

Digital Ship

August 2011

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Battle begins on flat-fee broadband

Within weeks of Inmarsat launching a new flat-fee combined VSAT and FleetBroadband package, exclusively available through its subsidiaries Stratos and Ship Equip, its second biggest distribution partner Vizada has launched alternative packages of its own – creating strong competition which could help to drive down the price of maritime broadband

The market landscape for maritime broadband services is set for an upheaval, with some of the biggest names in the industry set to go head-to-head with the launch of a range of new flat-fee high-speed hybrid services offering global coverage and fixed monthly prices.

In an extraordinary month of developments both Inmarsat and Vizada, in conjunction with their subsidiaries Stratos and Ship Equip (owned by Inmarsat) and Marlink (part of Vizada), have introduced 'all you can eat' packages of both Ku-band VSAT and L-band connectivity that will include the cost of L-band

coverage in a flat monthly fee.

Ku-band VSAT will be the primary carrier under these deals, with L-band services reverted to when the ship is out of Ku-band coverage or connectivity is not available for any other reason. The monthly fee for both services will come in at under \$3,000.

While the introduction of these products incorporating an L-band communications aspect within the monthly fee is, in itself, an interesting development, perhaps even more intriguing are the potential implications for the current Inmarsat Distribution Partner channel.

Speculation on imminent changes to this model, with current Distribution Partner contracts up for review in 2014, will most likely intensify after the events of the last few weeks, starting with Inmarsat's launch of a new product only available through what it has called its "direct distribution channel."

Inmarsat offering

The introduction of Inmarsat's new service was announced at the end of June, a combined FleetBroadband 500

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Inmarsat's new flat-fee Ku-band/FleetBroadband service is being offered as the first stage in an upgrade path to its Ka-band Global Xpress network

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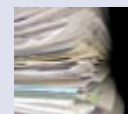
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and Ku-band VSAT service for a flat fee of \$2,999 per month.

The rationale behind this new service was to create a distinct upgrade path to draw in customers to Inmarsat's upcoming Global Xpress (GX) VSAT service, with the new package including the promise of a free upgrade to the Ka-band service when it becomes available in 2013.

This Ku-band/FleetBroadband package, which will be commercially available in 2012, will initially be available through Inmarsat subsidiaries Ship Equip and Stratos at the time of the launch, the aforementioned "direct distribution channel", though the company says this will be extended over time to include all Global Xpress-appointed distributors when those partners are finally named.

Stratos has confirmed that the service will be offered under the brand name XpressLink, and will incorporate a range of its own value added services.

The deal requires a five-year contract, and will include Ku-band hardware from Sea Tel that has been approved by Inmarsat as upgradable to Ka-band under a leasing agreement as part of the monthly fee.

As it currently stands today Sea Tel are the only Inmarsat-appointed Ku-band manufacturer that will provide an upgrade path, using a 1 metre dish, which will require the replacement of a number of parts inside the unit, but not the whole dome.

This antenna is expected to be available and in full production from March of next year.

This agreed upgrade to Ka-band must take place within the five year duration of the contract, which will then be replaced by a new GX contract – currently anticipated to be an additional three year commitment.

As such the total commitment required could range from something like five years, where a contract in 2012 is followed by an upgrade to Ka-band in 2014 that lasts for three years to 2017, up to eight years, where the ship uses Ku-band/FleetBroadband for the full five years and then moves to a three year GX agreement.

FleetBroadband 500 hardware will also be required, though Inmarsat says that the vessel operator will need to provide this themselves.

The bandwidth speed on offer will be 512 kbps both to and from the ship, with a committed information rate (CIR) of 128kbps. When the upgrade to Ka-band is completed the bandwidth available under the package will double to 1 Mbps both to and from the ship, with a CIR of 256 kbps.

A switching system between the VSAT and FleetBroadband is included in the package, which Inmarsat says will be provided by Ship Equip and Stratos using their existing technologies.

Target market

This new service is being aimed at what Inmarsat sees as the 'higher end' of the market in terms of bandwidth usage, people who are prepared to pay the prices required for this kind of throughput, according to Frank Coles, senior director in the Global Xpress programme.

"Anybody who's a potential VSAT cus-

tomers today will be much more inclined to look at a package, because anybody today who looks at VSAT still has the added cost of FleetBroadband, or any other service, (as a back-up) when their VSAT service is down," he told us.

"We've just added that and provided a better solution."

Mr Coles notes that the service will be providing 'unlimited' traffic while the ship is connected to the VSAT service, though restrictions will apply when the FleetBroadband is in operation.

"There is no FAP (fair access policy) under that speed (the CIR of 128 kbps), other than when you fall back onto FleetBroadband. It will only go over to FleetBroadband if and when the Ku-band is not available," he said.



'Anybody who's a potential VSAT customer today will be much more inclined to look at a package' – Frank Coles, Inmarsat

"(Traffic on the FleetBroadband) is not expected to be huge because we will have a service (on Ku-band) that is quite global. The actual specifics are being dealt with by Ship Equip and Stratos, but there will be some limitations."

When asked about how other Inmarsat Distribution Partners besides Stratos might react to the announcement of a service that is initially set to be available through just one of their competitors, Mr Coles noted that he has already been in discussions with a number of DPs about how they might apply this new service themselves.

"It's a question of whether they'd like to use their own current Ku-band service before the upgrade to Ka-band, whether they would like to use the Ship Equip network, and how many units they would be prepared to bring over to Ka-band, if they would like to use this new service," said Mr Coles.

"It doesn't have to be the Ship Equip network for the current service, but there will be a requirement that those ships convert to Global Xpress. They are also required to use the upgradeable Ku-band antenna, so it has to be the Sea Tel 1 metre upgradeable Ku-band antenna. But it can be another Ku-band provider on the Ku-band airtime."

"In terms of distribution it's very early days, we'll be beginning discussions with all of the current DPs as and when they are ready to come and talk to us, and as we refine the terms and conditions."

Competitors up the ante

While Inmarsat may be hopeful that other Distribution Partners will join its largest distributor Stratos in offering this service, its second largest distributor, Vizada, has taken an alternative direction and launched its own flat-fee hybrid VSAT / L-band service, just weeks after Inmarsat's announcement.

Vizada's offering is similar to Inmarsat's in the sense that Ku-band and L-band airtime are both included in a fixed monthly fee, but also features a number of significant differences which could make competition between the two new services particularly intense.

The top-end package from Vizada will offer higher bandwidth speeds than those being touted by Inmarsat, with 1024 kbps on the Ku-band compared with 512 kbps on the Inmarsat package, and at a lower price of \$2,750 rather than \$2,999.

On this 1024 kbps service Vizada says that a 'fair use' policy will be applied, though without any cap on the number of gigabytes transferred, in contrast with Inmarsat's promise not to have a fair access policy on its service.

A reduced bandwidth plan of 256/128 kbps, for \$2,500, is also available from Vizada, again including L-band airtime in the fee.

The amount of inclusive L-band traffic available under the Vizada deal will vary according to the package selected, with 5, 25, 50, 75, or 126 MB options available.

These allowances may also be pooled among ships in a fleet, and that traffic can be further compressed and filtered using Vizada's XChange network management tool to extend the relative transfer amounts allowed by that allocation.

Inmarsat and Stratos have not, as of yet, indicated what kind of similar restrictions in total amount of L-band satellite traffic will apply to the XpressLink service.

However, with this in mind Vizada believes that, given the current coverage area of its Pharostar VSAT service, which will be bolstered by further coverage extensions in 2011 and 2012, there will be "very few vessels not just in-transit in those small spots" and that they should not require "more than 50 to 100 MB of traffic to manage vessel operations and provide messaging to crew."

The L-band airtime available can also come from a wider range of systems in the case of the Vizada product, with Iridium OpenPort available as the back-up solution in place of FleetBroadband (either 250 or 500) if the customer requires. Unlike Inmarsat's offering the lease of this L-band terminal will be included in the monthly fee.

Further flexibility is added in the form of antenna choice – vessels that sign up for Vizada's service may choose from a VSAT antenna from Thrane & Thrane, Intellian or Sea Tel.

The final major difference is in contract terms. Vizada says it will make these products available with commitments of 12, 36 or 60 months, and including vessel lay-up



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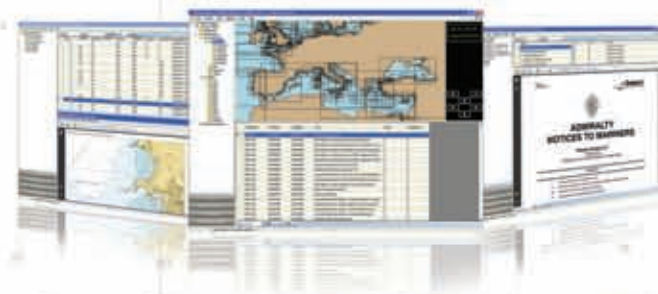
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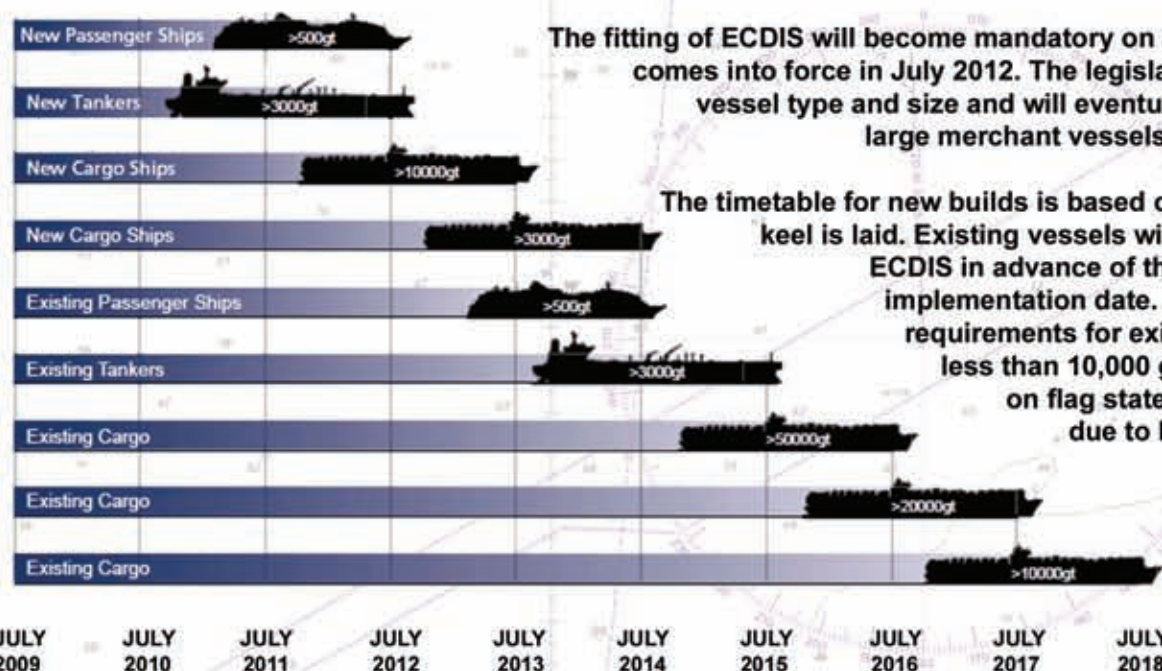


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ECDIS Mandation Timeline



The fitting of ECDIS will become mandatory on a rolling timetable that comes into force in July 2012. The legislation will be phased by vessel type and size and will eventually apply to almost all large merchant vessels and passenger ships.

The timetable for new builds is based on the date the vessels keel is laid. Existing vessels will be required to install ECDIS in advance of the first survey after the implementation date. There are currently no requirements for existing cargo vessels of less than 10,000 gross tons. Depending on flag state requirements vessels due to be taken out of service within 2 years of the implementation date maybe exempt.

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and bandwidth upgrade options. These packages are available now, again different to the Inmarsat service that will be commercially available next year.

In that sense this new product, although it is not being sold as such, could also be used as a 'Global Xpress upgrade' link anyway, as the user is free to choose a contract that would expire around the time that GX comes into service, and would be able to use a Sea Tel Ku-band antenna that is upgradeable to Ka-band.

However, if that customer was to remain with Vizada such a scenario would also require Vizada to be appointed as a distributor for the Global Xpress service, with Inmarsat as yet uncommitted to a distribution channel arrangement for the Ka-band service.

Coincidence

Though the timing of this announcement by Vizada may suggest that the new product has been introduced as a competitive response to Inmarsat's offering, which for now is only certain to be available from probably its biggest competitor, Stratos, Vizada claims that such a move was in development prior to Inmarsat's June 29th launch.



"Vizada does not want to force a lock-in across two services, when we know the market needs and dynamics in five to eight years will be totally different"
– Jeff Irwin, Vizada

In fact, the company says that the service is an extension of the signing of a strategic partnership with antenna manufacturer Thrane & Thane, announced on June 14th (see page 10), with the intention of offering Thrane's SAILOR 900 VSAT and SAILOR FleetBroadband terminals as part of a single package – though inclusive L-band airtime was not mentioned at that time as being part of any flat monthly fee.

Nevertheless, Jeff Irwin, product director at Vizada, says that he welcomes this move from Inmarsat as an endorsement of the type of service his company is looking to provide.

"Vizada views the announcement from

Inmarsat positively, in the sense that it creates more awareness in the maritime community of the broadband options available, and specifically the capability and power of VSAT to address the needs of data-demanding clients," he told us.

"It also validates Vizada's approach of combining both VSAT and MSS for the benefit of the end-user, rather than opposing it."

However, Vizada believes that the differences in the two competing offers, particularly in areas like price and length of commitment, may prove key in attracting companies to its offering rather than its competitor.

"Price is important, but we believe that value for money – high quality service, on-board experience and flexibility – matters the most to shipping companies," said Mr Irwin.

"The flexible terms of Vizada's offer, from 12, 36 and 60 months, allow shipping companies to best assess their communications needs and look at all of the options in the market, Ku- or Ka-, in the future."

"Maritime broadband is changing, and Vizada intends to guarantee our customers have choice among the newest services from Vizada as they become available. Vizada does not want to force a lock-in across two services, when we know the market needs and dynamics in five to eight years will be totally different from what they are today."

Mr Irwin notes that Vizada is still, however, very interested in being part of the channel for Inmarsat's Global Xpress service when it is launched, and is speaking with the company in this regard, though it is also exploring the possibility of adding Ka-band services from other providers.

"Inmarsat selecting pre-launch partners is not new (as with BGAN and FleetBroadband), and then to extend it to a wider range of distribution partners. We are thus confident that Inmarsat will open this proposition to its distribution network on GX, when further elements of the offer will be ready and available," he said.

"We will discuss this with Inmarsat, as well as with the other satellite operators who have plans to launch extended Ku-coverage or regional Ka-coverage, like the new Telenor Ka- service (see page 10), and others. As we do today, upgrade path options will be offered to our customers as their contracts near the end of their terms."

Competing partners

The timing of these product releases, and particularly the current 'exclusive' nature of Inmarsat's announcement of availability of its service through its own subsidiaries, is sure to fuel the speculation that has arisen in recent months over the long-term consequences for the Inmarsat Distribution Partner (DP) model.

In 2011 Inmarsat has signalled a significant shift in the way that it is approaching the end user in the maritime market, having already announced a recommended retail price of \$0.55 per minute on FleetBroadband voice calling at the Digital Ship Cyprus conference, before unveiling this latest product and its \$2,999 price tag.

In previous years Inmarsat had consistently refused to comment on pricing for

its services, instead maintaining its position as a wholesaler and referring all queries relating to end user costs in the market to its network of various Distribution Partners – chief among them Stratos and Vizada, which are together responsible for more than three quarters of Inmarsat's maritime revenues.

The change in policy this year whereby the company has sought to deliver its message on pricing direct to the end user has been seen by some as an indication that Inmarsat is preparing to move away from the partner model, in one form or another, and may begin to position itself as a direct distributor of its services.

