hours of instruction, features a syllabus including classroom lectures, hands-on training, and exercise scenarios. In addition, it contains recommendations for facility and staffing requirements, lesson plans, teaching aids, and examples of ship-simulator training exercises.

Despite this course outline having been introduced more than a decade ago, issues remained due to the fact that ECDIS training was not included in the STCW Convention laying out the qualification standards for watchstanding at sea – a fact which created confusion as to what level of training was necessary for compliant operation.

As a result, different Flag States implemented contrasting regulations, muddying the waters when it came to a consistent standard for ECDIS training.

Manila Amendments

This oversight has been dealt with, to some extent, by the 2010 changes to the STCW Convention, commonly known as the Manila Amendments.

Effective from 01 January 2012, training in safe navigation using ECDIS will be a mandatory requirement in the 2010 amendments (Manila Amendments) to the International Convention on Standards of Training, Certification and Watch-keeping for Seafarers, 1978 (STCW) for all officers serving on vessels fitted with ECDIS.

Problem solved? Not quite.

Despite its addition to the STCW Convention, the requirements for ECDIS training are not particularly well defined, and are open to interpretation as to what exactly needs to be included.

Words like 'familiar', 'understand' and 'knowledge' abound, but without reference to a particular qualification that will be accepted as demonstrating such competence.

For example, is type-specific training required to be 'familiar' with the system, or is a brief introduction to a particular manufacturer's equipment sufficient once the generic Model Course has been completed?

Guidance on training and assessment in the operational use of ECDIS is provided in Part B-1/12 of the STCW Code (§§ 36 - 65), and the Manila Amendments to the STCW Code[1] (STCW Conf. .2/34), Section A-VIII/2 Part 3, Reg. 8, state:

"4 - the master, chief engineer and officer in charge of watch duties shall maintain a proper watch, making the most effective use of the resources available, such as information, installations/equipment ...;

5 - watchkeeping personnel shall understand functions and operation of installations/equipment, and be familiar with handling them;

6 - watchkeeping personnel shall understand information and how to respond to information from each station/installation/equipment."

Section A-VIII/2 Part 3, Reg. 26, states:

"The officer in charge of the navigational watch shall have full knowledge of the location and operation of all safety and navigational equipment on board the ship and shall be aware and take account of the operating limitations of such equipment."

While Section A-VIII/2 Part 3, Reg. 36, states:

"Officers of the navigational watch shall be thoroughly familiar with the use of all electronic navigational aids carried, including their capabilities and limitations, and shall use each of these aids when appropriate."

ISM and PSC

With the STCW Convention not exactly definitive in outlining the required level of training for ECDIS, the International Safety Management (ISM) Code can also be referenced to try and determine the qualifications required.

The ISM Code requires that officers are competent in the use of ECDIS to maintain a safe bridge watch and navigate safely. ISM Code section 6 points to the need for training specific to onboard duties prior to boarding, stating:

"6.2 - The Company should ensure that each ship is manned with qualified, certified and medically fit seafarers in accordance with national and international requirements.

6.3 - The Company should establish procedures to ensure that new personnel and personnel transferred to new assignments related to safety ... are given proper familiarization with their duties. Instructions which are essential to be provided prior to sailing should be identified, documented and given.

6.5 - The Company should establish and maintain procedures for identifying any training which may be required in support of the safety management system and ensure that such training is provided for all personnel concerned."

Port State Control can also offer another viewpoint, with Port State Control Committee Instruction 35/2002/02 referencing type specific training, asking:

"5.3.2 - Are the master and deck watchkeeping officers able to produce appropriate documentation that generic and type specific ECDIS familiarisation has been undertaken?"[2]

National Flag regulations

With all of these different sources of information, perhaps the best advice is to follow the requirements of the Flag administrations applicable to the vessel in question, and to make sure that training levels meet any additional specifications that they might prescribe.

For reference, the list below contains extracts of current rules for type specific training from a variety of Flag States (it should be noted that the list is not exhaustive). Links to all of the documents containing this information will be available on the *Digital Ship* website, via a single link referenced at the end of this article.

Australia: Marine Notice 15/2010

"Before a watchkeeping officer or master intends to use an IMO compliant ECDIS as the primary means of navigation they should, as a minimum, complete generic ECDIS and ECDIS model-specific training.

However, in cases where officers or masters have not had any recent experience using ECDIS it is strongly recommended that refresher training be undertaken based on a generic ECDIS Operators Course complying with IMO Model Course 1.27 - The Operational Use of Electronic Chart Display and Information Systems (ECDIS)."[3]

Bahamas: Information Bulletin No. 138

2.1. This Bulletin applies to officers serving onboard ships fitted with ECDIS and Companies providing the officers for such vessels.

2.2.1 The applicable officers of Bahamas registered vessels, which have ECDIS as the primary means of navigation, are required to have completed both generic and ship specific ECDIS training

2.3 For the purpose of this Bulletin, the following definitions apply:

i. Approved training is training that satisfies the requirements of STCW A/V and has been approved by the Bahamas or a STCW party with which The Bahamas has a recognition agreement (BMA INFORMATION BULLETIN No. 121, 'COUNTRIES RECOGNISED BY THE BAHAMAS IN ACCORDANCE WITH STCW REGULATION I/10' includes Germany)

3.4 The BMA is only engaged in ECDIS training approval relating to officers who have been issued Bahamas Certificate of Competency and for training centers which are located in The Bahamas.

5 ECDIS Ship Specific Equipment Training

5.1.1 The ship specific ECDIS training should relate to the make and model of the ECDIS equipment installed on the ship. This should build on the generic training, and be delivered by either:

i. the manufacturer; or
ii. the manufacturer's approved agent, or
iii. a trainer who has attended such a programme.

5.1.2 A manufacturer's approved computer based training package can be accepted for this purpose.

Bermuda: Bermuda Shipping Notice 10-2011

"In ships where ECDIS is the primary navigational system there is a requirement for all navigational officers to have completed both generic ECDIS training and ship specific ECDIS training....

Ship specific ECDIS training and familiarisation should be based on the actual equipment fitted on board and provided before the officer is expected to use the equipment. If the generic training course has been undertaken on the same equipment then the course certificate should make clear the equipment that was used for the training in order to be accepted as meeting this requirement.

In general the ship specific training should be conducted on the equipment that is to be used by a manufacturer, his approved agent or someone who has received a trainer's programme for that equipment. A manufacturer's computer based training package can be accepted for this purpose.

The company operating the ship should ensure that the ship specific train-

Training is key in ensuring high levels of competence in the application of ECDIS technology

ing is carried out and clearly documented. Given the critical nature of this training and the records of it this process should be incorporated in the ship's Safety Management System"[4]

Cyprus: Shipping Guidance Notice – 011

"I wish to inform you that the Department of Merchant Shipping (DMS), has decided to accept the use of Electronic Charts & Display Information Systems (ECDIS) on Cyprus Flag ships including high speed craft (HSC) as meeting the nautical charts and nautical publications carriage requirements stipulated in Regulation V/19.2.1.4 and V/27 of SOLAS 74 as amended, under the following conditions:

All officers on watch must be familiar with the operation of the ECDIS on board the ship."[5]

Germany: ECDIS Competence of Masters and Deck Officers

"1.2 Specific ECDIS Training: Documentary Evidence (DocE)

Every ECDIS familiarisation training in the efficient use of the ship specific ECDIS equipment should be documented in an appropriate manner. This familiarisation training supplements the generic training.

The ship specific ECDIS training is offered by the manufactures of ECDIS equipment or by type-specific trainers and the successful participation is documented through DocE.

'Trickle down training' (i.e. internal onboard instruction by masters and deck officers) does not usually comply with all requirements and shall not be considered as a training possibility."

Gibraltar: Shipping Guidance Notice – 011

"This Administration will issue a letter accepting the ECDIS installation as fulfilling the requirements to replace paper charts provided:

The Master, Chief Officer and all Navigational Watch Officers have undergone ECDIS training and familiarisation."[6]

Ireland: Marine Notice No 51 of 2011: Training required for ECDIS as Primary means of Navigation

"The ECDIS ship specific equipment training should relate to the make and model of the equipment fitted on the ship on which a Master or Navigational Officer is currently serving i.e. it will be necessary to complete training for each different system a Master or Navigation Officer is expected to operate.

This training should build on the approved ECDIS generic training, and be delivered by the ECDIS manufacturer; the manufacturer's approved agent, or a trainer who has attended such a programme. A manufacturer's computer based training package can be accepted for this purpose."

Isle of Man: MSN 26: Replacing Paper Charts with ECDIS

"ECDIS Course: All ECDIS operators must also have completed type specific training for the type of equipment installed on the vessel on which they are working. If the ECDIS course (1.27) included training on the type of equipment installed there must be a clear statement to this effect. Otherwise separate training will need to be undertaken. This may be in the form of Computer based training supplied by the manufacturer of the ECDIS equipment.

Original training certification must be available on board for third party inspection."[7]

Marshall Islands: MARINE SAFETY ADVISORY NO. 7-09

"In addition, shipowners and operators should ensure that their ships' crews are provided with a comprehensive familiarization programme and type-specific training; and that the ships' crew fully understand that the use of electronic charts aboard ship continues to require the need for passage planning."[8]

Panama: MERCHANT MARINE CIRCULAR MMC-218

"all ship's officers in charge of a navigational watch on board the vessels to which the ECDIS is mandatory must attend, as a minimum, an approved generic ECDIS operator training course based on the IMO standard model. This requirement shall be met through type specific training provided by the ECDIS manufacturer."[9]

Singapore: SHIPPING CIRCULAR TO SHIP OWNERS NO. 3 OF 2011

"MPA's policy on ECDIS training is as follows:

The navigating officers should also be provided training on the specific make and model installed on their ships. This equipment-specific training can be provided by the shipping company itself as part of ship familiarisation, using services of trainers appointed by the manufacturer or manufacturer's agent."[10]

United Kingdom: MIN 405 (M+F)[11]

"The Master and all Navigational Officers of UK Flagged vessels, which have Electronic Chart Display and Information Systems (ECDIS) as their primary means of navigation, are required (by their Safe Manning Document (SMD) and Port State Control Committee Instruction 35/2002/02 (rev1)), to have completed both generic and ship specific equipment ECDIS training."

Other relevant parties

The issue of type specific equipment training has also been raised by accident investigation authorities like the Federal Bureau of Maritime Casualty Investigation (BSU) in Germany and the UK's Marine Accident Investigation Branch (MAIB).

Following their investigations of maritime incidents these two bodies have recommended type specific training as a way of promoting safe operations – as exemplified by the following accident reports.

The BSU's Investigation Report 1/08, into the grounding of the LT Cortesia, states that: "The Federal Bureau of Maritime Casualty Investigation recommends that shipping companies and navigation schools now train senior nautical personnel in the different voyage management systems. Particular reference is to be made to the varying device parameters and settings."[12]

The MAIB report on its investigation of the grounding of CFL Performer notes that: "Although ECDIS' must meet the specific performance standards set by the IMO, manufacturers inevitably vary aspects of equipment operation in order to remain commercially competitive. This has led to differences between systems in terms of menus, terminology and equipment interface."

"Such differences can be marked and, although operations manuals are provided, these are not always easily understood. A mariner's proficiency in the use of a particular system is therefore undoubtedly best served by the provision of equipment-specific training, regardless of any previous training and experience."[13]

Similarly, MAIB's report on the investigation of the grounding of Pride of Canterbury also states that: "Where an electronic chart system is fitted as an aid to navigation, proper generic and/or type specific training in its use should be provided to all navigating officers to ensure a thorough understanding of its display and functionality."[14]

Other external stakeholders have their own opinions on the ECDIS training issue, with most supporting a level of 'familiarisation', at the very least – such as, for example, the Ship Inspection Report (SIRE) Programme (2011 Edition), which states:

"4.23 ... Such training must be both generic and specific to the ECDIS equipment that officers will use. ...deck officers must be fully familiar with the operation of the ECDIS prior to the first voyage after the installation of the ECDIS in accordance with paragraph 6.3 of the ISM Code.

4.24 ... If the equipment on board is of a different type (manufacturer) to which the generic training was undertaken, then evidence of familiarisation of the actual equipment fitted on board should be provided. Record in comments the nature of and duration of such familiarization."[15]

Conclusion

The above referenced reports and requirements reflect only a small portion of the available literature on ECDIS training, and indicate how difficult the issue of ensuring compliance can be.

At the very least, this should encourage ship operators to take the issue of training very seriously, and make sure that care is taken to ensure that all applicable regulations are being met and that seafarers hold the necessary qualifications to serve on ECDIS-equipped vessels.

In particular, it is vital to understand Flag State requirements, and how applicable Flag regulations interpret the proclamations of IMO and STCW.

In the end, perhaps the best advice is to aim for the most comprehensive training courses available, both generic and type-specific – to stay ahead of compliance and aim for the highest possible level of competence for navigators onboard ship. DS

*The full list of references for this article, as well as links to referenced Flag States' and other authorities own documentation, is available from the **Digital Ship** website, at: www.thedigitalship.com/pdf/ECDISregsguide.pdf*

***Digital Ship** would like to thank ECDIS provider **Transas** for its assistance in collating the information used in this article.*

ECDIS familiarisation training and CBT

Familiarisation and type-specific training for ECDIS is important in ensuring competence on the latest technology, but finding the time and the budget to facilitate this is not always easy – computer based training can provide significant benefits in that regard, *writes David Edmonds, PC Maritime*

Type-specific training provides awareness of the functions present in ECDIS, and the 'How To'. How do I install charts, update them, plan a route, and monitor position, on a specific ECDIS?

I have myself attended ships to deliver familiarisation or type specific training. Usually this is for a day to train the watch keeping officers.

In practice everyone is trying to fit training around other duties. The Master is invariably called away; the Chief Officer is always busy.

If we're lucky everybody gets an overview and the second mate gets a reasonable run through on passage planning. And then, quite often, the second mate will say, "I'm away on leave tomorrow – I'll try to pass on what you've told me to the new second mate."

This gives rise to 'trickle down training', which is regarded as unsatisfactory.

Face-to-face training can be provided ashore, usually at a customer's offices. This has its strengths: no interruptions, time to cover the material; and its limitations: information overload (by mid-afternoon), skill fade (it may be weeks or months before the attendees use the equipment).

Face-to-face training carries costs that must be justifiable. There's the cost of the trainer, travel and subsistence; the logistical problem of getting people together in one place and the fact that many seafarers have to undertake training in their own time, unpaid.

Some estimate logistical costs to be as much as 75 per cent of the whole.[i]

Effectiveness

Studies have shown that a primary cause of training failure occurs when trainees do not use what they have learned soon afterwards. As much as 70 per cent of learning may come from actually doing the job, picking up from colleagues.[ii]

This is not an argument for leaving any part of ECDIS training to informal means, but to emphasise the need to practise what has been learnt.

The chart above right (fig.1) is adapted from *'Training on Trial: How Workplace Learning Must Reinvent Itself to Remain Relevant.'*

A model for assessing training effectiveness is The Kirkpatrick Model (see table, below).

Of importance for the trainee's effectiveness, and the ship-manager or owner paying for the training, is that the training reaches through to levels 3 and 4.

In other words, that the underpinning knowledge learned during the generic and type specific courses flow seamlessly through to the job.

Computer based training

ECDIS manufacturers have an implied responsibility to deliver type specific training on their equipment.

For example the MCA's MIN 405[iii] states:

"3.1 The ECDIS ship specific equipment training should relate to the make and model of the equipment fitted on the ship on which they are currently serving i.e. it will be necessary to attend a training course for each different system a Master or Navigation Officer is expected to operate."

"This training should build on the MCA approved ECDIS generic training, and be delivered by the manufacturer; the manufacturer's approved agent or a trainer who has attended such a programme."

"Trickle down training (i.e. one officer training another) is not acceptable as, inevitably, it leads to incomplete knowledge of the equipment's capabilities, and especially the lesser used functions, being passed on."

Manufacturers have to get their training right; it directly influences the effectiveness with which equipment is used and, if done well, eases the burden placed on the support line.

The need for familiarisation training is not a one off. ECDIS is and will no doubt remain a frequently changing system. Training will need to be updated when systems are updated and frequently refreshed as operators move between different systems.

Many people today are comfortable studying online. They don't want to sit through classes when they can work at their own pace, with the opportunity to practise the skills and actions they need, which is more efficient for them.

If e-Learning is interactive enough to give them hands-on experience, then e-Learning can be very effective.

Everyone needs a solution that minimises travel and expense, is available when and where it is needed, and gets the trainee up to levels 3 & 4.

Computer Based Training (CBT) meets all of these requirements and is highly effective because:

- It is ideal for teaching a process such as using software.
- It motivates with interaction and rich content (images, animations, simulations, voiceover).
- It can be used anytime, anywhere, for initial and refresher training or reference.
- It is self-paced. Users can work at the speed that suits them, repeating sections as necessary. It gives feedback, allowing users to measure their own progress.
- It provides documented and verifiable assessment via multiple choice and true\false questions, simulation and hot spot tests.

CBT, like any technical solution, can be developed to a higher or lower standard. At its simplest, it is an electronic book requiring nothing more from the trainee than to press the next button. This is hardly likely to be an effective training vehicle.

A more comprehensive course will include things like:

- Text and voiceover
- Interactive simulations – the trainee takes part, pressing the buttons and mouse clicks that he would do on the actual ECDIS.
- Regular tests, taken before proceeding to the next topic. This helps to reinforce learning – even getting a test wrong helps users to learn.