Such a move would be supported by the fact that two of Inmarsat's major acquisitions of recent years, Stratos and Ship Equip, both have their own existing distribution networks in place. Coupled with this is the fact that the current contracts covering the DP agreements will end, in their current form at least, in 2014 – as Global Xpress becomes commercially available.

Of course, despite all of this there are still a number of obstacles to Inmarsat completely changing its distribution and moving away from the proven network of partners that has been so successful for the company in the past. Relationships that exist between those DPs and their shipping company customers may not be so easy to replicate.

Any decision to make a drastic change in the satcom distribution channel will undoubtedly have far reaching consequences for all of those working in the sector. With Inmarsat happy to decline to comment on any such speculation for the time being, it remains very much a case of 'watch this space'.

Global Xpress

However the market reacts to these two new offerings, and the growing competition in the sector, Inmarsat's product launch has at least provided some new clues as to how its Ka-band Global Xpress offering is starting to shape up.

Inmarsat's Mr Coles has confirmed that, as expected, GX will be "a flat-fee service, based on speed, throughput and capabilities", and that it will be offered in the form of packages using the two constellations of L-band and Ka-band satellites where Inmarsat will have global coverage.

The upgradeable Ku-band antenna from Sea Tel slated for introduction next year will also be joined by another smaller, purely Ka-band version which is expected to be available at the time of the GX launch in 2013.

"We expect to be testing the first 60cm antenna, in beta, towards the end of this year," said Mr Cole.

"I've seen three test units working, but they won't be needed until the (GX) product is launched."

"(Compared to most Ku-band antennas) it will be easier to place, less weight restrictive and less form-factor restrictive on the monkey island of a ship, absolutely."

Mr Coles also points out that the upgrade path offered with the new Ku-band / FleetBroadband package, with bandwidth doubling to 1 Mbps when

switching to Ka-band, merely reflects an entry-level speed, and that faster packages will be available depending on what the customer is willing to pay for.

"(This upgrade package) is very much at the lower end of what Global Xpress is capable of, but I believe more than adequate for what shipowners will want to start with," he said.

"Just because we're launching a Ka-band service it doesn't mean we're going to give it away. You'll be able to buy a 5 Mbps package or a 10 Mbps package and increase your throughput, but that will obviously cost significantly more than \$2,999. It'll just be a matter of buying an upgrade (if you want to increase the bandwidth speed)."

"This is already significantly faster than what people get today when they pay for VSAT. There will be additional steps up the ladder, for fixed prices, up to any speed within the limits of the Ka-band service that the customer is willing to pay for."

Of course, these speeds will only be possible if a reliable connection can be maintained with the satellite, and the susceptibility of antennas operating on the Ka-band frequency to disruption in heavy weather, or 'rain fade' as it's known, is an issue that Inmarsat has been repeatedly questioned about since announcing the GX service.

To this end, Mr Coles notes that the company has been working hard to introduce a variety of technical innovations that will help the GX system to cope with the harsh conditions that can be expected when operating at sea.

"We're taking all sorts of steps (to deal with these issues), L-band is there as one help, but we'll also have redundant sites on land, we'll have adaptive coding and modulation to take care of any atmospheric interference," he told us.

"Rain fade is only one of the issues that can exist in a VSAT service – there can be blockages or other technical issues. But I must emphasise that they exist today in any Ku-band services as well."

"From the network point of view we expect somewhere in the region of 99.6 per cent uptime on Ka-band. Rain doesn't stop the service. Heavy rain may slow it down, but you would only lose a connection in extreme circumstances. But we expect at least as good a service, if not better, than current Ku-band services."

Confident in his predictions on the technology, Mr Coles sees the GX service as the next big advance in maritime communications, and a significant step towards bringing terrestrial levels of bandwidth to ships at sea.

"The whole point of GX and Ka-band is that we're going to provide a game changing speed, so that broadband is going to be what it really was designed to be, and what the shipowner really expects it to be," he said.

"If you don't want to pay for that you can get a FleetBroadband 500, which is more than adequate and faster than most VSAT services which are put on ships today. But VSAT with Ka-band, as we're going to bring it to the market, will be a speedy service at the top end, where you can browse at proper speeds at a reasonable price."

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Iridium agrees launch contract

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Iridium has announced the agreement of a new launch contract with International Space Company (ISC) Kosmotras, which will act as a supplemental provider of launch services for Iridium NEXT.

ISC Kosmotras will provide Dnepr launch services for the Iridium NEXT programme in 2015 and beyond, allowing Iridium to launch its satellites on both Kosmotras Dnepr and SpaceX Falcon 9 rockets.

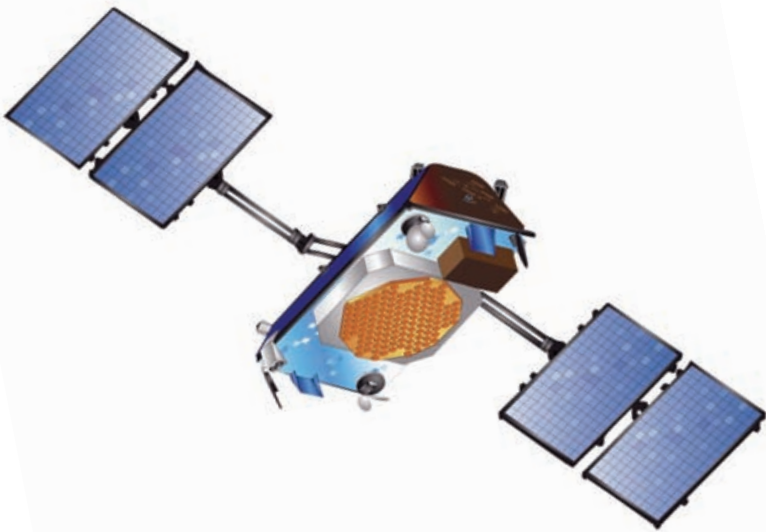
Iridium NEXT will replace the company's current constellation with 66 operational communication satellites, and will also include six in-orbit spares and

nine ground spares.

Launches are scheduled to begin in early 2015 and continue through 2017.

"ISC Kosmotras is a well-established company with an excellent record as a reliable launch services provider, and the Dnepr rocket is a proven and robust launch vehicle with more than 15 orbital flights and 55 payloads deployed," said Scott Smith, executive vice president, satellite development and operations, Iridium.

"ISC Kosmotras joins Iridium's world-class community of partner companies that are well underway with designing and developing our next-generation, truly global network."



ISC Kosmotras will join SpaceX in providing launch services to carry Iridium's NEXT satellites into orbit from 2015

KVH launches E-Learning Center and ships 1,500th TracPhone system

www.kvh.com

KVH has announced the shipment of its 1,500th TracPhone system, which operates on the company's mini-VSAT broadband network, while also launching a new E-Learning Center for marine technicians who install and service KVH products at dealerships and distributorships around the globe.

KVH notes that it has reached the 1,500 milestone in less than four years since the launch of its mini-VSAT service.

"The tremendously positive response from commercial and leisure mariners is driving the rapid, accelerating acceptance of mini-VSAT Broadband," says Martin Kits van Heyningen, KVH's chief executive officer.

"It took approximately two years from the service launch to reach 500 TracPhone systems shipped, then just over a year to reach 1,000 units, and now only nine months to hit the 1,500 unit mark. The result is a clear message from vessel owners and operators worldwide that mini-VSAT Broadband is now the leading maritime VSAT solution in virtually every maritime market sector."

The company's satcom services are also set to receive a boost with coverage for the last remaining region in the company's network plan – South America – under contract and live as of the end of July 2011 using the IS-14 satellite.

The company claims that the new coverage region makes KVH's mini-VSAT broadband service the largest marine Ku-band network globally.

"The addition of South American coverage completes our global Ku-band mini-VSAT Broadband network, the groundbreaking satellite communication solution that brings reliable, affordable satellite communications to our customers via our TracPhone V-series antennas," says Brent Bruun, KVH's senior vice president for sales and business development.

"With the new satellite capacity on IS-14 servicing South America, mini-VSAT

Broadband seamlessly links 14 transponders on 10 satellites to provide service around the globe."

"As a result, our worldwide network provides a unique coverage model, including more expansive satellite coverage in the Indian Ocean Region than competing Ku-band VSAT services along with redundant coverage from multiple satellites in most regions."

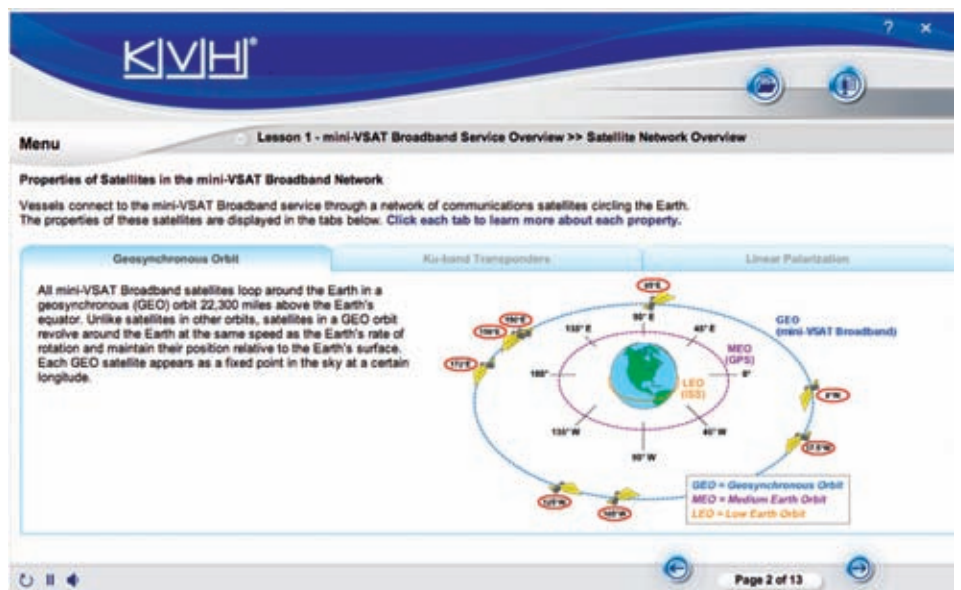
Aside from these satcom service developments KVH has also launched a new E-Learning Center, to provide interactive training programmes for various KVH products and services and make certification available to members of KVH's global support network.

The KVH programme so far comprises a complete training course for the TracPhone V7 and mini-VSAT Broadband service. In addition, courses on KVH's other TracPhone satellite communications and TracVision satellite entertainment systems will be offered and 'mini-courses' will be added for new products.

The courses are structured into modules that can each be completed in less than an hour and the progress through the course is tracked. This way a technician can resume the course whenever it is convenient. Upon completion, technicians take the certification exam online, which leads to Certified Service Provider status, KVH's technical support certification.

"The KVH E-Learning Center makes training available to any technician to complete on their own schedule. We're excited to provide this resource to the experts who install and service KVH products, and we believe that KVH customers will reap the benefits of a growing and constantly updated certified support network," says Jeff Greer, KVH vice president of operations.

"This robust new tool will help KVH's global service and support network expand to support the growing demand for our maritime satellite communications and entertainment systems and services."



KVH's E-Learning Center will be used to train service technicians around the globe



Rupert Pearce, Inmarsat's incoming CEO

Rupert Pearce has been named as the next chief executive officer of **Inmarsat**, replacing Andrew Sukawaty on 1 January 2012, with Mr Sukawaty becoming the company's executive chairman. Mr Pearce, currently senior vice president of Inmarsat Enterprises and Inmarsat's group general counsel, has also now joined the Inmarsat board as an executive director.

Ships Electronic Services (SES) has been appointed as the sole UK and offshore maritime distributor for **Clear-Com**, a provider of voice communication systems. While Clear-Com operates in other commercial markets, SES will focus exclusively on the commercial shipping sector as well as the oil and gas market.

Thuraya has opened a new regional office in Singapore, and appointed Bilal Hamoui as regional director for Asia. The

Thuraya 3 satellite provides coverage in the region, and the company hopes to expand its customer base using these services.

David Kagan has joined **Globe Wireless** as president, moving from **SpaceNet**, where he was senior vice president of business development. Prior to his work at SpaceNet, he spent 11 years as president and CEO of **Maritime Telecommunications Network (MTN)**. Mr Kagan will work alongside Ken Jones, chairman of Globe Wireless, in running the company.



Dave Kagan, new president at Globe Wireless

www.inmarsat.com
www.ses-marine.com
www.clearcom.com
www.globewireless.com
www.thuraya.com

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“ We estimate that mini-VSAT Broadband is saving us as much as 50% compared to our previous SATCOM solution! With the TracPhone V7, we can send much larger files and even provide Internet access for our crew, all while significantly reducing costs! ”

- Mr. Karstein Rasmussen,
General Manager, Storm Offshore AS

Read the Storm Offshore case study: **kvh.com/so**



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Thrane partners SpeedCast on broadband package

www.thrane.com
www.speedcast.com

Thrane & Thrane and Hong Kong based SpeedCast have announced the upcoming launch of the SAILOR 900 VSAT antenna system on SpeedCast's Global Maritime Broadband Network.

The companies have agreed to enter

into a partnership to provide a broadband package comprised of the SAILOR 900 VSAT and SpeedCast's network connectivity and value-added services.

Thrane and SpeedCast are further planning to cooperate on the distribution channel side to promote the marketing, distribution, delivery and support of the package.

"SAILOR 900 VSAT is an important milestone in our strategy to support the maritime broadband market with high quality products and the SAILOR 900 VSAT perfectly complements our hugely successful, market-leading SAILOR FleetBroadband portfolio," says Casper Jensen, vice-president maritime business unit, Thrane & Thrane.

Orange and Consilium cooperation

www.orange-business.com
www.consilium.se

Consilium Marine Group, a Sweden-based supplier of marine products and services, and Orange Business Services have announced the signing of a cooperation agreement.

According to the agreement, Consilium will market Orange VSAT communication solutions specially developed for marine communications through its 34 offices in 19 countries.

The collaboration is hoped to combine Orange's satellite and maritime experience with Consilium's expertise in safety and navigation solutions.

The partners note that Consilium products and systems will be able to be managed from shore with the service.

"We look forward to progressing this cooperation agreement, and it will also allow us to develop our systems to their full extent for compliance with the industry's never-ending enhancement of safety requirements," says Ove

Hansson, president, Consilium.

"Improved communication for verbal and written conversation and remote

diagnostics are only a few features enabling this and that can be made possible by this collaboration."



Vessels using Orange VSAT will now be able to manage Consilium navigation equipment from shore

STM launches Global-IP

www.stmi.com

STM, a provider of IP based satellite network systems under the Satlink brand, has announced the consolidation and branding of its broadband services under the name of Global-IP, including STM's service operations in Spain, Brazil, and Indonesia, as well as five teleports.

The company's IP based services provide broadband connectivity for public and private network applications involving multimedia, voice, and data traffic.

"With a heritage in technology and satellite IP networking, we have the demonstrated ability to customize our service offerings to meet the demanding needs of our customers in every sector," says Jesus Barber, general manager for Global-IP in Spain.

"This attention to varying customer needs and focus on high service quality has allowed us to rapidly gain market share and expand our product portfolio in different regions."

Setel partners Cisco to develop Smartbox

www.setel-group.com
www.cisco.com

Setel Hellas has announced the signing of an agreement with Cisco Hellas to mutually develop a solution called SmartBox-V, with the aim of optimising ship-to-shore communications for the maritime industry.

The solution merges Setel's SmartBox and Cisco's Integrated Services Router into one package, to combine Cisco's architectural approach and Setel's maritime experience.

The first prototype of SmartBox-V is expected to be ready for testing by August 2011 and the companies hope to implement the pilot onboard a deep sea commercial vessel in September 2011.

Upon successful implementation, the solution will be certified through the Cisco Technology Development Program and made globally available under Cisco's partner organisation umbrella.

Smart Link plans affordable satellite phone rates

www.smart.com.ph

As reported by Gulf News, Smart Link of Smart Communications is planning to enable Filipino seafarers to use mobile phones for calls and text messages, while sailing the seas of Asia-Pacific, the Indian Ocean, the Middle

East, Africa, some parts of Europe and the Mediterranean.