There are some disadvantages: it does not give the contact that allows instructors to answer questions and give help when needed. This, I would argue, is of less importance for type specific training, where the skills and knowledge required are procedural. And CBT is time consuming and expensive to produce.

However, several administrations, including India, Ireland and Isle of Man, explicitly accept Computer Based Training for type specific training.

A typical CBT course could comprise seven lessons and need about a day to work through, depending on the pace of the user, and should provide thorough and interactive training in all aspects of ECDIS operation.

Each lesson should consist of voice-over and text explanations, and video sequences demonstrating ECDIS processes. The user must interact frequently during training, carrying out actions as would be done on the ECDIS. At the end of each lesson, questions will reinforce learning and give feedback on progress.

A typical list of ECDIS Type-specific lessons could include:

Fig 1: Learning effectiveness

1. Setup and Maintenance
2. Basic Operation
3. Installing Charts
4. Working with Charts
5. Passage Planning
6. Preparing for a Voyage
7. Monitoring Position
8. Assessment

A final Assessment module can contain all the questions. The Assessment test should consist of a random selection from this question bank, and be taken under controlled conditions and documented.

A high score (70 per cent minimum) should be set as the pass rate, so that it is not possible to pass by guessing.

A help desk should also be available, should any clarification be needed, by e-mail, chat or by means of an online class, led by a qualified instructor at an agreed time.

The results of any Assessment test can be e-mailed to the ECDIS manufacturer or his representative for verification, and once checked a certificate of competence can then be e-mailed back in return.

Additionally access can be made available from a Learning Management System (LMS). This does require access to the internet, but provides some additional benefits:

- All lessons are online. Users' completion of the course is tracked. Assessment can be offered at the end. Personal records are kept and progress tracked.
- Company Superintendent can be notified who has taken, completed, etc.

Assessment

For type-specific ECDIS, the objective is for watch keeping officers to show competence in the operation and maintenance of the ECDIS. This requires the creation of detailed objectives for each of the lessons.

The objectives are to a large extent mechanical. They require that the operators appreciate what they can do with the system, know where to find functions and can carry out tasks. They do not cover the principles involved, which are learned during the generic ECDIS course.

Level 1: Reaction	**To what degree participants react favourably to the training**
Level 2: Learning	**To what degree participants acquire the intended knowledge, skills, attitudes, confidence, and commitment based on their participation in a training event**
Level 3: Behaviour	**To what degree participants apply what they learned during training when they are back on the job**
Level 4: Results	**To what degree targeted outcomes occur as a result of the training event and subsequent reinforcement**

Multiple Choice	**Users select one or more correct answers from a list.**
True/False	**Users choose either True or False (or Yes or No).**
Fill-In-The- Blank	**Users complete a blank in a sentence or phrase.**
Matching	**Users match entries in two lists.**
Hot Spot	**Users move the pointer over areas on the slide.**
Simulation Assessments	**Require the learner to perform actual work. Each step is stored separately.**

Consequently, for type-specific training, the assessment should not, in my view, be too hard. It should be a good match to what operators actually need to do in real life.

The tests that can be used during assessment are varied and can include a variety of testing methods (see table, above).

It is not possible for a user to pass the test by guessing. With true/false questions it is possible to guess the right answer half the time, but increase the pass rate to 80 per cent and the odds of passing by guessing reduce to 5 per cent (see table above right).

Guessing …	Odds
5 out of 10	50%
80% pass mark	5%
But with 20 questions	< 1%

And with multiple-choice, again, the odds stack up against guessing as soon as more than one right answer is required out of four or five possible answers.

Guessing …	Odds
1 of 4	1:4
But with multiple of 4	1:16
And multiple of 5	1:32

When the assessment is presented it should be taken under controlled conditions, with verification of the student's identity, so that his result is documented and a certificate issued if he passes.

Tests taken from a Learning Management System via the internet are also controlled. An LMS can maintain records of the individuals who have taken the course, track their progress, record their results and issue a certificate when they pass the test.

Interested parties, such as the ship manager, can also be automatically notified when the course has been completed and a pass certificate issued.

There is no requirement for type specific training to be approved. However, it could be reassuring if the course were approved by an appropriate body, for example DNV's Learning Programmes Standard.

The objective of this standard is "to ensure uniform quality of training in the maritime industry, independent of location, operation and training method (and) … ensure that training programmes offered within the maritime industry are properly designed (and) contain clear objectives for results." DS

About the author

David Edmonds founded PC Maritime jointly with his wife Anne in 1987. The company is involved in PC software development, producing training simulators and navigation systems.

References

[i] With 75 per cent of the cost of training represented by logistics (travel, lodging, etc.), the global downturn has had the positive effect of making companies more open to new ideas rather than just sending people to a course.

MTC's Bihl insists, "Everyone – the customer and the provider – should be focused on trying to measure the ROI of the time and money spent on training." *Case Study Maersk Training Centre, Maritime Executive July - August 2009, Page 25*

[ii] "An ASTD (2006) study identified the causes of 'training failure' (i.e. training's failing to lead to expected results)."

"It found that 20 per cent was caused by events and circumstances prior to training. 10 per cent was caused by sub-par delivery of the programs. And 70 per cent was due to problems with what they called the 'application environment'."

"The latter consisted primarily of two factors: participants not having the opportunity to use what they learned, and non-reinforcing supervisors' actions following training." *Training on Trial: How Workplace Learning Must Reinvent Itself to Remain Relevant, 2010 James D Kirkpatrick & Wendy Kayser Kirkpatrick.*

"A Josh Bersin (2008) study showed a strong trend toward informal learning. 20 per cent of job-relevant learning was found to occur prior to formal training programs, 10 per cent during training, and as much as 70 per cent as on-the-job learning." *Training on Trial: How Workplace Learning Must Reinvent Itself to Remain Relevant, 2010 James D Kirkpatrick, PHd & Wendy Kayser Kirkpatrick.*

[iii] MARINE INFORMATION NOTE MIN 405 (M+F) *Training for ECDIS as Primary Means of Navigation. (2011) Maritime and Coastguard Agency*

High performance navigation

Manoeuvring large cargo ships in narrow waterways is a risky undertaking, and technology can certainly make a significant difference in ensuring their safe passage. Neste Shipping operates on one of the more challenging routes in Northern Europe and has recently implemented a new manoeuvring system – Captain Ari Inkinen, Neste Oil, spoke to *Digital Ship* about the company's experiences

Ship accidents resulting from collision or grounding typically result in dire economic and environmental consequences. In particular, incidents involving oil tankers that lead to spillage can threaten the environment with tremendous ecological impact, while the financial costs may ruin the shipowner.

If the accident takes place in a transit waterway, sea traffic may be blocked for a long period of time, affecting other vessels.

Shipping companies that operate on narrow water routes are specifically required to observe safe navigation practices and procedures and to continuously adjust their vessels' speed and course. The consequences of inaccurate navigation and a correspondingly high risk of accidents in narrow waterways drive shipping companies operating in such regions to continuously modernise and update their navigation and manoeuvring solutions.

The limited width of waterways is, however, not the only navigational challenge for pilots of large seagoing commercial vessels.

Further complications in such areas are caused by random hydrodynamic forces, such as strong winds or currents and consequential drift.

Shipping companies operating in regions that are subject to harsh winters, such as the Arctic, Russia and several parts of northern Europe, are additionally exposed to the risk of thick layers of ice. If icebreakers are deployed shipping companies incur additional costs for their services.

In order to avoid these expenses, double acting tankers (DAT) have been developed. Oil tankers built according to these specifications are designed to travel ahead in open water but are also capable of breaking and passing through thick layers of ice, astern, without the additional assistance of designated icebreakers.

The Finnish shipping company Neste Shipping, a subsidiary of Neste Oil, operates on such narrow, ice endangered routes, predominantly in the Baltic region and the North Sea.

Neste Shipping, operating a total of 22 vessels, was the first shipping company to implement double acting tanker technology on its vessel MT Tempera in 2002.

The 252 m long, double acting, Finnish-Swedish 1 AS ice class crude oil carrier is equipped with an extended double hull and segregated ballast water tanks. In addition, double skin cofferdams are provided in way of all bunker tanks and the pump room has a double bottom.

The conventional rudder and propeller are replaced by an azipod propulsion system, which is capable of rotating 360°, with the normal ahead speed above 15 knots. The vessel is further equipped with additional bow thrusters to provide improved manoeuvrability in narrow channels and ports.

Double acting tankers are different to manoeuvre than normal tankers, explains Captain Ari Inkinen, fleet manager, Neste Oil.

This, he says, is due to the very flexible azipod propulsion system, which makes a ship very handy to manoeuvre, not just in open water but also in port and during berthing operations.

With this propulsion system, tugs are typically not needed for assist in berthing and port manoeuvres, says Capt Inkinen.

The DAT vessels feature a bulbous bow, which is designed for conventional voyages through open water. Only if the conventional travel is inhibited by hard ice conditions, explains Capt Inkinen, is the double acting mode put into use.

"We have experienced," he says, "that the course keeping capability in DAT mode is substantially limited in open water deployment. This restriction is however resolved in ice conditions, as the ice stabilises the bow movement."

Among Neste Shipping's highly frequented routes is the Naantali channel, which crosses the Archipelago Sea on its way to the Port of Naantali, where Neste Oil operates a refinery.

The 65 nautical mile long Naantali channel ahead of the Finnish West Coast, measures just 15.3 m in depth. According to the Finnish Transport Agency, the channel's fairway navigability is fraught with challenges.

A number of difficult conditions, such as poorly sheltered sections of the channel, which hamper radar navigation and navigation in rough seas, unpredictable currents and particularly narrow and busy passages require not only the special attention and caution of the pilot, but also precise and accurate manoeuvring.

In addition, the ice conditions in the channel vary and can cause navigational aids to be submerged under the ice.

In the inner section of the channel there is usually a 10 – 60 cm thick layer of fast ice during the winter season. In view of these conditions, there are speed limits of 28 km/h and even 22 km/h in parts of the channel.

In addition, vessels with a draft close to the maximum authorised draft are requested to beware of shoals and causing squat in a number of areas.

In essence, navigation in the narrow passages of the Naantali channel requires special attention and caution due to both the geographic peculiarities and the heavy traffic.

The ice-class tanker MT Tempera has installed a precision positioning system to assist with manoeuvring

Improving reliability and security

As Capt Inkinen points out, accurate speed and course information are very important, especially within the constrained conditions in the narrow waterways, and concerns about the safety and reliability of its standard manoeuvring systems drove the shipping company to investigate alternatives.

Prior to the implementation of the azipod propulsion system, Neste Shipping used a regular manoeuvring solution on its conventional vessels, namely a Becker rudder and one CPP propeller, as well as additional bow thrusters.

The navigation solution was part of an integrated bridge system, and navigation in the archipelago used to be mainly based on a radar overlay navigational chart. The systems deployed on Neste Shipping vessels previously included two DGPS, two gyros, one standard compass and integrated conning displays.

Capt Inkinen explains that manoeuvring and navigation under the previous solution was subject to a number of significant disadvantages.

Conventional 1ASuper Ice class vessels require more engine power and are therefore more expensive to use. In addition, the conventional 1ASuper Ice class vessels, capable of independent operation in hard ice conditions, are not energy efficient in open water – and thus not cost efficient in terms of power generation.

Apart from the purely financial downside of the previous solutions, there were also a number of operational issues.

Navigating the narrow Naantali channel requires constant adjustments of speed and course, and making these changes has, in the past, frequently led to gyro compass errors, which have in turn substantially impeded the determination of headings.

In addition to the unreliable gyro heading information in the archipelago, the conventional single-track GPS system being used, without backup, led to significant problems caused by the poor redundancy of satellite navigation and further decreased the security and reliability of navigation in these confined waters.

Manoeuvring double acting tankers, Capt Inkinen points out, poses additional challenges of its own, as these large and heavy vessels have a huge mass.

Neste Shipping has noted irregularities in the doppler log in the past, caused by propeller currents and sediment movements under the ship in shallow waters. This especially hampered the berthing and unberthing processes, and side movement speed figures were not reliable, jumping up to 0.8 knots and occasionally even more.

In order to improve the reliability of navigation and make the manoeuvring process more secure, Neste Shipping decided to implement a new solution.

A number of important prerequisites influenced the selection process. As Capt Inkinen recalls, it was important that its vessels were capable of independent operation under Baltic ice conditions, but in addition a new system would be required to significantly improve the positioning.

"For Neste Shipping it was highly important to be able to better assess the distance of fore and aft to the berth in order to improve the ship's aligned position," notes Capt Inkinen.

"However, what most was important to

MT Tempera is a double acting tanker (DAT) capable of breaking through thick layers of ice

us, was to quickly obtain accurate information about the ship's sideway speed at fore and aft."

As an additional benefit, Neste Shipping wanted the new system to provide accurate online trim information.

"This," Capt Inkinen explains, "is a new feature for us and gives us information about the ship's trimming in different water depths and under different speeds."

"We hope that the constant adjustment of the trim, even underway, will directly impact the fuel oil consumption."

As well as these requirements, there were three other main conditions that influenced the selection process.

Besides the proven capability of providing accurate course information, Neste Shipping required a suitable provider to be a well-known and experienced company from Europe with an economically stable background, and able to offer reliable equipment. Another highly important attribute was the availability of a back-up system for GPS.

"The reason, why we chose Fugro is quite simple," notes Capt Inkinen.

"We had had some co-operation with Fugro beforehand. Neste had two shuttle tankers operating on dynamic positioning systems on North Sea oil fields. We operated DARPS/DGPS/SPOTBEAM as a position reference system on dynamic positioning."

"The positive experience our company has made with Fugro encouraged us to stick with the provider. We did not have to look into other solutions."

New technology

With its Marinestar Manoeuvring System (MS), Fugro has developed a navigation solution designed to aid vessel positioning in confined waters. Additional functions of the manoeuvring software include a docking tool, a quay drift and squat alarm system, as well as the capability to send information to optimise the vessels' trim while at sea.

The solution is based on a differential global navigation satellite system (DGNSS), which uses two independent differential GPS and GLONASS receivers installed on a vessel – one fore and one aft, for redundant positioning. These widely spaced DGNSS receivers are able to share differential corrections with each other.

Whereas GPS (global positioning system), which is maintained by the US government, is the most widely used positioning solution, GLONASS (Globalnaya Navigatsionnaya Sputnikovaya Sistema/ Global Navigation Satellite System, a radio-based satellite navigation system operated by the Russian Aerospace Defence Forces) is able to provide a back-up for the GPS system.

The redundant positioning method is said to offer high accuracy, in centimetre-range. As Fugro points out, IMO has recommended such redundancy through Res. MSC 115 (73), which states: "A combined receiver, when compared to either the GPS or GLONASS receiver, offers improved availability, integrity, accuracy and resistance to interference."

Fugro says that its combined systems should also help to improve the availability of satellite navigation in situations where parts of the sky are obscured, such as in cases close to obstructions or during ionospheric scintillations.

Reliability is also improved through redundancy of data sources (using additional lines of position), to help to identify incorrect measurements. Ultimately, using a higher number of satellites improves geometry calculations and is expected to lead to improved accuracy.

The integrated GPS/GLONASS receives information from Fugro's differential corrections service using a spot beam antenna. The service utilises the GPS L1 and L2 frequencies and the GLONASS L1 and L2 frequencies, and uses the orbit and clock method for calculating corrections for each individual satellite.

According to Fugro this should provide a high integrity, global solution with a horizontal accuracy of 10 cm (95 per cent).

Testing the system

In order to test the suitability of Marinestar MS for the company's purpose, Neste Shipping agreed with Fugro on a trial phase and the software system was implemented on the double acting tanker MT Tempera in June 2011.

The MT Tempera was chosen for the trial because, as a very large vessel, it needs accurate information when navigating in the narrow fairways of the archipelago and while manoeuvring in port or during the berthing process.

In addition, explains Capt Inkinen, the vessel's officers are skilled in handling new technology and are motivated to seek improvements with regards to improving safety and fuel economy. The MT Tempera's integrated bridge was also being upgraded during that time and the installation of Marinestar MS could be conveniently included in this work.

The implementation of the hardware and software components was scheduled during a maintenance stoppage of a few days at the Turku STX shipyard in Finland. Neste Shipping, explains Capt Inkinen, availed itself of the assistance of yard technicians in order to secure the accurate alignment of the inclinometer sensor.

As mentioned earlier, the navigation system requires the installation of two antennas on each vessel, one at the stern and one at the bow, as well as a display system for general navigation and manoeuvring.

This display shows information such as heading, rate of turn, speed over the ground in both the fore and aft and athwart ship's directions, and can be positioned anywhere on the ship, including at the conning position and the bridge wings.

The shipping company had been advised by Fugro to make advance preparations, and as such fibre optic cable had been installed from the forward part of the ship to the bridge, and from the aft mast to the bridge.

In addition, power supplies had been arranged and designated locations for the receiver installation had been checked. Mounting brackets were also pre-fabricated for the final antenna installation.

"The final installation," notes Capt Inkinen, "was carried out by Fugro engineers. All the preparations made it possible to complete the installation work in only three days."

After carrying out the hardware installation, Fugro implemented its Marinestar MS software, from which position and course information are fed into the ship's integrated navigation system.

Capt Inkinen recalls that this aspect of the implementation was also carried out smoothly. "There were no problems during the installation process," he notes.

During the implementation, the master and crew of the MT Tempera were instructed on the operation of the manoeuvring solution and were able to familiarise themselves with the new system. Neste Shipping was pleased with the initial training that was provided by the software supplier.