Smart Link uses THISS 60cm C-band marine satellite VSAT technology to run the GSM service.

Gulf News quotes Tina Mariano, head of Smart global access group, who says: "Now, we're empowering seafarers to

use regular GSM phones as if they never left land."

The company notes that Filipinos are some of the world's biggest users of mobile phones. It has therefore decided to provide service at what it says is a more competitive rate compared to that on offer a few years ago.

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Stratos acquires Blue Ocean Wireless

www.stratosglobal.com

Stratos has announced that it has purchased most of the operational assets of Blue Ocean Wireless, a provider of shipboard GSM services that enabled crewmembers to use their personal GSM phones at sea.

As part of the acquisition, Stratos assumes responsibility for providing services to most of BOW's customers, includ-

ing many large commercial shipping companies worldwide. Since July 1, BOW customers have been receiving invoices directly from Stratos.

BOW was the first company to offer maritime GSM services to merchant shipping companies operating over Inmarsat terminals, but had struggled to generate widespread adoption in the industry despite agreeing deals with major opera-

tors such as Wallem and Bernhard Schulte Shipmanagement.

Stratos says it will continue to market and sell BOW's services to existing and new customers, under the new brand GSM Oceanwide.

"Today, more than ever, savvy shipmanagers understand that offering a wide range of communications options is critical to attracting and retaining qualified

crewmembers," said Stratos president and CEO Jim Parm.

"Each day we work with these shipmanagers to ensure they can offer advanced voice, private e-mail, and SMS services that are powerful, easy to use and available away from the bridge. Our acquisition of the BOW assets improves our ability to offer affordable GSM services to our global customer base."

OnAir service for Hapag-Lloyd

www.hl-cruises.com
www.onair.aero

Hapag-Lloyd Cruises has equipped two more vessels with OnAir's mobile phone services. MS HANSEATIC and MS BREMEN extend the number of vessels using OnAir's service to three.

OnAir's satellite service allows passengers to use their own mobile devices for calls, text messages, email and mobile data. The passengers are billed by their mobile device operator.

"MS HANSEATIC and MS BREMEN take passengers to the most remote parts of the world, including the polar regions, the Amazon, and the South Seas," says Paul Goldbeck, director IT of Hapag-Lloyd Cruises.

"We are very focused on providing

excellent service and with some cruises lasting up to a month, as we have seen from our experience with MS EUROPA, the ability to stay in touch is crucial for our passengers."

The OnAir service utilises the ships' existing satellite system. The equipment can be installed during routine maintenance stops between cruises and the technology has been designed to make it simple to increase capacity according to demand.

"We have been operating on MS EUROPA for a year now, and it is a gratifying endorsement that Hapag-Lloyd has decided to install our mobile phone services to two further ships," says Ian Dawkins, CEO of OnAir.

"We are all increasingly dependent on our phones and it shouldn't be surprising that cruise ship passengers want to keep in contact."

Imtech's crew entertainment

www.imtechmarine.com

Imtech Marine has announced the development of an Internet Protocol Television (IPTV) based crew entertainment solution for the offshore and merchant marine market. The IPTV solution offers multimedia services such as television, video, audio, text and graphics delivered over IP based networks.

The Imtech system provides seafarers with SAT TV streamers that convert satellite TV broadcasts into an IP format. It further grants access to streaming Video on Demand and Music on Demand content from the IPTV server, which can be uploaded manually or using mass import.

In addition, a subscription service

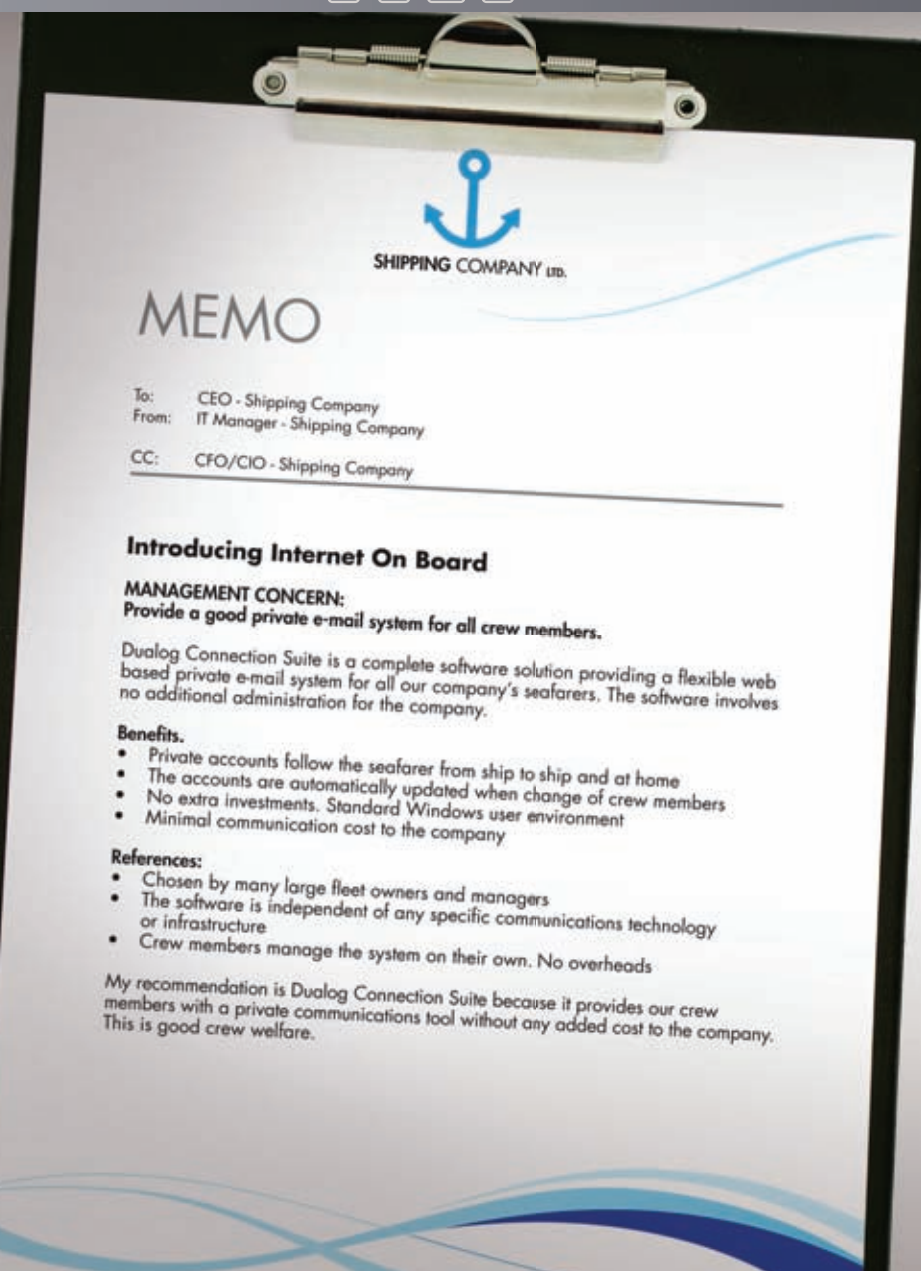
offers access to 90 movies over a period of three months.

Seafarers can access the entertainment system via remote controlled TV screens, which are connected to a Linux-powered set-top box. The set-top box can be utilised by multiple users simultaneously and crew members can store their own playlists and settings and watch television, play a movie or listen to their favourite music just as they would in their own living room.

Imtech says a user-friendly web interface controls the administration of the system, which can be integrated with Imtech Marine Connect VSAT solutions for remote access and troubleshooting. Thus, maintenance is possible even when the vessel is still at sea.

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KNS and H2O celebrate 100th installation

www.kns-kr.com
www.h2osatellite.com

Korean satcom antenna manufacturer KNS and service provider partner H2O Satellite have announced that they have completed the 100th successful installation of KNS' SuperTrack A-Series VSAT antenna using H2O's Litespeed Service.

H2OLitespeed is a VSAT solution developed specifically for the maritime market by a consortium consisting of satellite provider SES ASTRA, H2OSatellite and KNS.

The service has been bolstered by the launch of the ASTRA 3B satellite in 2010, which increased coverage across the Middle East, an area where the partners expect to see rapid expansion.

The partners note that the VSAT service is in use on a variety of ships, from coasters and ferries to fishing vessels and yachts.

"H2OLitespeed and the SuperTrack A-Series antennas are a perfect combination for communications at sea," said Kevin Jin, CEO of KNS, Inc.

"We believe (that the) H2OLitespeed service is the most cost effective and reliable solution in Europe."



The H2O Litespeed service, featuring KNS's VSAT antenna, is installed on 100 ships

Euroconsult reports MSS growth

www.euroconsult-ec.com

Euroconsult, a Paris-based international research and analyst firm specialising in satellite communications, has issued a report on mobile satellite services (MSS), including the maritime market, in which the firm foresees strong growth potential.

The report 'Mobile Satellite Communications Markets Survey, Prospects to 2020' focuses on the future of the MSS market as well as driving factors for possible growth and slowdowns.

Euroconsult's report states that a strong demand from the commercial market will boost the industry, which benefits from a significantly rising demand for low-data rate machine-to-machine (M2M) devices.

Overall, the firm predicts a growth of 13 per cent annually for the MSS market, which

it largely attributes to a continued shift from legacy voice services to data applications, in both high-speed broadband and low-speed messaging and asset tracking.

Wei Li, senior consultant at Euroconsult and principal author of the report says that "MSS wholesale revenue is expected to grow roughly 7 per cent per year over the coming decade, due to increased demand for broadband and other MSS services in a number of vertical segments and emerging regions."

Euroconsult's report further claims that VSAT solutions are increasingly popular, especially in the maritime market, limiting MSS growth.

The report also foresees an increase in competition due to Inmarsat having announced its plans to launch the Global Xpress Ka-band satellite service by 2014.

Telenor advances plans for Ka-band satellite

www.telenorsbc.com

Telenor Satellite Broadcasting (TSBc) has signed a contract with Space Systems/Loral (SSL) for the construction and delivery of its new geosynchronous (GEO) communications satellite THOR 7, which it says will provide Ka-band capacity for maritime users.

Positioned at 1°West, THOR 7 will be based on SS/L's 1300 series platform and fitted with two payloads.

With one payload of Ku-band transponders for broadcasting use, the other will be a Ka-band payload fitted with spot beams covering areas including the North Sea, Norwegian Sea, the Red Sea, the Baltic Sea, the Persian Gulf and the Mediterranean.

Telenor says that the Ka-band payload will be used to meet high bandwidth requirements from the maritime industry and will deliver high bit rates to customers.

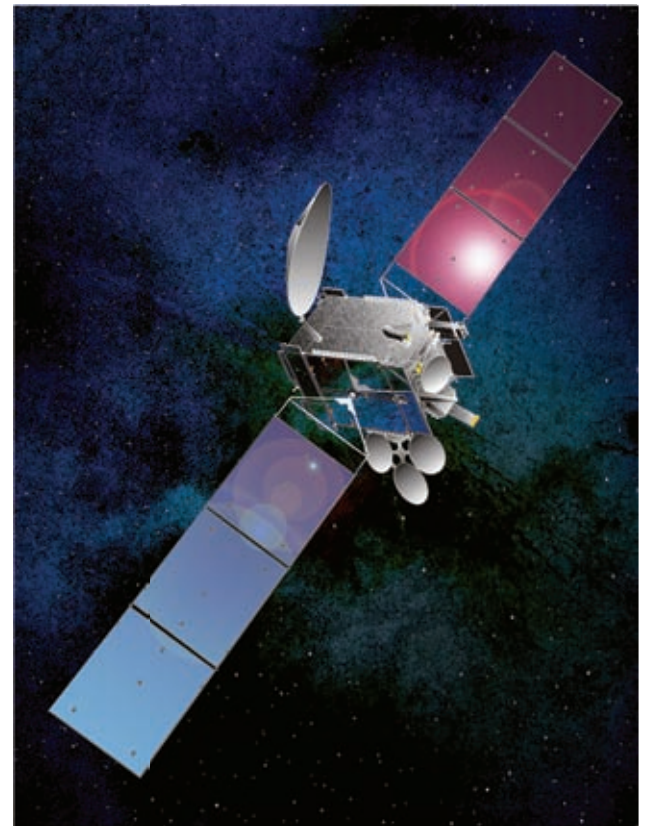
The spacecraft has a 28 month production schedule and will be built at Space Systems/Loral's manufacturing facilities based in Palo Alto, California. THOR 7 is expected to commence commercial service in Q1 2014.

In this regard TSBc has also signed a contract with Arianespace for the launch of the THOR 7 on an Ariane 5 launcher from the Guiana Space Centre in French

Guiana in 2013.

"Arianespace was chosen as the primary launch provider for our THOR 7 satellite as they have a proven track record in the delivery of excellent launch services and solutions," says Cato Halsaa, CEO of Telenor Satellite Broadcasting.

"We were extremely pleased with the number of competitive bids received from the industry and evaluated all offers thoroughly. Throughout the bid process, Arianespace consistently demonstrated a high degree of credibility derived from their vast experience and we are looking forward to working with them."



The THOR7 satellite will offer regional Ka-band to the maritime market

Globalstar's postponed satellites successfully launched

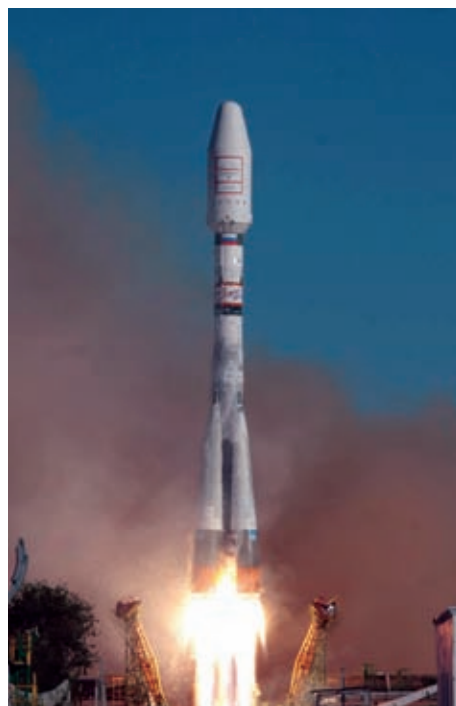
www.globalstar.com

Globalstar has announced that the launch of six new satellites for its second generation constellation has been accomplished successfully, on Wednesday, July 13th 2011.

The launch was originally scheduled for Monday, July 11th and had to be postponed due to an interruption of the count-down prior to liftoff of the Soyuz launch vehicle from the Baikonur Cosmodrome in Kazakhstan.

The flight has now been successfully completed by Arianespace via its Starsem affiliate, and is the second of four launches Arianespace will manage under its contract with Globalstar, to launch 24 satellites for Globalstar's new network.

The six Thales Alenia Space-built satellites will handle Globalstar's voice, Duplex and Simplex data products and services. The 12 other satellites comprising the constellation will be launched from Baikonur by Arianespace and Starsem during the second half of 2011.



*Globalstar launches another six satellites for its second generation network.
Photo: Arianespace*

Vizada and Thrane sign partnership

www.thrane.com
www.vizada.com

Vizada and Thrane & Thrane have signed an agreement to launch a combined hardware and software broadband package.

Shared distribution channels will be utilised to offer a maritime mobile broadband package that combines Thrane & Thrane hardware with Vizada VSAT and MSS services and solutions.

Thrane & Thrane will provide the hardware, particularly SAILOR 900 VSAT and SAILOR FleetBroadband terminals. The SAILOR 900 VSAT, a stabilized Ku-band VSAT antenna available from mid-2011, is being tested over Vizada's Pharostar global Ku-band VSAT service.

The package will further contain Vizada's Pharostar VSAT and FleetBroadband service and Vizada XChange as well as Vizada Solutions for messaging, prepaid communications and traffic control.

The package predominantly focuses on VSAT usage. However in areas where Ku-

band coverage is unavailable FleetBroadband will provide a backup. The switching over will be managed through Vizada XChange.