"Our staff," says Capt Inkinen, "received a very comprehensive familiarisation and training during the installation of the new navigation solution and our ship's officers had good discussions with the Fugro service personnel."

After the implementation, the MT Tempera underwent a four month trial period during which the double acting tanker performed a total of 19 voyages

through the Finnish archipelago, mainly at Gulf of Finland, from Primorsk to Porvoo /Naantali, and in the Baltic Sea / North Sea area.

Due to the very short sea voyages (12 to 20 hrs.) and 1:1 rotation, the entire crew of the MT Tempera was able to familiarise itself with the system, explains Capt Inkinen. But despite the fact that the implementation on the vessel went smoothly, the shipping company faced a number of initial problems that were mostly related to software and parameter settings.

"However, we were very happy with the way that problems were dealt with from the supplier side," recalls Capt Inkinen.

"Solutions were quickly made available from Fugro's support. New parts were sent out and received very quickly and software updates were sent almost instantaneously via e-mail. Also, the instructions from the support were very clear and precise."

"The regular support is fast and very reliable. Updates are usually sent via e-mail within 24 hours from request. This has been important to Neste Shipping and we appreciate that we can rely on Fugro to be there."

The crew's reaction to the new manoeuvring solution has also been mostly positive.

"The Marinestar MS interface is very intuitive and 'windows-like'," says Capt Inkinen.

"It is easy to use, if one has some basic computer skills. This fact has had an important share in the reception of the software through our seagoing staff."

Benefits of the new solution

After the four-month trial period was completed in October 2011, Neste Shipping had established that the Fugro Marinestar Manoeuvring System operated satisfactorily for its requirements.

"Neste Shipping's overall experience with the solution, which we use for navigation, docking and dynamic trim, has been very positive," says Capt Inkinen.

"The implementation has largely fulfilled our expectations and brought most of the aspired benefits."

One of the key aims of implementing the solution was to increase safety through reliability and redundancy; this has been accomplished successfully.

"The biggest benefit en route," Capt Inkinen explains, "is the increased redundancy."

"The Marinestar MS device acts as an additional position device and also provides very accurate heading data (including rate of turn). This is currently used for reference since the 'compass feature' is not yet fully approved as an official ship's compass device."

To further aid the navigation and manoeuvring processes, the Marinestar system presents a range of additional navigational information, including ground speeds and two measures of distance run.

"We appreciate the reliable and accurate position reference for ship's bridge systems," explains Capt Inkinen.

"Accurate course information and accurate position information are among the main benefits for us."

Fugro's system uses two GNSS positions to calculate the heading, speed distance measuring equipment and a rate of turn indicator. As such it can be used as a substitute for conventional navigation aids, such as gyro compass, Doppler log over ground and rate of turn indicator, says Capt Inkinen.

Using both GPS and GLONASS satellites offers redundancy and greater accuracy in positioning

The Marinestar MS technology is further utilised by Neste Shipping to calculate and display the vessel's actual trim whilst at sea.

The trim of the vessel affects the total resistance of the vessel through water and there are different optimum trim values for the various loading conditions and speeds. If the vessel is not sailing at or near the optimum trim, it is experiencing more resistance and thereby using more power and fuel.

The hull resistance, and consequently fuel oil consumption, is influenced by the trim of the vessel in two ways.

The viscous resistance component is linked to the wetted hull surface, which varies as the vessel changes trim. In addition, the wave making resistance component is linked to the bow and stern wave pattern generated by the vessel. Waves created by the ship bow and stern lead to higher fuel oil consumption.

Fugro's dynamic trim module draws on the data necessary to calculate the dynamic trim of the ship from the two sensors at the bow and stern. The actual trim is measured throughout the voyage and compared to the optimum trim, which depends on the design, the speed and the draft.

If actual and optimum trim differ significantly, Neste Shipping can adjust accordingly and optimise its bunker fuel oil consumption. The Marinestar display presents the actual trim graphically alongside the speed and provides an option to configure the optimum trim values.

"The Marinestar trim display," points out Capt Inkinen, "has proven to show accurate data. Being able to calculate the ship's trim whilst underway at sea is very helpful. For us, this is especially useful in shallow waters."

Currently, Neste Shipping has not made actual numbers available with regards to fuel oil savings; however Fugro expects trim optimisation to generate savings of between 2 per cent and 5 per cent of the annual fuel costs.

In addition, Neste Shipping is utilising the Marinestar docking function, which is designed to assist navigators align the vessel by displaying real-time athwart ship's and longitudinal distances to the final berthing location from the bow and the stern.

The shipping company particularly benefits from the countdown of the distances to the quay side, which offer decimetre level accuracy, says Capt Inkinen. This assists the navigator to better judge the approach speeds and quay distances and can help reduce the manoeuvring time.

The software has two alternative ways of calculating the quay distance.

Either the position of the quay is recorded during the first time the vessel berths at a location with high accuracy, and this information is stored and can be displayed during subsequent visits. In addition, the recorded information can be shared with other vessels via e-mail and those other vessels can use it from the first time they berth at the quay.

Alternatively, the system can take into account the coordinates of the quay that are fed in from an accurate chart, or from tools like Google Earth. However, when this method is used the accuracy is limited to meter level.

"The docking function," says Capt Inkinen, "supports our bridge staff in their evaluation of speed forward and exact distance to obstacles, thereby improving efficiency and safety in berthing operations. This is especially of benefit for large vessels, where the view of the bow from the bridge is not very good."

Despite the fact that the implementation on the vessel went smoothly, a few hurdles remain to be overcome.

Among the more pressing issues is the fact that the signal breaks when the vessel passes under a bridge at the Great Belt, says Capt Inkinen. In addition, Neste Shipping has experienced problems with the navigation system in DAT mode.

"So far, the solution is not working correctly when a vessel is sailing in DAT mode," Capt Inkinen notes, "but we hope that Fugro will be able to fix this problem soon."

Although Neste Shipping is mostly satisfied with the precision and accuracy of the information, Capt Inkinen points out that the manoeuvring solution still needs some improvement. For example, the shipping company would like to see a quicker reaction for sideway speed information, he says.

In addition, there is still uncertainty about the accuracy of the rate of turn display values, which Neste Shipping hopes will be dealt with quickly.

While Neste Shipping is largely satisfied with Marinestar's benefits, the shipping company says it has, so far, not realised the promoted increase in vessel speed through more precise navigation.

Future requests and developments

Four months of thorough testing have led Neste Shipping to plan a further implementation of the Marinestar manoeuvring solution on the MT Tempera's sister vessel, the MT Mastera. Overall, the shipping company has expressed satisfaction with the system.

However, there are a number of amendments to the solution that Neste Shipping would like to see for the future.

The shipping company is hoping that Fugro will improve the reliability of its software under bridges, as well as adapting the solution to make it fit for use in DAT mode.

In addition, the quality of the displays needs to improve as the currently used LCD technology offers a limited viewing angle, says Capt Inkinen.

Ultimately, Neste Shipping would appreciate if officers on board could set an additional alarm for changes in the ship's position while berthed alongside. Display and alarm, Capt Inkinen says, should be available in the cargo control room, which is manned during a port stay.

Fugro is currently in the process of achieving full type approval for Marinestar MS as a transmitting heading device, rate of turn indicator as well as speed and distance measuring equipment. Whether Fugro will also be able to implement Neste's requested changes in due course, remains to be seen. DS

Maritime IT at Posidonia

The Posidonia exhibition, held every two years in Athens, Greece, is one of the biggest events in the maritime calendar, with vast halls of exhibitors showcasing every conceivable type of maritime service. A wide range of IT companies will be among them – *Digital Ship* asked some of them what they have to offer to visitors

Aage Hempel

Aage Hempel-Marine Electronics will showcase its services for maritime navigation, communication and IT equipment at Posidonia 2012.

The company offers sales, installation and repairs of these systems via its offices in Spain, Canary Islands, Gibraltar, Malta, Portugal, Morocco and Panama, carrying out more than 9,000 services per year.

Aage Hempel is an official distributor of Thrane & Thrane, JRC, Kelvin Hughes, Furuno, Raytheon-Anschutz and Jotron, and an official service agent for a wide range of manufacturers. It is also approved for GMDSS Annual Performance Tests (APT) by major international class societies, and offers VDR, AIS and SSAS services.

Visit Aage Hempel in Hall 2, at Stand 103.

ABS Nautical Systems

ABS Nautical Systems will introduce its environmental management solutions to support Ship Efficiency Management Plans (SEEMP) at Posidonia 2012.

The company is offering two new systems which will provide the tools necessary for demonstrating compliance with SEEMP.

A new Energy & Environmental software module allows for the collection, analysis and reporting of a vessel's performance, efficiency, emissions and discharges. It is fully integrated into the NS5 Enterprise platform or can be used as a stand-alone tool.

It offers customised dashboards, energy and environmental KPI reports, emissions monitoring and voyage management capabilities.