"SAILOR 900 VSAT is available during summer 2011 and the interest from the market so far has been very promising. We have high expectations for the product and the new maritime broadband package with Vizada in the future," says Daniel Friis, Senior Vice President Global Sales & Marketing, Thrane & Thrane.

"We have had several requests from our service provider partners who are seeking an unlimited, global but still cost-effective combination of maritime broadband services for their customers," adds Jesse van Straaten, CEO, Vizada.

"Teaming up with Thrane & Thrane will allow us to add their new SAILOR 900 VSAT into the package. We are convinced that our offer will fit the needs of both our global distribution network and customers in the transportation market today and tomorrow."



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InterManager KPI project completes first phase

www.intermanager.org

International shipmanagement trade association InterManager has announced the completion of the development phase of its six-year Shipping KPI Project, which aims to produce an industry-wide per-



'This initiative is a giant step towards continuous self-improvement and higher safety' – George Hoyt, InterManager KPI Committee

formance measurement tool.

Working with The Norwegian Research Council, Marintek, Wilhelmsen ASA and other industry stakeholders, the project has now developed what the partners call "a global shipping industry standard" that can be used for defining, measuring and reporting information on operational performance.

The Shipping KPI Project aims to promote the use of such a standard in order to boost internal performance improvements within companies engaged in ship operation activities, and provide an efficient communication platform for ship operation performance information that will lead to increased transparency.

"I am delighted that InterManager members, in collaboration with many industry stakeholders, have been able to bring this comprehensive new measurement system to the worldwide maritime industry," commented InterManager president Alastair Evitt, managing director of Meridian Marine Management Limited.

"It has taken a great many hours of work and a huge commitment from our membership and other stakeholders to develop the KPI Project and we look forward to working with all industry stakeholders to ensure it grows into a widely used tool that contributes to placing safety and quality firmly at the heart of the ship-

management process."

George Hoyt, InterManager vice president and chairman of the InterManager KPI committee, also gave thanks to all members of the InterManager KPI working group and stakeholders, describing the KPI project as "the greatest example of team work in shipping that I have ever been involved in."

"Every member of the InterManager KPI working group, and the stakeholders who participated in the project, have made valuable contributions," he said.

"The position we are at today could have only happened with their extraordinary level of cooperation and their common goal of self-improvement by creating solutions through collaboration."

Mr Hoyt is hopeful that the tools developed by the project will encourage higher levels of communication amongst the shipping community, and lead to greater levels of safety for seafarers and efficiency for ship operators.

"Given the proper support, this voluntary initiative will be a giant step forward in the industry's journey towards continuous self-improvement and higher levels of safety," he added.

"Increased levels of transparency will also help us overcome many of the challenges that currently exist in boosting the image of the shipping industry."

Shipadmin agrees new deals

www.shipadmin.com

Norwegian software provider Shipadmin reports that it has agreed new deals to provide its systems to vessels operated by three different companies.

Shipadmin's Captains Secretary is to be used on board the research vessel Joides Resolution, which can accommodate 50 scientists and researchers and a crew of 65.

Joides stands for 'Joint Oceanographic Institutions for Deep Earth Sampling' and the ship will be involved in researching the ocean floor as part of the Integrated Ocean Drilling Program (IODP).

Another vessel, REM Commander, launched 18th March, will also implement Captains Secretary.

The 85m by 20m ICE C class PSV ship has a deck space of more than 1,000 square metres, and is the latest addition to the REM Offshore fleet.

Finally, the vessel Havila Subsea will also implement a number of Shipadmin's software systems.

Havila Subsea is an IMR (Inspection, Maintenance and Repair) vessel able to accommodate 78 persons, and is equipped with a 150T crane and a ROV. The vessel has been contracted by Subsea7 for IMR work related to a contract with Statoil, signed earlier this year.

WaveSentry sea-state forecasting project launched

<http://merex.co.uk>

Marine South East's MEREX Knowledge Network has launched the WaveSentry project, which aims to provide an improved information and forecasting tool for managing the risks of marine operations in adverse sea states.

According to Marine South East the project, co-funded by the Technology Strategy Board, was necessary because the presently available information on sea-state such as wave height, period, direction and steepness were deemed to lack sufficient temporal and spatial resolution.

WaveSentry will look to improve on

this forecasting deficiency by exploiting data sources such as satellite remote measurements of wave steepness and real-time buoy and ship data.

The project, potentially offering global coverage, aims to develop and apply new techniques to enhance the integration of these diverse data sources.

ClassNK updates PrimeShip-HULL software

www.classnk.or.jp

The Japanese classification society, ClassNK, has released version 5.0 of its structural assessment software programs PrimeShip-HULL(Rules) and PrimeShip-HULL(DSA).

The organisation says it has included a variety of usability improvements as well as features for calculating the structural and direct strength requirements of tankers and bulk carriers. The update will be made available free of charge.

PrimeShip-HULL(Rules) is a software that enables the execution of structural evaluations using the scantling formulae defined in the IACS CSR. It is available in tanker and bulk carrier versions.

PrimeShip-HULL(DSA) is a software for performing the direct strength assessment calculations defined in the CSR. It allows for complicated FEM analyses using an FE model, and offers automatic identification of structural members and compartments and provides a user-assistance function to guide users through the operation process.

"As the requirements of new regulations

and conventions grow, so too does the burden on ship designers," says Noboru Ueda, ClassNK chairman and president.

"Just as with our efforts to improve safety and protect the marine environment, finding ways to help improve efficiency and reduce workloads via IT development has become one of our core missions as a classification society."

CrewInspector signs with Seawhale

www.seawhale-co.com
www.crewinspector.com

CrewInspector, a Latvian online crew management software provider, has signed an agreement with Seawhale, a Russian crew manning agency supplying 400 vessels, to implement its proprietary crew management system.

The implementation includes the replacement of manual tools for crew management previously used by Seawhale with an online platform developed by CrewInspector, which will help to integrate the operations of crew managers

and agents based in Arkhangelsk, Petrozavodsk, Saint-Petersburg and Vladivostok in Russia and Odessa in the Ukraine.

CrewInspector has also agreed to provide ongoing IT development and system maintenance as well as managing the anticipated implementation of custom requirements.

"I hope that using CrewInspector software will help us to make our business stronger among our competitors and bigger in terms of revenues and clients we serve," adds Seawhale company director, Alexander Kovalev.

DNV acquires Synergi Solutions

www.dnv.com
www.synergi.com

DNV has announced the acquisition of the Norwegian software company Synergi Solutions, a provider of HSE-HSEQ software for risk and non-conformance management, with 30 employees to move to DNV under the deal.

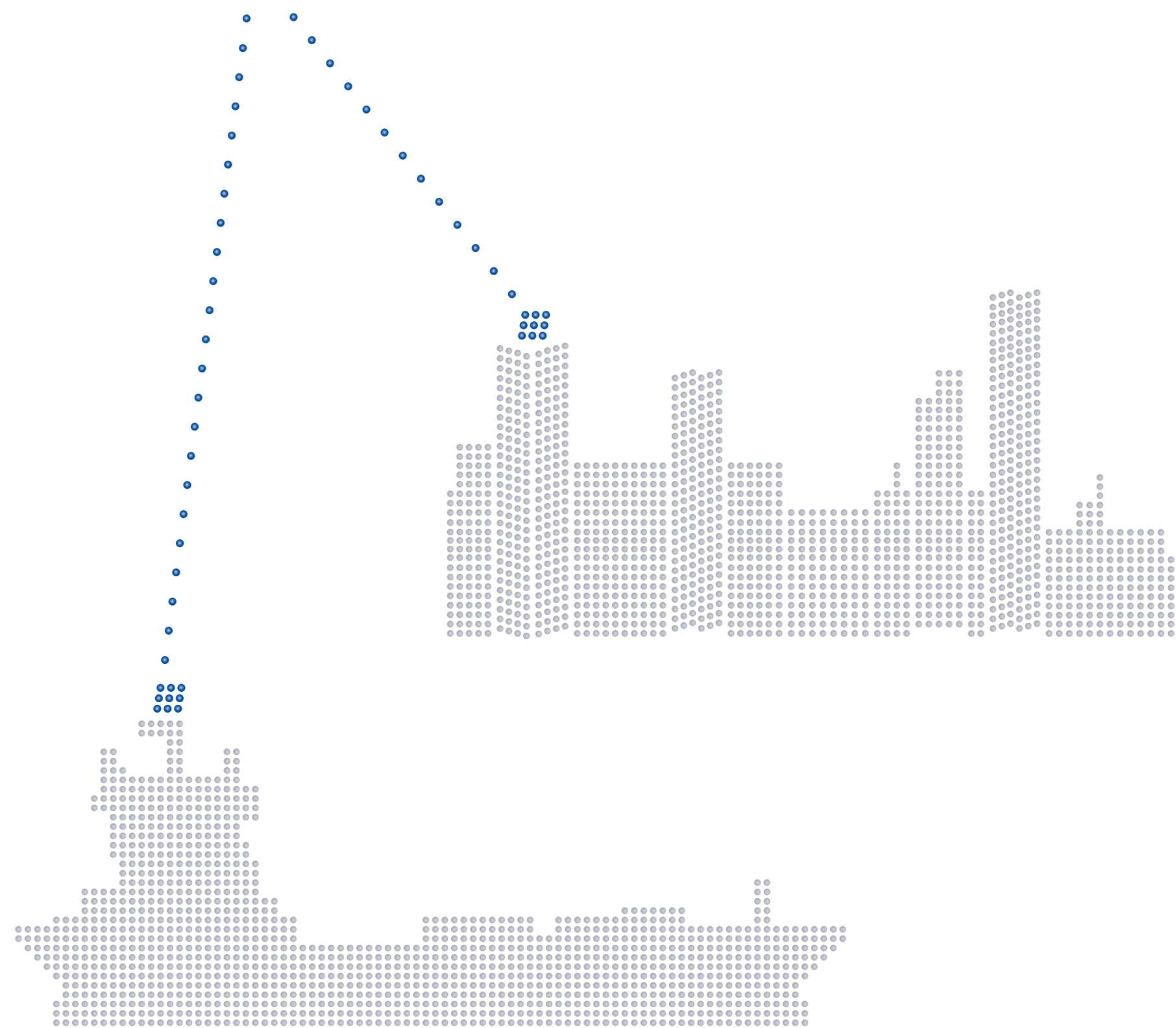
The Synergi software manages non-conformances, incidents, risk, risk analyses, audits, assessments and improvement suggestions. It covers workflow processes such as reports, management, analyses, corrective actions, communication and experience transfer.

The software is implemented in more than 170 organisations globally in the energy, industry, transport and healthcare sectors. It is available in 20 languages, and used in 150 countries by more than 500,000 users.

"We are now able to provide the most complete set of risk based software for operational integrity management and asset integrity to the energy, maritime and healthcare industries," says Are Føllesdal Tjønn, managing director at DNV's software house.

"Both support and sales activities will be managed from our new combined unit. We aim to have especially strong growth in China, Korea, Singapore, Middle East, South America, and with further expansion in North America."

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www.imtechmarine.com



Face-to-face CBT from Videotel

www.videotel.co.uk

UK based producer of maritime safety training software and materials, Videotel, has announced the launch of a number of training packages implementing face-to-face tutoring.

The tutor-assisted CBT programs are available through Videotel's new Learning Management System (LMS).

Qualified instructors offer their tutoring which students can avail of while they complete the training. This way the students can participate in a tutored course, benefitting from online support, guidance and feedback, while onboard.

LMS is designed to combine the benefits of computer-based distance learning, such as allowing the students to spend time onboard, with the advantages of verbal and visual interaction between tutor and student.

The software offers real time tutorials online and students can participate in one-to-one exchanges with their tutors as well as group discussions with fellow pupils regardless of where they

are in the world.

The tutorials are set to take place at a specified time. Students, who are unable to attend due to operational constraints or time-zone difficulties, can log-in later and watch a recording of the tutorial. This way they can keep up with the course work as well as the discussions.

David Dearsley, former deputy secretary general of the International Shipping Federation, is the first expert to take part in the programme. He will tutor the ILO Maritime Labour Convention Tutor-Assisted CBT Course.

"This is an exciting new development in the field of maritime training," says Nigel Cleave, CEO of Videotel Marine International.

"We believe Videotel Academy's Learning Management System will provide students with the support and personal contact of an individual tutor at the same time as enabling them to feel part of a wider learning group, so essential and important in maintaining motivation and equally avoiding any possible feelings of isolation."

SpecTec launches AMOS Mobile

www.spectec.net

SpecTec has launched a new software product that allows remote asset management control for mobile, handheld devices. The new software is called AMOS Mobile and as part of the AMOS Business Suite it allows the user to record transactions remotely, and upload those into the system.

AMOS Mobile is designed for use on devices preloaded with the Windows Mobile operating system. The mobile devices usually feature a display screen with a miniature keyboard or touch-screen interface. The software is available in various languages.

Smartphones and personal digital assistants (PDAs) combine the convenience of certain aspects of a conventional computer with the benefit of mobility in environments where carrying a larger device would be impractical.

AMOS Mobile contains two business modules, for Inventory and for Maintenance, enabling inventory control, measure point updates, counter updates and work requisitions.

Users can record inventory updates, create work requests, and update values for counter readings and measurement points whilst on their normal rounds.

A remote database on the device contains data entered by the user and data from the AMOS Business Suite database that has been copied from the PC to the mobile device.

AMOS Mobile also utilises the built-in camera some devices feature. The software allows the user to attach images to

work requisitions within certain AMOS specific size limits.

The software further takes advantage of the fact that many devices come with a bar code scanner or tag identification reader. AMOS Mobile enables the user to scan a bar code in order to enter the part number correctly. This is designed to save time as well as prevent typing errors.

"AMOS Mobile will simplify the process of performing inventory control and readings of counters and gauges," says Jostein Ullestad, product development director at SpecTec.

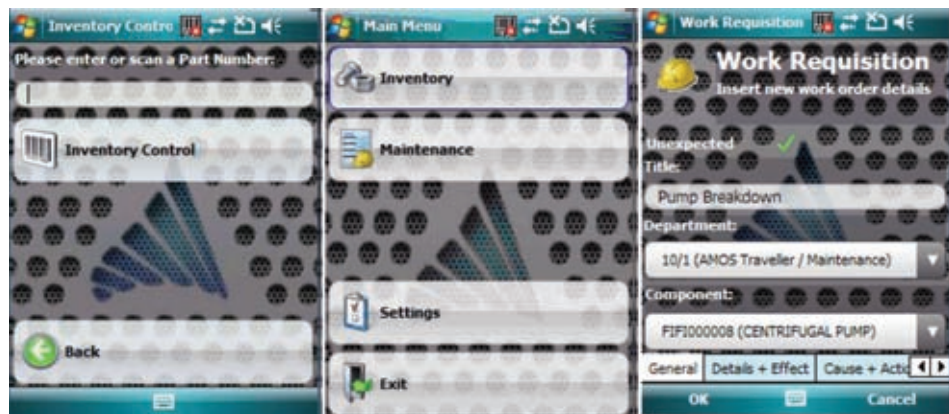
"If there are any concerns with the equipment which need to be addressed, the user simply requisitions work right there and then - and can even take a picture. As we know, a picture is worth a thousand words."

In other news, SpecTec partner CORENA reports that it has signed a strategic contract with Korea-based KJ Radio, for the AMOS Shipdex Suite.

Shipdex is an international protocol developed to facilitate the exchange of technical information in an electronic and standardised format.

KJ Radio has been delivered with a combined AMOS Shipdex Suite and Shipdex training course, to educate the company's staff about the use of the technology.

"We are 100 per cent confident to cut down on many manual steps that limit accuracy and increase operational costs on paper and electronic manual processes in our shipping industries," said Sang-Hwan Oh, KJ Radio research engineer.



The new app will allow data to be added to AMOS using a mobile device

Gratis IMCA publication downloads

www.imca-int.com

The International Marine Contractors Association (IMCA), representing 800 member companies in nearly 60 countries, has announced its decision to make many of the organisation's most important documents available for download by members and non-members, free of charge.

IMCA publishes some 200 guidance notes and technical reports. The selection obtainable for free includes a variety of documents which the organisation considers to be the backbone of international offshore marine construction and operations good practice.

"They are IMCA's most important documents and we want to see them widely

available and widely used by all the industry, including non-members, for the good of the industry, and above all, for the safety of the industry," says IMCA's chief executive, Hugh Williams.

The company emphasises that the free availability of some key documents will not diminish member benefits, which remain in the form of free hardcopies, discounts for the billable publications and exclusive access to Information Notes.

Also restricted to members is involvement with IMCA's five Regional Sections, minutes of meetings, and the opportunity to serve on committees to influence and enact the IMCA work programme.

Doo-Jin Lee and consultants Min-Bong Park and Yeong-Ho Kim.

Sener and **China Ship Development and Design Center (CSDDC)** have signed a Memorandum of Understanding for the implementation of the Sener shipbuilding CAD/CAM FORAN system at CSDDC, and for collaboration in ship design and engineering activities.

Veson Nautical has moved into a 20,000 square foot space in the Back Bay Area of Boston, at 500 Boylston Street, the company's third expansion in seven years. The office features a number of unusual design elements, including 'Smart Desks' that can be electronically raised and lowered to allow people to determine their preference of sitting or standing while working.

www.essdocs.com
www.sener.es
www.veson.com

Electronic Shipping Solutions has announced four senior appointments to its main board, with André Toet and Nigel Pusey joining legal expert Noel Buttigieg-Scicluna and finance specialist Robert Mai succeeding James Fields, who is stepping down.

Electronic Shipping Solutions also reports that it has opened a new office in Athens, Greece, to serve local customers as well as those in the Eastern Mediterranean countries, Africa and the Middle East. The new office is located in central Athens and will be managed by Katerina Anagnostara, senior account manager.

Sener has also set up a new office in Busan, Korea, to provide improved sales and technical support to its customer base. Located at the Centum IS Tower, in the Haeundae district, the new office is staffed by a multidisciplinary team of naval architects, including country manager Mun-Seob Cho, technical manager

Headland to provide EPL football

www.headlandmedia.com

Headland Media has announced that it will provide English Premier League (EPL) football coverage to merchant seafarers on its Crew Media Player during the forthcoming 2011/2012 season.

Crew Media Player is a service that allows seafarers to avail themselves of a range of licensed video and audio content. It also provides options for corporate video communication and safety training and briefs.

"We are extremely proud and excited about Crew Media Player and being able to provide English Premier League foot-

ball highlights to seafarers," says Mark Woodhead, managing director at Headland Media.

"The EPL is one of the most popular competitions in the world, of any sport, and we are delighted to now hold the rights to broadcast a 'goals and highlights' package to ships."

"Headland Media is the provider of other popular crew products such as the NewsLink daily news service and Walport movies and safety training products. We feel that Crew Media Player takes the provision of media content to a new, exciting digital level that will supply the modern seafarer with the comforts from home, at sea."

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Regs4ships publishes amendments

www.regs4ships.com

Regs4ships has announced that amendments to its digital maritime regulations service have been published following major changes to the International Convention on Standards of Training, Certification and Watchkeeping for Seafarers (STCW) and code effected by the IMO Manila amendments accepted on 1 July 2011.

Regs4ships provides a database specialising in the provision of digital regulations, technical information and IMO

material. The company has now updated its digital maritime regulations service on the STCW convention and code endeavouring to give customers a long lead-in time to become compliant with the Manila amendments.

The Manila amendments aim at bringing STCW up to date and strive to ensure that seafarers throughout the world are correctly trained and certified.

The changes, coming into effect on 1 January 2012, range from improved measures to prevent fraudulent certification of competency to new requirements for the

prevention of drug and alcohol abuse, along with revised hours of work and updated standards to ensure seafarers are medically fit.

Other changes include new certification for crew to be able to use modern technology, like electronic chart display and information systems (ECDIS), new requirements for marine environment awareness training and the introduction of new security training, to ensure crews are properly trained in case their ship comes under attack by pirates.

SpecTec deploys AMOS 2 in Asia

www.spectec.net

SpecTec Asia Pacific, headquartered in Hong Kong, has announced the successful conclusion of a contract with 'Ever Faith Ocean Going' for the deployment of SpecTec's AMOS 2 Quality Management System (QMS) solution on one of the company's vessels.

'Ever Faith Ocean Going' is a newly set up shipmanagement company on the Southeast coast of China.

The vessel on which AMOS 2 QMS will be installed will use a 3.5G GSM network provided by China Telecom for communications, and a Citrix Server hosted by SpecTec.

The package comprises a specific module of the AMOS 2 software aimed at managing QA standards. The implementation is aimed at promoting compliance with the various standards, while minimising the administrative load on ship operations and seagoing staff.

The agreement further stipulates that SpecTec will provide consultancy services on document handling, to ensure that operations are carried out consistently and correctly by describing the organisation's procedures and policies and non-Conformity reporting.

IMR installs TeroMarine

www.teromarine.no

www.imr.no

Bergen-based provider of marine information systems, TeroMarine, has announced that its new version of TM Master Fleet Management Suite has been implemented by the Institute of Marine Research (IMR) in Norway, on the company's five vessels and in its office.

The TM Fleet Manager is a tool for grouping, supervising and controlling vessels and allows for an overview of the entire fleet as well as reviewing the fleet status by employing user-defined key performance indicators, track maintenance

history, purchasing orders and personnel.

The software holds the company's central data, including ship particulars, supplier and maker information and contacts. A document module allows the user to issue and distribute documents across the fleet, as well as attach them to components, jobs or crew.

TeroMarine's TM Master V2 software solution for IMR comprises central maintenance and inventory modules, crew management and certificates. The crew management module will be used by IMR in the office and onboard the vessels.

"We have chosen to upgrade our fleet management solution, to be able to meet

the increasing demands for documentation of vessel specific activities on both a maintenance and an operational level," says Roy Åge Klepsvik, superintendent at IMR.

"TM Master has a broad spectrum of additional functions that can simplify a wide range of tasks including the planning of maintenance routines on board."

"In addition to many other features we think that the accumulated information in the TM Crew module will help us to make use of the available crew more effectively, as it will give us an overview of which qualifications are required and which available crew members can fill the tasks at hand."

Planned maintenance software for Rix Shipping

www.marinesoftware.co.uk

Rix Shipping has installed the MPM - Marine Planned Maintenance 'Gold Edition' software system from Marine Software onboard the 1,942 dwt vessel Lizrix and at its ship management offices in Hull, UK.

The contract with Marine Software also involved the construction of a full planned maintenance database setup to incorporate all vessel main machinery and statutory items. This allowed Rix Shipping crew members to begin updating a working PM system after the installation visit.

"The reason we chose Marine Software was because of the simplicity of the system, we have looked at other systems on

the market but they were all far too complicated for what we required," said Rix Shipping, in a statement.

"Simplicity is an absolute must for an industry where time is becoming ever increasingly precious. Seafarers are not brain surgeons they are practical people which need a simple, practical and user friendly solution."

Centralised access for remote users has also been included, with Rix Shipping installing an OPM - Office Planned Maintenance package to operate in its Citrix Business Environment.

All of Rix's other remaining vessels are to have MPM software installed once the sister vessel databases have been completed.



Rix Shipping's vessel Lizrix has installed the new software

Guangxin Shipbuilding selects AVEVA MARS

www.aveva.com

AVEVA has announced the signing of an agreement with Chinese shipbuilder Guangxin Shipbuilding & Heavy Industry (GSHI). According to the contract, concluded following a competitive tender, GSHI will install AVEVA MARS, the company's enterprise resource management system.

MARS is a solution, specifically designed for shipyards, that optimises project control, logistics, materials man-

agement, production, resources and planning. It will be implemented in GSHI's Zhongshan City shipyard.

"By implementing AVEVA MARS we expect to see many benefits by integrating design, purchasing and production," says Hong Xiong, vice president at GSHI.

"This in turn will help us to reduce cost and accelerate our time to market. AVEVA has many references within marine and shipbuilding, especially in China, and have a strong team. We are pleased to have such a good partner."

ICSW launches online toolkit for seafarer welfare

www.seafarerswelfaretoolkit.org

The International Committee on Seafarers' Welfare has announced the launch of an online toolkit for organisations and individuals involved with seafarers' welfare around the world, with the aim of promoting good practice and to share knowledge, experiences, and skills.

The organisation says the toolkit comprises of a set of tools, all available in var-

ious languages, on how to create and run projects such as National Welfare Boards, port welfare committees, and fundraising for seafarers welfare.

The Committee says that additional content on seafarers' welfare and related topics will follow in upcoming months.

Setting up and developing national welfare boards and port welfare committees are key features of the new Maritime Labour Convention 2006.



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IMCA CMID undergoes revision

www.imcacmid.com

The International Marine Contractors Association's (IMCA) Common Marine Inspection Document (CMID), including the electronic version (e-CMID) and associated CMID database, have undergone a revision period following the first year of operation.

A number of modifications and improvements have been made to the system, including the ability to add photographs to the answers to certain questions in order to further illustrate the answer given, and an internal quality assurance process that allows reports to be reviewed by another person within the

inspection company.

The crew matrix can also be completed by the vessel owner/operator and there is now an ability to re-order the sections, but not the questions, of the CMID to suit the order in which the inspection is carried out.

"Adapting the database to ensure we meet all requirements is important to ensure maximum use of this free and invaluable facility," said IMCA's chief executive, Hugh Williams.

"Usage statistics speak for themselves – we have now chalked up eighteen months of use and have 1,110 users (operators/clients/inspectors) in 651 organisations; 408 vessels have been

added and 99 CMIDs uploaded. The CMID, database and e-CMID are there for use by members and non-members alike."

"The more the system is used around the world, the more useful it is; and the more it eliminates doubling up on surveys. Details on any and every vessel on the database can be kept fully up to date and available at the click of a mouse."

IMCA is also now offering the facility of uploading paper versions of reports to the database for approval by the vessel owner or operator, and is actively trying to encourage use of the online facility and the database.

Inspectors are invited to download the

new version of the e-CMID application and the new facilities will then be available to them.

"The original CMID was developed because vessels were subjected to repeat inspections, each with a slightly different format, because there was no acceptance of other clients' inspection results, and no common approach available," said Mr Williams.

"The CMID proved invaluable for vessel clients, owners/operators and inspectors alike. We launched e-CMID, along with the online CMID database, in November 2009 as a natural and logical progression to ensure the document's continued usefulness."

Commodity transport information online

www.milbros.com

Heidenreich Innovations has launched a new web-based version of the Milbros Commodity Information System (MCIS), with information for ship operators transporting and handling chemical and commodity cargoes.

MCIS consists of a library of over 10,000 annex I / annex II commodities, including all those contained in the IBC code, provisionally assessed products, common trade names and synonyms.

The web site also contains information on all the IMO evaluated cleaning chemicals and cleaning procedures for all commodities, while a shipboard version is also

being made available for ships with and without internet access.

"We are really excited about the launch of our new web-based commodity information system," said Fritz Heidenreich, president of Heidenreich Innovations.

"We have spent the last year developing the system and enhancing the information that is available. I believe this system is the most comprehensive product available on the market today."

"Any company involved in the petroleum and petrochemical trades will want to have this system as part of their company's knowledge management systems."

MarineCFO signs with International Offshore Services

www.MarineCFO.com

Software provider MarineCFO has announced the signing of an agreement with International Offshore Services, based in the Gulf of Mexico, regarding the implementation of MarineCFO's Enterprise software suite.

International Offshore Services was formed in 2006 by a joint venture between International Marine and International Construction Group. The company has the largest number of utility boats in the Gulf of Mexico, and is headquartered in Larose, providing a range of offshore services using construction barges and offshore support vessels.

"We are committed to leveraging tech-

nology to improve operating data and control across all of our business segments," says Richard Currence, CEO of International Offshore Services.

"After reviewing the market, MarineCFO was the clear choice for International Offshore Services. We chose MarineCFO Enterprise because it is a flexible, yet robust, platform that can handle the differing aspects of our business and has the ability to grow as our business grows."

"Whether it is in our boat business or marine construction business we see technology as a means to better serve our clients. During the decision process, MarineCFO demonstrated that they have the software and the experienced team to make our project successful."

Videotel's new knowledge testing system

www.videotel.co.uk
www.cdi.org.uk

Videotel has launched a voluntary Crew Knowledge and Proficiency (CKP) Testing System in association with the Chemical Distribution Institute (CDI).

The system, designed to improve officer training, relies on voluntary participation and covers a series of short internet based tests, which randomly test the officers' operational knowledge.

The tests are designed to enable employers to monitor the strengths and weaknesses of their seafarers both prior to and during employment. The test-results are expected to help observe the individual seafarer's training progress and identify further training requirements.

The group of ranks that undertake the test comprises Chief Officers, Second Officers, Third Officers, Second Engineers, Third Engineers or their equivalent ranks. The selection of the test candidates is randomised and the tests take place onboard on a laptop.

A CKP Review Committee has been set up to review the progress, results and statistics of the CKP database on a quarterly basis.

"What the industry needs is a globally

consistent system of quality measurement. With this system, the individual ship operator can benchmark the CKP of his officers against the world chemical and gas tanker fleet average," says Capt. Milind Karkhanis, vice president,

Videotel Training Services.

"This provides a genuine measurement of performance, allowing those fleets demonstrating high quality standards to receive the recognition they deserve."

News of this product launch followed



The new tests aim to examine officers' operational knowledge

soon after Videotel's announcement of the signing of a new contract with APL Maritime, a provider of container transportation services, for the provision of its ship based training via Networked Video On Demand (NVOD) technology.

NVOD comprises training, updates and a search functionality, and allows users to view personal information, crew records and training activity.

Seafarers can access courses, interactive Computer Based Training (CBT) and videos via sound, video and graphic files from various computers in different locations.

The system is designed to allow multiple users to train at the same time on different subjects regardless of where they are as long as they can access the ship's network – even on a laptop in a cabin.

"NVOD is an innovative, modern, flexible and cost effective delivery mechanism, being an ideal route upon which to deliver training to crew onboard as well as in marine colleges and training establishments," says Nigel Cleave, CEO, Videotel.

"APL is an organisation committed to high quality and state of the art technology - Videotel's NVOD is an ideal fit with their culture and ideals."

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Going green with Virtual Arrival

OCIMF and INTERTANKO have launched Virtual Arrival, a concept designed to reduce fuel consumption and greenhouse gas (GHG) emissions, creating operational efficiency, cost reductions and better environmental friendliness

Virtual Arrival is a pan-industry initiative set up by the Oil Companies International Marine Forum (OCIMF) and the International Association of Independent Tanker Owners (INTERTANKO), to provide tools to aid in voyage management optimisation and vessel emission reduction.

The framework primarily focuses on safety and environmental benefits and will look to ship operators, charterers and port authorities to take responsibility for their environmental impact. However, the project partners believe that a number of commercial benefits, such as operational efficiency and cost reduction, can also be achieved as a direct result of the implementation of the Virtual Arrival concept.

The main focus of the initiative is to encourage vessels to reduce speed when there is a known delay at the discharge port, either because berthing options are scarce or the required discharging facilities are temporarily unavailable.

However, the project notes that the Virtual Arrival concept is distinctly different from slow steaming, where a vessel is ordered to slow down, typically in the case of a depressed market, and the longer voyage necessitates that the freight rate is spread over a longer time period.

Virtual Arrival on the other hand works independently of market environments and takes advantage of operational inefficiencies. Under this concept the demurrage remains unchanged from the voyage being completed at charterparty speed and both parties, charterer and operator, benefit financially from the bunker savings.

Charterers and ship operators typically stipulate the speed that the vessel must attain throughout the voyage in the charter party. If the vessel sails at full-speed it will reach the discharge port by a certain time, represented by the Estimated Time of Arrival (ETA).

However, as ports are doing their best to trying to maximise the use of their own limited berthing and discharging facilities, congested port areas and increasing waiting times spent at anchor can be all too common.