Also on show, in partnership with Herbert-ABS Software Solutions LLC, is a trim optimisation tool based on managing trim and draft as a way to help with the fuel efficiency of a vessel.

Visit ABS Nautical Systems in Hall 3, at Stand 101.

Benefit Software

Benefit Software will present its latest vessel and office applications at Posidonia 2012.

The company offers ERP applications with Class NK approval, featuring SOX compatibility and compliance with TMSA standards.

Benefit will also introduce Clever-i, a new module allowing users access to information otherwise dispersed into the ERP system, at a glance. This system is available as an iPhone application for mobile access.

As a cloud-based platform, Benefit says that the system reduces upfront investment, does not involve per-user fees or software installation costs, and ensures flexible access to major ERP applications.

Visit Benefit Software in Hall 4, at Stand 118.

Datema

Datema, part of the Nautical Safety Group, was founded in 1955 and operates in the field of nautical data and nautical safety equipment.

The company offers electronic chart services such as Chartplanner, and was the first to introduce a pay-as-you-sail ENC distribution service with the launch of ENCTrack. More traditionally, Datema has also developed systems for the automatic supply of paper charts and publications.

Datema is also involved in the international provision of safety and fire protection equipment for the shipbuilding industry, offering additional advisory services to create packages suiting specific installations.

Visit Datema in Hall 3, at Stand 113.

Fortune Technologies

Maritime software provider Fortune Technologies will be exhibiting at Posidonia 2012.

Founded in 2004, Fortune Technologies is a Gold Certified Microsoft Dynamics-NAV Solutions partner and offers software for the management of operations and specific shipping-business processes.

Among the systems being showcased will be a new operations module, new Bunkering functionality for the software, a Condition Based Maintenance application integrated with the company's Planned Maintenance module, and a cloud services solution.

Visit Fortune Technologies in Hall 2, at Stand 525.

Franman

Franman invites visitors to Posidonia 2012 to its stand to discuss the latest trends in shipbuilding equipment and services.

The company offers a range of services related to shipbuilding equipment, spare parts, service, risk management and consultancy.

At the stand Franman will introduce executives from some of the various companies it represents, as well as its three new partners Korval Co, a maker of cryogenic safety relief valves, Silla Metal Co, a maker of FPP, CPP and propeller and intermediate shafts, and S & S Valve Co, Ltd., a maker of safety valves.

Visit Franman in Hall 4, at Stands 108 & 109.

GL Maritime Software

GL Maritime Software will be showcasing its fleet management software GL ShipManager at Posidonia 2012.

The company's software system includes the use of 3D modelling of a vessel to support hull integrity management, with GL HullManager, and an application for analysing incidents, accidents, near misses, NCs, deficiencies, and observations, as well as combining data for KPI monitoring and reporting, with GL FleetAnalyzer.

Additionally, GL SeaScout will be on display, which uses hydrodynamic analysis to minimise risk and help operators take better care of their vessels.

Visit GL Maritime Software in Hall 4, at Stand 105.

Hellenic Radio Services

Hellenic Radio Services will be exhibiting its satellite communication services, with products from Inmarsat and Iridium as well as VSAT packages, at Posidonia 2012.

In particular the company will showcase the new XpressLink broadband service from Inmarsat, with its approved pathway to Inmarsat Global Xpress.

In addition to satcoms the company is also offering tracking services, via Polestar, and mobile services from Vodafone. It will also exhibit telecommunication equipment and electronic navigational devices such as Bridge Navigation Watch & Alarm Systems and ECDIS.

Hellenic Radio Services has offices located in Dubai and Miami, as well as in Greece.

Visit Hellenic Radio Services in Hall 1, at Stand 451.

Intellian

Intellian is showcasing its v110 VSAT antenna at the Posidonia exhibition.

The 1.1m (43.3 in) 3-axis stabilised Ku-band antenna is designed to provide access to a full spectrum of communications services, and to withstand challenging sea and weather conditions.

Intellian VSAT antennas have an open platform design to ensure connectivity even when roaming, as they continuously connect to global data communications satellites. Users can monitor and control the v110 from any location at any time.

Key features include built-in GPS, a preloaded global satellite library, automatic LNB-pol angle control, and unlimited azimuth to eliminate cable wrapping.

Visit Intellian in Hall 4, at Stand 232.

Jeppesen

Jeppesen, a Boeing company, will showcase its C-MAP Professional+ and C-MAP ENC services at Posidonia 2012.

The company says that these products, when combined, provide what it calls a "dual fuel solution" for worldwide vector chart coverage.

Jeppesen also offers flexible ENC licensing solutions, including its upcoming Pay As You Sail (PAYS) solution OpenENC, along with its existing Dynamic Licensing and Direct Licensing options.

Also on show will be Jeppesen's Voyage and Vessel Optimization Solution, used to improve ship operation efficiency and safety, reduce fuel consumption, and improve ETA predictability, as well as the C-MAP Weather Service, which offers international weather forecasting including real-time weather with tropical hurricanes, ice fronts and sea conditions.

Visit Jeppesen in Hall 1, at Stand 505.

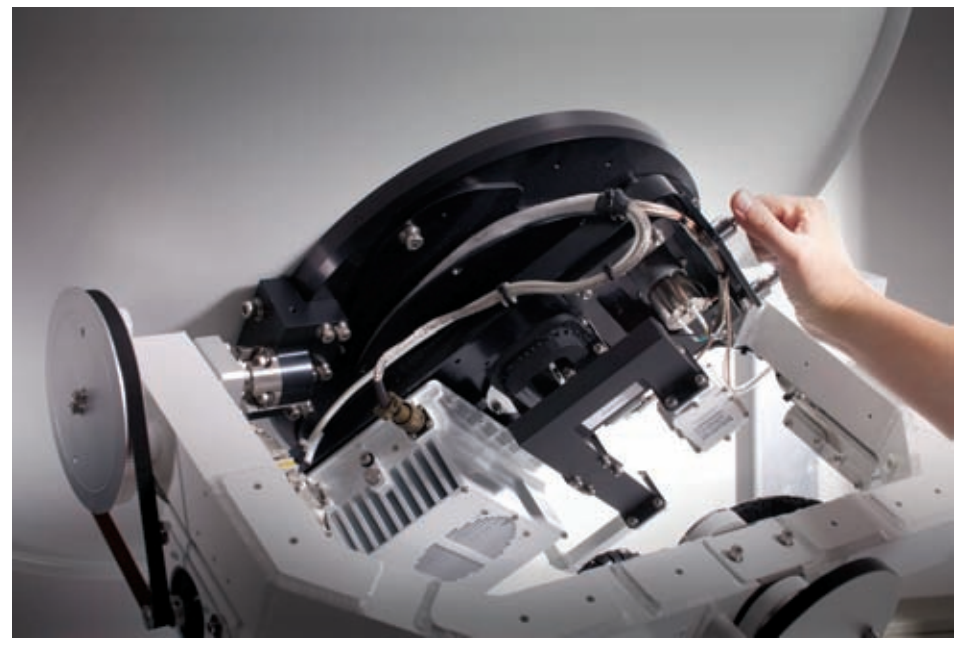
JRC

The JRC stand at Posidonia to will feature the company's latest generation multifunction and navigation information displays.

The 4.5-inch displays can be used as a Multi Information Display (MID), speed log, (D)GPS and GPS compass, with full NMEA data share available for up to 10 displays.

JRC will also introduce a new 4.5-inch Class A AIS in line with this common display series mentioned.

The company's second generation JUE-251 FleetBroadband system will be displayed for the first time, featuring a standard interface and an advanced network router, as well as the new JUE-87 Inmarsat



Inspect the latest VSAT antennas at the Intellian stand

C, with an all-in-one messaging unit, a newly designed antenna, added interfacing capabilities and a new set of accessories.
Visit JRC in Hall 1, at Stand 117.

KVH

KVH is highlighting the latest enhancements to its mini-VSAT Broadband network at Posidonia, with the addition of global C-band coverage.

KVH will showcase combined Ku/C-band systems

KVH's Ku-band mini-VSAT Broadband coverage, delivered by 14 transponders, has been complemented by three additional global C-band spot beams brought online to overlay the Ku-band network, covering 95 per cent of the globe and providing redundant backup connectivity.

To deliver the new service, KVH is introducing the TracPhone V11 dual-mode C/Ku-band antenna, which will be on display at the exhibition. The company says that this 1 meter antenna is more than 85 per cent smaller than other global C-band antennas, and can seamlessly switch between satellites using a single below deck unit.

KVH will be making a presentation about its service in the conference hall at 17:30 on 7 June, 2012.
Visit KVH in Hall 1, at Stand 332.

Marlink

Marlink will showcase its WaveCall and Sealink services at Posidonia, which have recently been upgraded with the integration of iDirect's Evolution X5 Satellite Router and iDX 3.0 software.

The company says that these upgrades are a key element in addressing customer requirements for increased bandwidth and more efficient voice and data connectivity.