Studies by G-ports/Simpson Spence and Young show that the average port delay experienced by dry bulk carriers in Northern American ports are between one and five days, and higher levels of delays can frequently be expected.

In addition to port congestion, the increased waiting times causes safety hazards brought on by augmented vessel movement in limited space, local air pollution and costs resulting from demurrage and the fact that the vessel cannot be otherwise engaged.

Virtual Arrival aims to reduce these waiting times through better management

of ship traffic.

As David Cotterell, director of OCIMF, notes, "the Virtual Arrival scheme is a long term, sustainable and practical process that rationalises the transportation chain and provides real benefits such as cutting vessel emissions through fuel reduction, improved safety, and potentially reducing unnecessary port congestion."

Better environment, lower cost

With around 70,000 operating vessels, the shipping industry is responsible for transporting 90 per cent of the world's trade.

A GHG study published by the International Maritime Organisation (IMO) in 2009 shows that nearly three per cent of overall global CO₂ emissions per year are generated by the shipping industry. SO_x and NO_x emissions arising from combustion of marine fuels also contribute to local air pollution.

Around 75 per cent of tanker emissions come from propulsion, and speed is the most significant factor affecting emissions, which rise exponentially – twice the speed equals four times the emissions.

Trials implementing the Virtual Arrival scheme have reduced a vessel's fuel consumption and consequent CO₂ emissions by, on average, around 15 per cent, and in some cases by up to 22 per cent.

As Garry Hallett, deputy director OCIMF, notes, there is "25 million tons of CO₂ saving potential across the industry."

The actual savings depend on the length of the voyage, the time frame within which the Virtual Arrival concept has been adopted, vessel fuel consumption, weather and bunker price. Trials that have adopted the concept have reportedly harvested economies of \$ 5,000 up to over \$ 100,000.

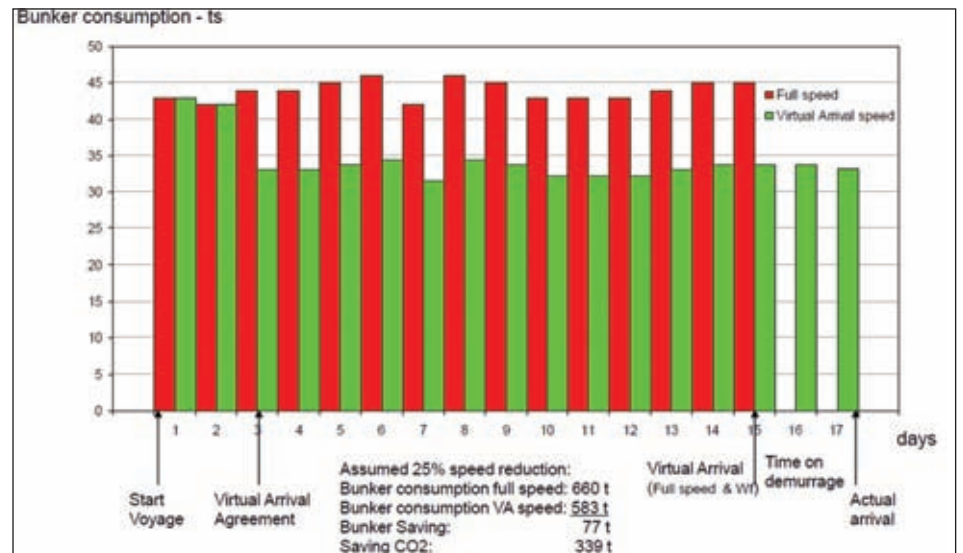
Such a project also fits well with current European policy, with the European Commission having recently published a White Paper on the Future of Transport stipulating that CO₂ emissions from maritime transport in the EU should be cut by 40 per cent by 2050 compared to 2005 levels.

"In light of the global sustainable mobility race, the launching of Virtual Arrival (is) undoubtedly one of many significant steps in curbing maritime transport emissions," said Siim Kallas, EU Transport Commissioner.

"Virtual Arrival proves the maritime sector is capable of delivering effective and global solutions to reduce emissions while maintaining technology leadership and economic sustainability."

"We have to improve the environmental footprint of shipping whilst retaining its competitiveness, it is therefore necessary to merge business interests with GHG reduction."

Although the Virtual Arrival concept was brought on by concerns about the environmental impact of the shipping industry,



The project's calculations of the differences between normal voyages and those applying the Virtual Arrival concept have shown significant savings in fuel, and in resulting emissions

steaming at a slower speed can directly result in reduced bunker fuel usage.

So far between 40 and 50 voyages have been undertaken using the Virtual Arrival concept, all of which are claimed to have been successful.

As already noted, field trials have resulted in bunker consumption savings of 15 per cent on average. With fuel representing 60-80 per cent of operational costs, substantial economies are anticipated.

In order to calculate the realised savings, a post-voyage analysis report needs to be issued. This should cover information on vessel performance and calculations on fuel saved.

The calculation of the bunker savings is based on a simulation of the hypothetical fuel consumption had the vessel completed the passage on the basis of the contracted speed.

This data will be compared to the actual fuel consumption under the slower speed, agreed upon under the Virtual Arrival concept.

Capitalising on congested ports

The Virtual Arrival concept aims to create benefits out of congestion at ports and to minimise potential waiting times at anchor.

It is therefore necessary that a delay at the port of discharge has been established. Without this proven delay Virtual Arrival does not come into use.

Delays can be caused by congestion at the berth or by lack of receiving space. Upon learning of an upcoming delay the port of discharge, either via ship agent, master of the vessel, or in the case of tankers, the oil operator, the charterer and ship owner have the option to agree on implementing Virtual Arrival.

This means that the ETA and contracted speed are mutually revised. A new adapted ETA, the Required Time of Arrival (RTA), has to be agreed on, in which other parties such as cargo

receivers, terminals and commercial interests may be involved.

Learning of berthing availabilities as early as possible ensures the maximum benefit from the Virtual Arrival concept, hence early communication with the next port is essential.

The implementation of the Virtual Arrival concept requires the charterer and ship operator to agree on an amendment of the charter party, which contains the contracted speed, the ETA and the RTA, typically subject to availability of the required facilities at the discharge port.

Moving outside of an agreed charter party is a significant step for the involved parties and not lightly undertaken. Ideally, the ship owner and charterer will have initially agreed on a charter party clause that pre-establishes the terms for implementing Virtual Arrival.

To promote the conclusion of an agreement and to reduce the risk of post-fixture disputes it is deemed vital that the key questions of the Virtual Arrival agreement are clearly addressed and sufficiently negotiated.

The Virtual Arrival agreement will include a number of disputable issues, with optimum speed prominent among these. Its calculation largely depends on the employed methodology for calculating the voyage data and takes into account key factors such as vessel performance.

The parties have to agree on who will be in charge of establishing the optimum speed, and especially whether an independent expert such as a Weather Analysis Service Provider (WASP) is to be used.

Essential for commercial considerations is the difference between the hypothetically used fuel at contract speed and the fuel actually used under the adjusted Virtual Arrival speed – in short, the fuel saving.

Importantly, the involved parties will further have to agree on who bears possible expenses and how the benefits of Virtual Arrival, such as direct cost sav-

ings and potential CO₂ emission points, are allocated.

Among the numerous further possible issues to be negotiated are the question of what information is to be included in the post-voyage report, the choice of WASP and allocation of its fee, the basis of calculating bunker costs, the calculation of compensation at demurrage rate and mechanisms for dispute resolution.

OCIMF and INTERTANKO have highlighted the fact that the implementation of Virtual Arrival under no circumstances affects the authority of the vessel's master, especially with regards to safety questions.

Calculating the optimum speed

Maximising the impact of Virtual Arrival requires the vessel to sail at optimum speed.

Optimum speed is the speed at which the fuel used per tonne mile is at a minimum level and depends on factors such as distance to destination, available time, the engine manufacturer's power/ consumption curve and the vessel's propeller curve, weather and currents.

Under the Virtual Arrival concept, the parties can choose to leave the adjustment of the speed to the discretion of the master or they can decide to employ a WASP.

The choice is entirely up to the concerned parties; however, OCIMF and INTERTANKO state that there is no industry experience of undertaking a Virtual Arrival voyage without a WASP.

The organisations further recommend the use of a WASP in order to render the

calculation verifiable and auditable and to promote transparency and credibility between the contract partners.

In order for the WASP to assess the vessel data objectively and come up with the correct optimum speed for this voyage, the ship operator will need to provide ship performance information based on the service speed of the vessel.

The speed calculation further takes into account the vessel's baseline efficient slow speed and technical or navigational issues associated with establishing a minimum speed, such as impact on hull fouling, necessary use of different lubrication oil, increased sooting and vibration.

The Virtual Arrival concept stipulates two methodologies of managing the vessel's progress on passage in order to achieve a certain RTA, namely, speed-based or RPM-based.

Under the speed-based methodology the WASP will initially calculate a fixed speed, the Calm Sea Speed, which represents the optimum setting for the voyage.

The optimal setting under the RPM-based methodology depends on the vessel's configuration. Thus the WASP depends on the provision of data in order to calculate a Speed Reduction and Bunker Consumption Algorithm (SRBCA).

The calculated optimal speed or RPM is transmitted to and adopted by the vessel and the progress is monitored during the voyage.

Virtual Arrival provides for dynamic and flexible adjustment if the need arises, for example if the forecasted weather con-

ditions change. Once the calculation is assigned, only the WASP can alter the speed or RPM instructions.

Benefits from Virtual Arrival

Virtual Arrival has been devised for the tanker trade and has been adapted or endorsed by a number of companies such as BP Shipping, Chevron, IMO, INTERTANKO, OSG, Vitol, BIMCO, Euronav, Shell, TORM, NORDEN and others.

The concept is based upon the fact that the arrival time at the discharge port is not fixed or subject to changes. As such OCIMF and INTERTANKO regard Virtual Arrival as being suitable for adoption by vessels other than tankers where similar conditions apply.

However, they state that the concept may not be suitable for implementation on short voyages and mention 5 days as a recommended minimum duration due to the fact that shorter voyages result in minimal savings.

The key driving factor for the development of the Virtual Arrival framework was predominantly the reduction of GHG emissions in the shipping industry. For the implementing companies however, commercial considerations provide a significant incentive.

Other benefits are seen in reduced congestion and emissions in the port area, which is hoped to improve safety in port areas as well as the health of the people living in the area.

It is further claimed that sailing at a

lower speed can result in less engine wear and tear. Increased use of weather routing, the promotion of cooperation and dialogue between operator and charterer and improved overall voyage planning are among the additional advantages aimed for with the implementation of the concept.

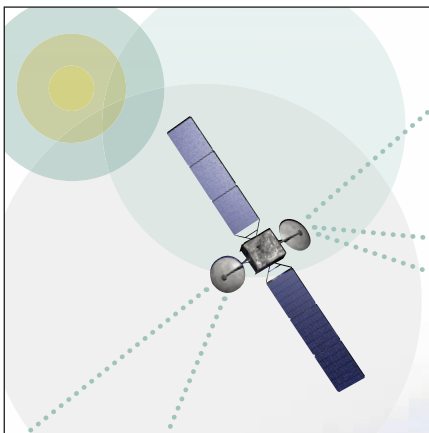
On a larger scale, OCIMF and INTERTANKO hope to reduce the overall use of fuels and free Europe from dependence on oil. They also intend the Virtual Arrival concept to enhance the public image of the world's fleet.

OCIMF and INTERTANKO admit that the benefits with regards to fuel consumption, money saving, and the decrease in environmental impacts for the individual vessel may be small, but emphasise that industry-wide acceptance and a collective effect across the entire global fleet will make a significant impact on global CO₂ emission reduction within the shipping industry.

The Virtual Arrival concept launch in Brussels has opened up the intriguing proposition of combining environmental responsibility with direct commercial benefits, and the feedback provided by potential users has given cause for the involved parties to hope for growing industry support. Already adopted by a range of large companies, the future of the concept certainly has bright prospects.

Whether the scheme manages to establish itself industry-wide remains to be seen, but OCIMF and INTERTANKO will surely push the boat out to assist in speedy distribution.

DS



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Document Management for maritime

A good document management system can help company employees, on land and at sea, to do their jobs more efficiently. However, the intricacies of the maritime industry require different technologies to those used in land-based companies, writes Dimitris Lyras, Lyras Shipping and Ulysses Systems

A document management (DM) system is not just a place to store documents that can be electronically reproduced at any location. This is only a small part of its value.

The document management system manages forms. Forms are not only common documents you open from different locations, like websites or electronic books or plans that can be seen across continents.

Forms are a combination of commonly accessible documents and e-mail – they have the characteristics of documents as well as the characteristics of e-mails.

E-mails and similar concepts, like SMS messages, do not disturb people at the wrong time. They also allow collection of thought and precise responses.

They allow working from a distance, they allow you to stay in touch while doing something else or being on a trip, while e-mail allows you to attach relevant information and much more.

Also e-mail, like letters in the past, forces some discipline to explain situations more comprehensively; for example making reference to relevant information.

It also helps people to provide a reasonable record of events without requiring the listener to take notes and then later add the relevant information, expending more time writing records of a discussion.

E-mail also helps by enriching one person's work via the events he may not know are happening, or have happened but can help his current task.

But e-mail is not structured and it's hard to keep track of who said things that could be incriminating. It's also hard to re-use useful e-mails because there is no indexing convention available without huge concerted effort.

The oversupply of e-mails also makes it difficult to filter out the ones that matter to senior staff – they either get informed too often or too late. This is because the indexing convention is too difficult to apply.

Forms

Forms can help capture information from many participants, much like the minutes of a meeting, but can do so much more efficiently.

A meeting requires interruption of working patterns and in meetings people often have to wait for others with different expertise to understand a viewpoint, otherwise unnecessary objections have to be endured which delay the progress of the meeting.

To use forms to co-ordinate work a company is required to have workflows. This is just managed circulation of the form among participants to get everyone's contribution.

Without it people have to regularly look for the form in the computer to see if and how it has changed, and with hundreds of forms for each vessel this is not practical.

Marine workflows and marine communications require more technology than land based workflows and land

based communications.

Considerable experience in communications is required to operate workflows with forms in the maritime field. Even on land when databases are separated the communication management needs a lot of experience.

Continuous satellite communications can help but interruptions of service are frequent and re-synchronisation is far more complex than when a communication line is interrupted between land based locations. This is because packages may be delayed and arrive out of sequence when the system is reinstated.



The key to document management is making information accessible and convenient

Also, with shipboard systems, unless very high standards of monitoring is maintained, system crashes can occur. And unless the resynchronisation is very advanced, using software purpose built for the marine industry, missing packages may cause serious problems – especially if there is data transfer and not just word transfer involved with the forms.

Not for maritime

In the maritime industry, in typical document management systems, we emulate about 300 processes with up to 6 users per ship. So for 20 ships we have 300 processes and about 100 users.

What's more, a user like a master may be required to personally get involved with 30 of these workflow processes.

In industries for which platforms like Opentext, FileNet and Sharepoint prevail there are often only 10 processes within these systems and perhaps hundreds of thousands of users, with one process per user being the norm.

These platforms cover Business Process Management (BPM) document management, shared access portals and many related facilities.

This is because the majority of processes are covered by specialised applications in most large enterprises, and not in a document management or BPM system. In the case of government organisations millions of users may access only one document/

workflow process, say like tax returns.

In short, the revenue is large but the processes are few. The need to be hugely scalable is a key point when allocating development funds. These systems address the needs of large companies.

However, the need for a typical maritime user, like a ship's master, to learn 30 processes with multiple workflow stages each is rare to nonexistent because such processes are carried out in other specialised software.

So what's the incentive for large document management companies to get involved with the subtleties of shipping and its multi-tasking users? One may ask, with the development budgets of large DM companies, why this would be a problem?

To explain this we need to draw on the analogy of a senior bank manager and a junior bank clerk.

The senior manager is unlikely to ever use the workflows or the document storage system in the bank. His real need is to manage exceptions to the process – in other words, problems.

The junior clerk may be part of a workflow for, say, loan approval and may also use the archiving facilities for signed copies.

So the software challenges are different for these two roles.