Evolution is based on DVB-S2 with Adaptive Coding and Modulation (ACM), providing bandwidth efficiency gains over legacy systems.

ACM helps to ensure maximum service uptime for maritime vessels by automatically adjusting signal strength to overcome rain or solar fade outages.

Marlink will also launch a new standard VSAT offer during the Posidonia exhibition which it says will provide improved flexibility for customers.
Visit Marlink in Hall 4, at Stand 130.

NetU

NetU, the Infor partner for Greece and Cyprus, will be presenting its software solutions for shipping at Posidonia 2012.

This will include its accounting and financial management offering SunSystems, a combination of accounting and financials software applications.

Also on show will be the company's financial and management reporting systems, including its Query & Analysis reporting software tool which allows desktop applications to create and analyse reports on targeted information, highlighting trends and patterns.
Visit NetU in Hall 2, at Stand 111.

Netwave Systems

Netwave will showcase its MarLiant 8000AS ruggedized redundant on-board IT server platform at Posidonia 2012.

The fully redundant server includes double servers, network switches, UPS's, battery back-up and solid state disk storage management modules enabling automatic switch-over.

It can be used to manage local networks

The Marliant server will be on show at the Netwave Systems stand

(LAN's) and workstations on the vessel, as well as offering solid state end-user thin clients.

The company will also display its Voyage Data Recorder systems, already installed on more than 5,500 ships.
Visit Netwave Systems in Hall 2, at Stand 313.

Otesat-Maritel

Otesat-Maritel, a member of OTE Group, will showcase its satellite telecommunications services to the Greek and global maritime industries at Posidonia 2012.

The company provides Inmarsat, Iridium and VSAT services, with integrated solutions combining satellite and terrestrial networks including GSM and other information technologies.

At the exhibition Otesat-Maritel will introduce its new products and services, including Inmarsat Xpress Link, as well as C-band and Ku-band VSAT services, and the new Iridium Pilot product.

Also on show will be the company's value added services for operations and crew, including s@tGate and MailOnBoard.
Visit Otesat-Maritel in Hall 1, at Stand 201.

Raytheon Anschütz

Raytheon Anschütz, together with their Greece distributor Aegean Electronics, will display its range of navigation systems at this year's Posidonia.

The exhibit features the new generation of Synapsis Multifunctional Workstations, including Synapsis (Chart-) Radar, Synapsis ECDIS and Synapsis Conning workstations. These systems are

Try Raytheon's Synapsis bridge at its exhibit

The Navi-Trainer Professional 5000 from Transas will be on display

based on a single system architecture to provide scalability from a stand-alone system to a fully integrated workplace.

The navigation system includes other recently developed functions, such as a new weather overlay for ECDIS.

In addition to the navigation workstations, Raytheon Anschütz will highlight its new CAN-bus based steering control system. NautoSteer AS was developed in accordance with fail-to-safe principles, with a range of integrated features, allowing the fuel-saving Anschütz autopilot NP 5000 and the Anschütz gyro compass Standard 22 to integrate into the system.

Visit Raytheon Anschütz in Hall 1, at Stand 315.

SpecTec

The SpecTec Group will showcase its AMOS Vessel Management software system and associated services at Posidonia 2012.

The AMOS software allows users to manage and control all technical and documentation aspects of their maintenance, spare parts and stock control, as well as procurement, Quality and Safety documentation, voyage management and personnel management.

SpecTec has been in business for 27 years, and has more than 6,500 active installations of its systems. These are serviced through 24 offices in 19 countries. Visitors to Posidonia are invited to the company's stand for a demonstration of the software.

Visit SpecTec in Hall 2, at Stand 313.

Transas

During Posidonia, Transas Marine will showcase its range of ECDIS solutions, including official data, service support and training through the company's global network.

The new 4-level ECDIS concept from Transas includes the IMO compliant Standard, Standard+, Premium and Premium+ product packages, which feature Transas' Navi-Sailor software. Each package includes a number of standard features, with a range of additional options also available.

The company has also launched a 'Pay As You Sail' service for (S)ENCs, approved by PRIMAR and IC-ENC after successful sea trials and verified by Det Norske Veritas (DNV).

Transas will also showcase its Navi-Trainer Professional 5000 simulator at the exhibition.

Visit Transas in Hall 4, at Stand 303.

UKHO

The UKHO is bringing its free Digital Integration workshops to Posidonia 2012, with the aim of helping shipping managers plan for the integration of digital navigation into bridge operations to meet the requirements of the upcoming ECDIS mandate.

The Workshops will take place at the Main Entrance Meeting Room at Posidonia on the 5th (11.00hrs), 6th (16.00hrs), 7th (11.00hrs) and 8th June 2012 (11.00hrs). Attendance is free, but spaces are limited and anyone wishing to attend should register via the Admiralty website.

The Admiralty team of experts will also be available at the company's stand to demonstrate the Admiralty e-Navigator product, and answer any questions on the transition to digital navigation.

Visit the UKHO in Hall 1, at Stand 403.

World-Link Communications

World-Link Communications will be presenting its range of shipboard communications solutions at Posidonia 2012.

Among them will be ShipSat, a network management system that controls the communications link, offering protection for the network as well as crew communications and entertainment capabilities.

World-Link Communications was established in 1989 and is a Gold partner of Inmarsat. The company currently serves a fleet of more than 1,200 vessels worldwide, with representative offices in Athens, Cyprus, Miami, St. Petersburg, and Buenos Aires in Argentina.

Visit World-Link in Hall 2, at Stand 315.

The future of positioning

The impressive lack of problems over the lifetime of the Global Positioning System (GPS) has encouraged many to rely heavily on the technology. However, satellite-based navigation is inherently vulnerable, and the need for positioning back-up in critical situations shouldn't be underestimated. *Dr Andy Norris* looks at the future of positioning

Knowledge that the accuracy and availability of satellite based positioning systems can be compromised by solar radiation, interference, jamming, ionospheric anomalies and many other effects has been known ever since the early days of GPS and GLONASS, back in the 1980s.

Consequently, training for professional navigators and guidelines for casual users highlight the problems of over-reliance on GNSS and the strategies that should be employed to always maintain safe navigation. This is true in all sectors, not just maritime.

The lack of significant incidents attributable to these weaknesses, at least to date, perhaps contributes to a low political interest in establishing a technology based solution that will remove the need for constant user diligence.

In any case, getting agreement on a globally common system is probably not achievable. The ideal backup heavily depends on the specific application, the required minimum accuracy and also on local factors, such as the general topology of the area in which it is to be used.

This is unfortunate for the maritime world because a good technological solution that would generally meet its global requirements is embedded within enhanced low frequency (LF) hyperbolic positioning systems, such as eLoran.

LF hyperbolic systems

The major advantage of LF is the long distances that can be achieved from a base transmitter. This means that relatively few ground stations are required – but unfortunately hugely more than the few tens of satellites required to give global GNSS coverage.

Appropriately enhanced, it can give an accuracy of 10 metres in critical areas such as port approaches, around 20-100 metres in non-enhanced coastal areas and generally about 1 NM mid-ocean. All this can be achieved from land-based stations.

Such a performance is very matched to the practical requirements for a maritime positional back-up system.

However, its base stations require relatively expensive high powered transmitters and extremely tall radio masts. Although their spacing could be approaching 1,000 kilometres, it would require much international cooperation to get even a regional service underway.

Very importantly, the optimum positioning of transmitting masts may be entirely unacceptable to close-by residents for visual reasons and the fear of high powered electromagnetic radiation, both politically sensitive issues.

Where 10 metres accuracy is required, additional differential stations are needed, although their cost and environmental impact is significantly less than that of a base station.

Nevertheless, LF systems are also potentially appealing to many other navigational sectors because of two particular characteristics. The first is that high accuracy timing is a built-in feature, enabling them to truly meet the requirements of a position, navigation and timing (PNT) system.

Secondly, the low frequencies used have quite different strengths and weaknesses to the microwave transmissions of GNSS – in particular they are ground hugging and can also penetrate buildings, both aspects making LF systems an attractive option for many land-based requirements.

Unfortunately, despite the apparent advantages of an LF hyperbolic system,

The aerial array at Anthorn, UK, site of the country's first eLoran transmitter. Photo © Phil Williams

especially for maritime use, it is unlikely that there will ever be international support for its introduction – it does not solve the issues for all sectors, the infrastructure is relatively expensive and there are perceived environmental issues.

Alternative systems

The difficulties of getting international acceptance of an LF hyperbolic system into the maritime world is accelerating the exploration of other potential solutions.

In particular, these include the use of automatic radar-based positioning systems and also automatic fixing on 'signals of opportunity', such as existing radio, TV and telecommunications transmissions.

It will be interesting to see if these studies lead to viable alternatives, although there do appear to be significant practical drawbacks when compared to an LF hyperbolic system.

Particularly in the military field, there is an increasing interest in the possible use of high accuracy lightweight inertial sensors. They are perhaps poised to provide an optimum answer if they can be shown to give affordable accuracy.