A busy user with many things on his or her mind is not going to want to get immersed in a software process with a rigid path and the potential for unexpected reactions or requirements from the software – for example unexpected requests for details when they reside somewhere else in the system or another system.

A customer configured workflow requires a path to be followed which is often not very flexible.

Senior and multi tasking users have many responsibilities, so they have many processes to follow. Also they have a wide range of responsibilities so they only occasionally use each workflow. Occasional use means they can forget the navigational steps.

Most importantly however, senior and multi tasking users, when using these workflows, are asked difficult questions and have to recall complex information. Retrieval of related information therefore becomes important.

For example, asking a chief engineer what the root cause of a sticking control air valve may be requires access to diagrams, and perhaps maintenance records, related machinery records, etc.

Similarly if a master is asked to comment on the cause of a mooring non conformance they may require access to previous reports, comments on mooring layout, mooring system technical reports, etc.

What is relevant and what is not is by no means the same across industries. It is very industry specific.

In shipping we expect a master to manage 30 documentary processes through the sys-

tem. For other officers it's between 10 and 25.

The captain however is not a clerical worker and neither are the other officers. They have far more important responsibilities.

Ashore, an insurance clerk needs to get involved in perhaps five processes, and clerical documentation may be all he or she gets involved with.

Workflow

Let's look at an incident report, and how it would fit within the workflow process.

Co-ordination is by far the highest value feature of an incident or unexpected event. Co-ordination could be defined as providing information at the time of need to people who are offering different skill sets to a process.

For example, a leak of the hydraulic piping is first noticed by an able seaman, who reports it to the bosun, who reports to the chief officer, who then reports it to the master and chief engineer.

The master needs to mention the defect to the shore staff because, although simple, it could repeat itself along the ship's deck if it's, say, an external pitting problem in the vicinity of the pipe joints.

It may also involve procedural changes in the human processes in case hydraulic cargo valves fail to activate from the cargo control room, or in case the leaks occur at night when the deck is wet and cause pollution or a deck access hazard.

Also the shore staff must make sure that, when the officers on board are repatriated, their reliefs are aware of the impending problem especially if it can't be repaired at the root cause immediately, for example by repairing all the pitted pipes joints at once.

On shore the QA needs to approve changes to the human processes that will be modified to apply, for example, the use of the hydraulic system while leaks can spring up.

The superintendent needs to get to the bottom of the cause, in case the root cause is a problem that can spread and is not isolated on this vessel – for example, poorly fitted or coated pipe couplings at the yard on a series of new vessels.

Each participant has his or her own duties with respect to the 'workflow stages' involved.

The QA may want to initially approve a set of temporary workaround processes (change management) and then monitor the processes monthly until the root cause is resolved, so as to change the valve operating processes and deck access processes to their status before the defect.

The new building manager may want to know when the problem is diagnosed so as to activate the new-building guarantee claim process.

The fleet manager may just need to monitor that the defects and related remedial action processes are closed in time and

that the company learns from the defects.

All these are different workflow stages that are of particular interest to each role. Multiply this by the number of occurrences on each ship and the number of ships and we are faced with a co-ordination challenge that is well worth addressing.

Co-ordination

If this co-ordination challenge is not met it can lead to problems.

People won't all learn from the occurrences of the incident, either at the time it is happening or in future, and the occurrences may not be resolved in time.

There will be a need to occupy point men to co-ordinate lots of the workflow stages that are unrelated to their own expertise – for example, the quality manager might need to get involved in recording experience on a technical level because the technical staff does not have the appropriate tools to manage lessons learnt from such a system, etc.

Co-ordination is by far the most important value of document management in the maritime sector.

It occupies a lot of the time of senior staff without necessarily getting them to focus on the real core of the problems that they really need to get involved with. This can also cause poor audit performance when auditors look into how problems are resolved.

Co-ordination requires, for example, workflow configurations that relate more than one document to each workflow stage.

In our example the oil leak is related to a temporary procedural change when

pressing up the hydraulics.

Each document in each workflow stage must reflect this and be adequately separated from unrelated items, otherwise people reading unrelated defects, for example, get confused and lose focus.

Just as important is the need to merge closely related occurrences and processes in an intuitive fashion. Although this need for co-ordination is widespread in all industries, other industries have far more support staff to help managers keep track of the workflow stages. Not so in shipping.

Relevance is industry specific, and each industry has its own relevance criteria. A defect related to an oil leak does not affect deck access in all industries or terminal vetting reports, nor new-buildings, nor cargo valves.

So the company setting up the workflows must have a lot of experience in the industry, a lot of concern for keeping things clear and simple, and a very good software platform designed for this.

Systems for shipping

In conclusion, co-ordination using workflows requires deep domain expertise from the software provider and a platform designed for the job.

Outside shipping there are different platforms for mapping processes, for sharing documents, for defect tracking root cause and risks etc. On board ships this approach is not feasible because of the separate systems requiring separate store and forward communications suitable for discontinuous communications in the

maritime industry.

Also, such systems need to all be used by some major users, such as the master. If systems are disjointed the users on board will use them to a minimum.

Co-ordination in the maritime industry requires the combination of features from many different platforms used in other industries, all into one package. In addition the senior staff involvement and marginal software support on board requires solutions much more tailored to the special needs of the industry.

Whereas process management is today primarily the goal of document management and BPM in any industry, in shipping it is more about co-ordination. The difference is that co-ordination is seriously time critical.

The main difference however is that a senior manager such as a master needs to co-ordinate 30 fairly complex processes through such a system, not just 'paper pushing' processes, and that is on top of his job as a senior manager and risk co-ordinator.

If we take the analogy of a secretary to describe a productivity tool such as an electronic document management system, then this is like comparing the sophistication of the work of an office boy helping in the accounts department to the job of the secretary of a company or the secretary of a senior politician.

Since large DM companies do not generate much revenue from sales of systems to small and medium sized companies with multi tasking users, why should such sys-

tems be extensively developed by them?

There may well be specialist software development partners for sectors with small to medium size companies, but how much convenience can they engineer into the system that does not have that convenience built in?

The convenience needed in shipping covers things like knowing what stage in incident reporting requires looking at past cases of a similar problem, or what stage needs reference to current remedial action.

You will also need to recognise what part of the current problem needs to be known in other processes that have yet to commence, what stage needs reference to a contributing concurrent problem, and what processes may need reference to the occurrence much later after it has been resolved.

On top of this there is the need for technology development to integrate with other marine systems and to replicate documents across discontinuous communications.

All of these things require specialised knowledge of the industry and the processes within – and these are the elements which will help to make the system a useful, efficient and successful tool for the shipping community.

DS



About the author

Dimitris Lyras is director of Lyras Shipping and senior advisor to the board of maritime software provider Ulysses Systems.

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FEA-2107-D
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Can software cure the container shortage?

Economic pressures in the container industry have made efficient management of containers a top priority for operators. Investing in software systems to assist in this task, while creating initial costs, could lead to substantial savings and a high return on investment, writes Lars Fischer, Softship

Boxship operators currently face a shortage of containers as demand to move cargo outstrips the existing equipment capabilities of many of the world's carriers. Box to vessel capacity ratio is forecast to drop to a record low of 1.99 against the 10 year backdrop of a worldwide increase in containers of 7 per cent versus an 11 per cent growth in vessel capacity.

The recent trend of adopting slow steaming – or even super slow steaming – has reduced vessel speeds from around 25 knots to as low as 12 knots for some lines which, in turn, ties-up containers for longer periods and exacerbates the shortage.

A consequence of this shortage is a significant reduction in container scrapping and an increase in refurbishment and repair. As operators extend the working life of their boxes there is an increasing requirement to more carefully manage the maintenance process.

Today, it is even more important for liner operators to manage their container stock as efficiently as possible. With freight rates in depression and vessel operating costs continuing to rise, it is vital that owners maximise earnings from every aspect of their operations.

The modern supply chain involves a huge range of participants operating from many different countries and this requires large carriers to keep track of many thousands of containers. Container stock is likely to be a mix of owned and leased boxes of differing types and spread around the world.

Many will be onboard owned vessels, some will be carried by another operator, others will be located in various port terminals or en route by rail, barge or truck to their final destinations; and a proportion will be awaiting maintenance in a repair depot.

Keeping track of so many units is an enormous logistical undertaking. Not only is it essential for an operator to know the availability status of each of its containers, it also needs to know how much it must charge, or will be charged, for delays, handling and other factors.

Software applications that allow efficient management of large container fleets through effective communication with all the relevant outstations can save an operator a substantial amount of money.

As mentioned, to help alleviate the current container shortfall, we are seeing many more boxes undergoing repair and maintenance rather than simply being scrapped.

Having worked with container operators for more than 20 years, we believe that a company will have around 5-7 per cent of its total container stock in maintenance and repair at any one time. This is a large proportion to have out of service.

Innovative software applications can manage the entire repair cycle to ensure the box moves through the yard and back to the ship as quickly as possible.

By connecting all the relevant parties to a central web-based platform, modern

applications allow the seamless sharing of relevant information which results in a speeding up of the entire process. Reports, surveys, repair estimates and invoicing is made transparent and immediately available to all the parties involved.

With full visibility, the operator is able to closely monitor and control this complex process and push forward the repair.

Our experience shows that these control applications can reduce the amount of container stock tied-up in the repair and maintenance process by around 50 per cent. With a cost to the operator of around \$2 per box, per day incurred whilst a container is out-of-service, this is a significant saving for any size of operator. It also allows more boxes to be available to customers, thus maximising revenue for the vessel operator.

Leased containers

Whilst some carriers own a proportion of their boxes, most prefer to lease much of their container stock.

With such a large number of leased containers in circulation it is very easy for invoicing and other administrative mistakes to be made. Our customers estimate that operators are mistakenly overcharged by up to 5 per cent.

Modern software applications have been developed to allow the operator to track each individual leased container and to automatically detect any errors in billing by matching the lease invoices with the actual tariffs. Comprehensive systems also allow for operators sub-leasing boxes to other lines and will compile audit trails and statements of account for each individual box, if required.

Integrated software applications can perform similar tasks for detention and demurrage charges and costs.

Charging a customer demurrage is often a bone of contention which, if handled unsympathetically, has the potential to jeopardise a relationship. Good software applications will automatically calculate and issue regular demurrage invoices to clients on the premise that small, regular invoices are easier to handle locally.

Demands for large amounts often require 'head office' approval. A straw poll



Efficient management of containers can lead to significant savings. Photo: Maersk

of our customers reveals that around 20 demurrage days per box, per year are not collected – either through collection mistakes made by agents or through operators not wanting to upset customers by presenting large bills. Modern software will allow auto calculation of demurrage charges as well as auto billing of customers.

The same applies for detention charges where software will track and calculate detention charges per box. As with demurrage costs, around 20 per cent of the applicable charges are lost due to administration errors and with these charges amounting to somewhere between \$3 and \$4 per box per day, the total of lost revenue can be significant.

Container handling charges are also a cost that must be controlled. The issue is one of scale – large operators have many boxes distributed across very many terminals.

Handling costs vary by container type as well as by transshipment method. Keeping track of all these movements and their associated charges is a major undertaking. Through experience, we believe that at least 5 per cent of incorrect billing is due to administrative errors.

As with other elements, good software applications will allow each container handling activity to be tracked and the resultant charges cross-checked with previously agreed tariffs. Reconciliations are made and errors highlighted. These hard

facts are then used to settle any subsequent disputes with the terminal operator.

By streamlining documentation and managing billing queries more efficiently, the time period between raising an invoice and receiving payment can be reduced, thus improving cash-flow.

Software benefits

Installing a company-wide software suite that is able to handle all these functions – and more – and which is also able to communicate effectively with a range of company outstations and third-parties is not a cheap undertaking. But the return on this investment, generated from increased efficiencies and the correcting of billing errors, far outweighs the initial outlay.

Taking, as an example, a very small container operator with a fleet of just 5,000 boxes (500 owned and 4,500 leased) it is easy to see the potential savings, as illustrated in Table 1 (below left).

From this table we see how quickly the savings add up – even with modest cost assumptions and a very small fleet.

This small operator could realistically realise over \$ ½ million a year for an initial software investment of around a fifth of that sum. And since these savings are made year-on-year, this represents a significant saving.

But it is not only financial reward that it is important. Through building-in efficiencies the operator is also able to ensure more of its containers are available for its customers which maximises revenue as well as improving customer service.

And in the current period where rates are depressed, competition is fierce and containers are in short supply, this must be a good thing for all container lines. **DS**

Example - Container operator with a fleet of 5,000 boxes (500 owned and 4,500 leased)

Activity	No of boxes	Cost/rate	Amount per year	Savings
Maintenance and repair: Software reduces number in repair cycle from 7 per cent to 3.5 per cent	350 reduced to 175	\$2 per day reduced to \$127,750	\$255,500	\$127,750
Leasing: Up to 5 per cent overcharge due to billing errors	4,500	\$2 per day	\$3,285,000	\$164,250
Demurrage: 20 per cent uncollected due to admin errors	5,000 at 20 days per year	\$4 per day	\$400,000	\$80,000
Detention: 20 per cent uncollected due to admin errors	5,000 at 30 days per year	\$3 per day	\$450,000	\$90,000
Handling: 5 per cent due to billing errors	120,000 – assuming \$120,000 24 handlings per year	\$20 per move	\$2,400,000	overcharge
Total savings per year				\$582,000



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



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www.impa.net

FLIPPERS AND SHIPPING.

Right now fleet manager, Ian Campbell is sun-tanning after a challenging swim. The waves at China Beach, between Da Nong and Hoi An, were high and his flippers were reliable. Similar to his recent conversation with Martin Karlstad at Star Information Systems. Following a ship incident, he had some questions about the follow-up and control of a ship insurance policy. Professional answers. No delays, on time. SIS – a reliable maritime software partner.

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Services: Consultancy and Training

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Ronald Tan, Jason Electronics, and Lars Skjelbred-Eriksen, Hatteland Display, mark the companies' agreement

Hatteland Display has appointed **Jason Electronics** as its sole agent in Singapore. Jason Electronics will act as the support office for all customers in Singapore in addition to providing sales facilities for all Hatteland products.

Martek Marine has extended its installer training network for its Navgard Bridge Navigational Watch Alarm System (BNWAS) to include China, South Korea, India the UAE, Spain, Portugal, the Netherlands, Poland, France, Norway and Estonia, with Singapore as a planned hub for regional development.

Autronica Fire and Security has appointed **Alphatron Marine** as its new distributor in the Netherlands, responsible for domestic and Benelux sales and distribution and service of all Autronica fire detection systems.

Blue Sky Network has appointed Hamza Mohammed as director of business development for Middle East and Africa (MEA). Based in Kuwait, Mr Mohammed has more than a decade of experience providing satellite communications and tracking solutions having

worked with **Fleet Management Solutions** and **Streamlink Communications**.

Linkwave Technologies has signed a distribution agreement with **Furuno**, covering GPS modules and eRide GPS chipsets in the UK and Ireland markets.

Mobilarm Limited has announced that it has completed the acquisition of UK based **Marine Rescue Technologies (MRT)**. The sale and purchase agreement with MRT covers all Marine Rescue Technologies Ltd assets, including the entire Sea Marshall product line.

www.martek-marine.com
www.autronicafire.com
www.alphatronmarine.com
www.blueskynetwork.com
www.hatteland-display.com
www.linkwave.co.uk
www.furuno.com
www.mobilarm.com
www.seamarshall.com

JRC launches all-in-one LCD radar

www.jrc.co.jp

Japan Radio Co. (JRC) has announced the introduction of the JMA-3300 series radar, which combines a range of radar and navigational technologies.

It features a bonded, ultra bright 26cm LCD, backlit by white LED's giving 1000 candelas of brightness, and includes JRC's second generation automatic radar plotting aid, MARPA+.

Further features are the company's own 50-vessel AIS search function DirecTrak, as well as Semi-Constaview, a tool that allows fast processing of targets.

Antenna arrangements go from a 4kW radome to 6kW and 10kW pedestals (including 3 high-speed models in the 6kW and 10kW range), with antennas from 60cm to 1.8m.