For example, the US Defense Advanced Research Projects Agency announced in April that they were studying the possibility of using micro-sized 'atomic' inertial orientation sensors to work in conjunction with existing inertial chips, specifically as a backup to GPS.

Inertial systems are not reliant on any outside communications, making them impervious to jamming and interference. Also, apart from physical damage, they appear to be very resistant to all naturally occurring and human initiated effects.

Unfortunately, it is likely to be many years before these can be made viable and available to the commercial marine market.

In fact, the timescales to get any serious positional backup in place are really quite long, when taking into account technical issues and the necessary international processes.

It would therefore not be at all surprising to find in 10 years time that most ships do not have a second positional source, other than a multiple GNSS capability.

What is more likely within these timescales is that many ships would have an integrated navigation system (INS) fitted as part of the initial implementation of IMO's e-Navigation programme. It is this technology that may provide the pragmatic solution for the immediate future.

E-Navigation INS

In some minds, INS is mainly a system that can show various optimally designed displays to suit the immediate navigational situation, but a main purpose is to provide integrity information concerning essential navigational data, such as position, speed, course, heading and even depth.

This particular function of an INS effectively compares the inputs from all the vessel's navigational sensors, including log and gyro, and highlights any discrepancies to the navigator.

It can accept inputs from any navigational sensor, including from future positional systems such as those previously mentioned.

Importantly, it would immediately improve the integrity and functionality of today's basic navigational fit, without needing additional positional sensors.

A significant GNSS inaccuracy would be automatically highlighted to the user by such a system, although it is true that a more slowly evolving positional error could remain undetected.

In fact, using today's technology and understanding it is not particularly difficult for GNSS receivers to be designed to recognise many of the situations that cause positional problems, and to automatically alert the user – and the INS – to any possible problem.

Perhaps the fitting of such intelligent GNSS receivers should also become a shorter term objective of the legislators.

If GNSS becomes unavailable or very inaccurate, the system would be able to help the navigator maintain safe navigation but it would require regular radar and optical LOPs to be manually or semi-automatically input into the INS.

This is where a second positional source would certainly help matters. It would also assist the INS to quickly identify discrepancies in position, although the human navigator may still need to asses which positional source was in error.

The navigator's role

With the increased use of ECDIS there is a fear that many navigators will accept the ship's indicated position on the chart without questioning its veracity.

Ironically, acceptance of this position will be an increasingly correct assumption when multi-system GNSS receivers in a redundant configuration are in common use on vessels.

This inevitable tendency can be countered by an appropriately designed INS operating in conjunction with an intelligent GNSS, which would generally be able to automatically alert an unaware navigator to a potential problem.

The INS would subsequently considerably help the OOW with the safe navigation of the vessel, using automatic estimated position techniques, assisted by user-provided visual and radar LOPS.

The OOW will have to remain a 'navigating' navigator and not a 'monitoring' navigator, at least until there are two back-up sources to GNSS available that cover the whole route – which is a long way into the future.

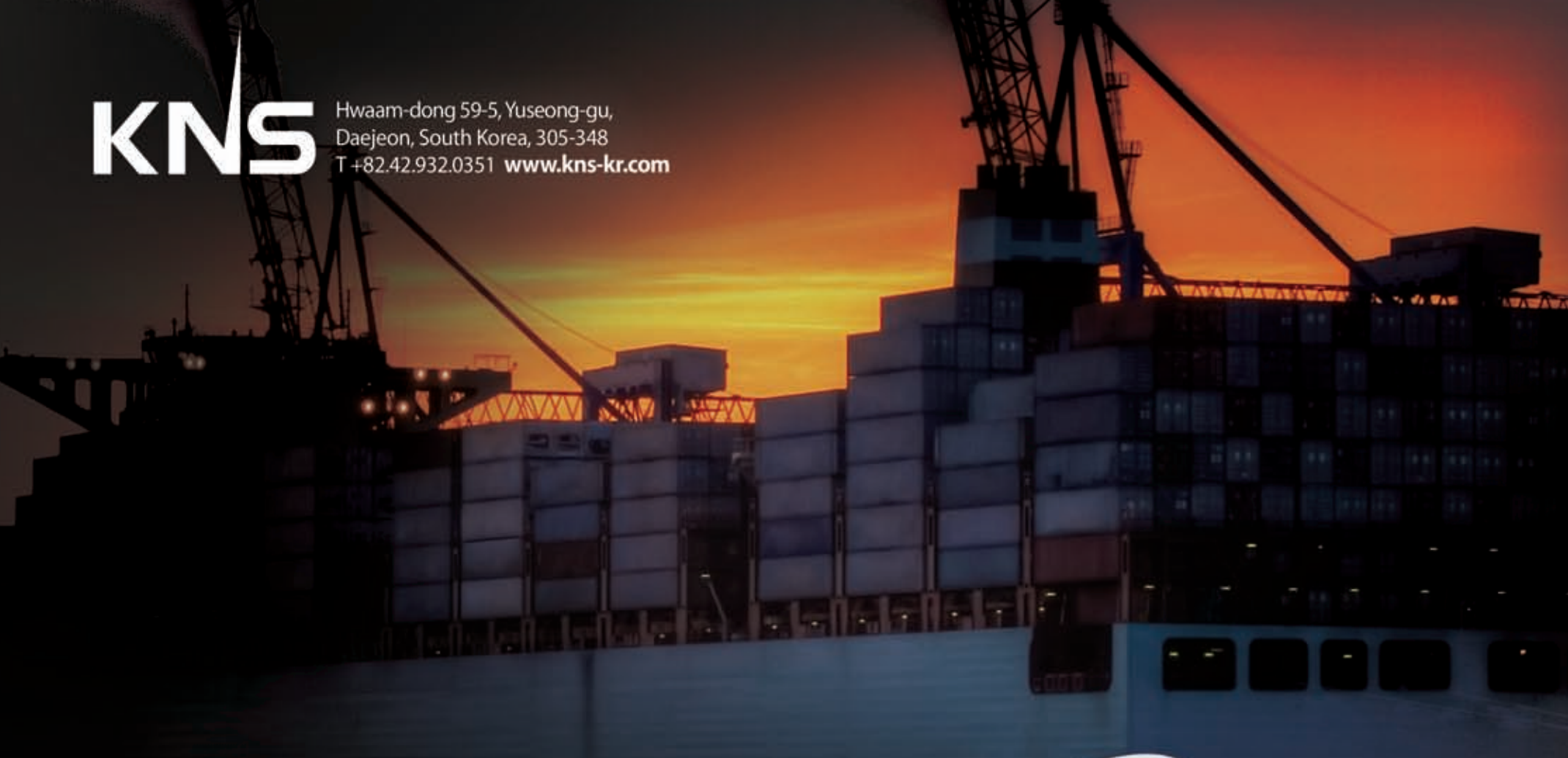
An INS, supplemented by intelligent multi-system GNSS receivers, certainly appears to be a viable route for the more immediate future. Its implementation is technically and politically straightforward and it appears to be generally future proof.

When alternatives to GNSS position eventually become available, the INS will be better able to determine whether there is a positional problem and then continue to provide a useable position to the navigator and the ship's systems.

Conversely, a strategy based on initially achieving a backup system to GNSS appears to have insurmountable problems, at least for the foreseeable future. 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
Hwaam-dong 59-5, Yuseong-gu,
Daejeon, South Korea, 305-348
T +82.42.932.0351 **www.kns-kr.com**



Z7 Antenna
Ku-Band : 75cm

Z15 Antenna
Ku-Band : 150cm

One Performance Two New Standards

With its distinctive algorithm, KNS has created the most reliable, accurate and top-performance of all automatic satellite search and track VSAT- entirely produced in its own workshops. Once a maritime antenna this extraordinary has raised your standards, it has raised them forever. To learn more about the Z-Series, call us at **+82-42-932-0351** or visit us at **www.kns-kr.com**

CommunicAsia2012

**** See us at Communicasia 2012 at booth #1U3-07***

www.intelliantech.com

TRUST AN ANTENNA DESIGNED TO A HIGHER STANDARD.

In designing our new VSAT antennas,
Intellian engineers started with a clean sheet of paper.
Components and systems were analyzed and refined.
Intense vibration, shock and stress simulations eliminated potential weak spots.
Rigorous quality controls were put in place during manufacture.
All done so you get sea-worthy – and trustworthy – performance right out of the box.

When you're choosing an antenna for your VSAT system, specify Intellian.

Get a higher standard of performance by design.

Intellian®

VSAT Performance by Design

Posidonia Ποσειδώνια
The International Shipping Exhibition
4-8 June 2012

Visit Intellian at Stand 4.232

Global Offices Seoul • Innovation Center • Busan • Irvine • Seattle • Rotterdam
APAC +82.2.511.2244 **Americas** 888.201.9223 **EMEA** +31.1.0820.8655