A jog-dial and function keys for one-touch access to GAIN, SEA and RAIN are included, while the radar further features

4 soft-key switches that can be assigned by the user for simple navigation.



JRC's new system features a range of navigational technologies

ClassNK invests in maritime IT firm

www.classnk.or.jp

Japanese classification society ClassNK has reached an agreement to establish a capital tie-up with Japan Marine Science Inc, a firm specialising in maritime IT development.

The tie up agreement will see ClassNK take an approximately 20 per cent stake in the Tokyo-based company, which will issue new shares in exchange for a capital investment from the classification society.

ClassNK managing director Koichi Fujiwara will also take a position on Japan Marine Science's board of directors.

"With this partnership, we will be able to take advantage of the expertise and specialised knowledge that both our organisations have developed over the years, and apply it to developing new solutions

to the challenges faced by the maritime industry," said ClassNK managing director, Koichi Fujiwara.

"(This will include), for example, developing comprehensive IT systems to support vessel operations, and other advanced technology development."

This investment marks the first time in its history that ClassNK has invested money directly into an outside organisation, after a change in ClassNK's legal status in April which gave the Society a greater range of freedom in its operations.

"With targeted investments like this one with Japan Marine Science," said Mr Fujiwara, "it is our hope that we can help spark innovation, and play a more active role in the ongoing development, and continued success of the global maritime industry."

Totem Plus and Simrad ECDIS added to training centre

www.ecdis.org
www.totemplus.com

ECDIS Ltd has announced the signing of new training agreements with Israeli ECDIS provider Totem Plus and Simrad of Norway.

ECDIS Ltd provides navigation training, purchasing, charting and consultation in Electronic Chart Display and Information Systems (ECDIS), specifically providing Flag State approved IMO model ECDIS courses.

The training is offered either on the company's premises or in a location of the customer's choosing.

The Totem Plus ECDIS system that will be introduced for training features Dynamic Chart Licensing, as well as the COLREGS ADVISER, a collision avoidance decision support tool, which analyses the position, course and speed of all the ships in the vicinity, and advises the Master or OOW on the best course to take

in order to avoid collision.

The partnership is hoped to enable training to be conducted on Totem Plus' ECDIS systems in ECDIS Ltd's e-Navigation Centre in Southampton, UK. The training will be based on ECDIS Ltd's MCA accredited IMO 1.27 Model ECDIS course.

The new agreement with Simrad meanwhile will allow flag-state approved training on Simrad's CS68 ECDIS software, with a Simrad terminal and Simrad ECDIS software to be installed at the ECDIS Ltd training facility.

The Simrad ECDIS to be deployed features a shock-mounted central processing unit and a choice of input devices, as well as a voice alarm system which provides the operator with specific warnings distinguishable from other bridge alarms.

ECDIS Ltd and Simrad are also planning to open a new Simrad ECDIS training facility in the Netherlands, later in 2011.

"Our company aim is to represent as

many ECDIS manufacturers as possible in order to promote quality and usability across the market," says Mark Broster, managing director of ECDIS Ltd.

"With our position as the leading

authority on training and consultancy in the still-emerging and complicated world of ECDIS, (these new partnerships) will benefit the end-user considerably; that is, the operator at sea."



Simrad's ECDIS technology has been added to the ECDIS Ltd training facility



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www.harriscaprock.com/maritime-ds



Kongsberg simulators for Tromsø maritime school

www.kongsberg.com

Tromsø Maritime School has announced the signing of a ten-year agreement with Kongsberg. The contract, following an open tender, covers the deployment of Polaris simulators for navigation and dynamic positioning (DP) training.

The simulator package, enabling Tromsø Maritime School to meet Nautical Institute guidelines, includes a Polaris ship's bridge simulator (DNV class B), three smaller Polaris ship's bridge simulators, four Kongsberg K-Pos DP Basic Trainers (limited-task simulators) and a DP 2 Advanced Trainer (multi-task simulators).

These units will be interfaced with the main Polaris ship's bridge simulator for manoeuvring and DP advanced training.

The Polaris ship's bridge simulator is designed to offer a range of training possibilities including the specifically rele-

vant ice-navigation and oil spills emergency scenarios.

In addition, Tromsø Maritime School can integrate its existing Kongsberg

Neptune Engine Room simulator with the Polaris navigation and DP training simulators to enable environmental research and team training.



Ice navigation scenarios are an important part of Tromsø's simulator training

Veripos signs with PT Pagedo Utama in Indonesia

www.veripos.com

Veripos, a provider of GNSS positioning facilities, has announced the signing of an agreement with PT Pagedo Utama, one of Indonesia's independent offshore survey organisations based in Jakarta.

This will involve the supply of continuous positioning services aboard two Saipem construction support vessels, the

derrick lay barge, Castoro Otto, and the diving support vessel, Eclipse.

The ships are engaged in offshore projects for Carigali-Triton Operating Company in Malaysia-Thailand and Premier Oil for the Indonesian Gajah Baru gas field project.

Each vessel is being provided with Veripos's Ultra Precise Point Positioning (PPP) service for decimetre-level accuracies

together with Verify QC software for real-time position and quality control data and dual LD3-G2 integrated mobile hardware.

The contract is the third to have been recently awarded to Veripos by PT Pagedo Utama, the earlier ones covering provision of similar services for two three-year projects being carried out by the Indonesian company on behalf of Total E&P Indonesia.

e-MLX to install 55 ships with ECDIS for Korean Navy

www.ECDIS.co.kr

Korean maritime technology company e-MLX has been awarded a contract to install ECDIS for the Korean navy over the course of 2011.

The Korean Navy's ECDIS installation project is in its third year, having started

in 2009, with e-MLX having already completed a number of installations under the programme.

The company says that this year's contract is the largest to date since the project began, with 55 vessels to be outfitted in 2011.

Ships will be installed with ARPA

(Automatic Radar Plotting Aid) and ENC displays, as well as tools for route planning, monitoring and alarm indication.

e-MLX says that it has also previously supplied ECDIS to governmental vessels and school ships, but is now aiming to focus on commercial vessels ahead of the first ECDIS mandation deadline in 2012.

Digital Deep Sea AIS

www.digitaldeepsea.com

Digital Deep Sea has launched a new commercial grade Automatic Identification System (AIS) receiver designed for integration with onboard PCs, ECDIS or chart plotter systems.

The AIS features an industry standard NMEA0183 output together with a USB PC connection and has a built in multiplexer to allow other onboard NMEA data to be combined with the AIS information and consolidated as a single feed to other equipment.

The dual channel parallel AIS receiver is capable of receiving both Class A and Class B transmissions.

The company also offers a network version of the product for Vessel Traffic Services (VTS) and shore-based installations that may want to make AIS data available over the internet or local networks.

SRT publishes results

www.softwarerad.com

Software Radio Technology, UK developer and provider of maritime identification and tracking technologies and products, has published its results for the year, showing a 157 per cent increase in revenue to £9.15m.

The company, which had to bear a loss of £0.2m in the previous year, announced a profit after tax that is £2.17m ahead of market expectations.

The company also notes that it has a forward order book of over \$3 million already in place, as of the first six months of 2011.

SRT says that demand for its Class A AIS product has been a significant contributor to these results, boosted by an EU Inland Waterways mandate, and that it has also benefitted from more general

growth in demand for AIS across the globe.

"We entered the new financial year with a significant and growing addressable market, an active and established global network of customers and a wide and increasing portfolio of market leading products," says Simon Tucker, CEO of SRT.

"The market for what we sell is booming. There are government laws coming in around the world requiring boats to fit these transponders and we have a virtual global monopoly."

"A million boats need to fit a tracking device over in the next four years, of those, only 15 per cent thus far have had them fitted. There are more mandates that will probably affect millions of boats over the coming years coming up. Next year we expect to see revenue of £16m and profit of £4m."

New SSAS and LRIT Mini C terminals from Thrane

www.thrane.com

Thrane & Thrane has developed a pair of new SSAS and LRIT mini-C terminals designed for the merchant marine and off-shore sectors, which have been available from July 1 2011.

The SSA system, SAILOR 6120 SSA, is based on the SAILOR 3000 SSA, introduced in 2004. The system has a multiple address functionality enabling additional messages to be sent to the vessel owner or operator, in addition to the required flag state and ship owner message in relation to the ISPS code.

The company states that further changes include smaller alert buttons and simpler configuration and re-configuration, which can also be done remotely and requires no crew interaction.

The SSA system is approved by Inmarsat and all major classification societies and national flag state administrators, and meets the IMO requirements.

Thrane's other new unit, the SAILOR 6130 LRIT, is the successor of the SAILOR 3000 LRIT and can be used for LRIT compliance.

Both the SSA and LRIT terminals feature a new Thrane 6194 Terminal Control Unit (TCU), which is the key connection point in the system. The TCU has a range of LEDs that allow operators to quickly determine system status such as power, Inmarsat log-in and GPS fix. The status is indicated by the alert and test buttons.

The SAILOR 6120 and SAILOR 6130 come in a self-contained and sealed design, housing both antenna and transceiver. They are suited to an outdoor maritime environment and can be operated using the new SAILOR 6006 touch screen message terminal.

The terminals operate using a 50 channel GPS module and high gain omnidirectional antenna, and utilise the new ThraneLINK network protocol.

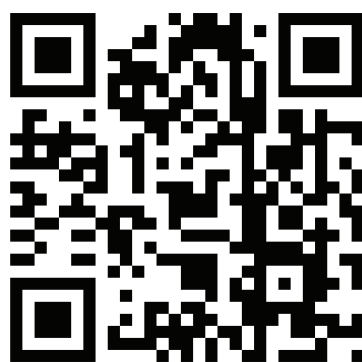


Thrane's new SSA system has additional messaging capabilities

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AISSat-1 reports successful first year

The AISSat-1, a Norwegian nano-satellite tasked with investigating the feasibility and performance of a spacecraft-based Automatic Identification System (AIS) sensor in low-Earth orbit (LEO) as a means of tracking maritime assets, has served its first year in space.

AISSat-1 was built in cooperation with the Norwegian Defence Research Establishment, Kongsberg Seatex, the Norwegian Coastal Administration and the Norwegian Space Centre.

The satellite's technology is deemed to have successfully proven its efficiency, with the developers claiming that it has shown flexibility in situations where additional information about sea traffic is necessary.

In particular, this technology was used

by the Norwegian Coastal Administration to support Japanese authorities by supplying data to assist with search and rescue operations after the tsunami in March 2011.

The Norwegian Space Centre has decided to launch a second satellite, AISSat-2, which will have close to the same orbit as AISSat-1, with an AIS payload to be developed by Kongsberg Seatex.

"For Kongsberg Seatex this is a very nice milestone. Our contribution to the satellite is the AIS receiver payload," says Gard Ueland, president of Kongsberg Seatex.

"We have demonstrated that our technology and knowledge is adequate for this type of application. We look forward to continuing the development of our technology for many uses, including similar space-based vehicles in the future."



The AISSat-1 satellite has completed its first year tracking ships from space

Euronav launches seaPro Pilot

www.euronav.co.uk

Euronav, a UK provider of electronic charting and navigation products, has announced the launch of its seaPro Pilot software system as part of the seaPro Pilot PPU solution.

seaPro Pilot is a portable navigation and information system. It enables ship pilots to use their own navigation system, thus rendering them independent of the ship's ECDIS.

The seaPro Pilot software features docking tools, range and bearing information, weather overlays, interfacing with wireless pilot port units, multiple route selection, secondary fix display, ENC chart display and user overlays including import of DXF files.

Euronav says that the software has been developed in close collaboration with UK and international pilots. It can be purchased alone or as a complete PPU solution.

STX to deploy Navis DP system

www.stxeurope.com

www.navisincontrol.com

Finnish dynamic positioning system developer Navis Engineering has announced the signing of a new contract with STX Finland Oy, as well as the release of a Chinese language version of one of its systems.

The new contract is for the supply of Navis' NavDP4000 DP technology to Aura II, a STX vessel currently under construction and due for delivery in 2012.

The soon to be deployed NavDP4000 is the latest of Navis' DP systems, upgrading the previous version, Navis IVCS. The system utilises touch-screen operation thus offering fast access to all system functions whilst featuring fewer buttons on the main control panel.

It also includes intelligent and flexible power management system, providing high speed dynamic positioning reaction to switching-on external power consumers. The system is claimed to protect the user from power blackout failure and reduces power consumption.

Another feature of Navis' DP systems is the Thrust Ability Diagram, which in real-time mode shows all possible combinations of control forces in the surge and sway axes for a given value of the rotational control moment and thruster availability and/or allowed power load.

The deployment of the Navis DP1 class

system will ensure that AURA II meets Bureau Veritas DYNAPOS AM/AT class notation requirements.

In other news, Navis Engineering, has announced the launch of a Chinese version of its NavDP4000 dynamic positioning system graphic user interface (GUI) and voice alarms, to better serve the growing fleet of Chinese-flagged offshore vessels manned with Chinese-speaking crew.

Recent deliveries of the NavDP4000 to Chinese ship owners include a DP1 system installed on a suction hopper dredger ordered by CCCC Tianjin Dredging, DP1 systems for a series of 77 m long AHTS built at Zhejiang Jiantiao Shipyard and a DP1 system for a heavy lift vessel built at CCCC Bomesc Marine Industry.

"Ever since we started working closely with Chinese shipyards in 2008, we have been aware of a problem of interaction with shipyard engineers on technical issues," says Vladimir Antonenko, project director, Navis Engineering.

"It has been an issue of language alone. We came to realize that this was a market reality that had to be accepted: the majority of shipyard staff and the crew of vessels under the flag of China are Chinese-speaking only and we had to adapt to this situation. Developing a Chinese language version of our DP GUI made perfect sense."

Transas retrofits ECDIS for BSM

www.transas.com

www.telaccountoverseas.com

www.bs-shipmanagement.com

Transas Marine is to partner with Telaccount Overseas in order to complete an ECDIS retrofit programme for Bernard Schulte Shipmanagement's (BSM) fleet of 320 vessels.

According to the contract, Transas will now act as a preferred supplier for BSM and will supply Navi-Sailor ECDIS 4000 Multifunction Display systems to both retrofits, 14 of which have been completed

so far, and to new builds.

The package will also include the recently launched Transas Bridge Link (firewall system) and Admiralty Information Overlay with T&P Notices as well as the Transas Admiralty Data Service (TADS), which is an official SENC service that will be supplied to a part of the fleet.

Transas has further agreed to provide crew training and service support, with BSM to convert its own training centre into a Transas Global ECDIS Training Network (GET-Net) partner.

Transas GMDSS simulator for Australian Maritime College

www.transas.com

Transas has announced that the installation of the company's GMDSS Simulator TGS 5000 at the Australian Maritime College has been completed by Transas' partner Electrotech Australia.

The Transas TGS 5000 provides training and examination for the General Operator Certificate (GOC) and Restricted Operator Certificate (ROC). Search and Rescue (SAR) operations and VTS operator training are also supported. It complies with the STCW 2010 Code and IMO Model Course 1.25, and is type-approved by DNV.

The system utilises two instructor stations interfaced to fifteen student stations

thus accommodating classes of up to 24 students. The system is remotely supported through VPN access and simulates a range of GMDSS equipment.

"This investment has allowed AMC to enhance the student learning experience by allowing more hands-on training time through the use of realistic and powerful simulations," says John Lloyd, director of AMC National Centre for Ports and Shipping.

"The exercise designs allow best value to be gained from the training in the most efficient way possible. Increased efficiency has been obtained by allowing up to 24 students to undertake the course in a facility previously limited to a 12 person capacity."



The GMDSS simulator at AMC allows up to 24 students to be trained at once

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Confirmed speakers and sessions at Digital Ship Korea include:

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Patrick Slesinger, CIO, Wallem Ship Management
- **How to Survive Piracy - Anti-Piracy Systems**
Captain G.C. Choi, General Manager, Hanjin Ship Management Co. Ltd.
- **Shipdex - A Paperless Wind Started Blowing on Korean Seas**
Marco Vatteroni, ILS Manager, SpecTec Group & K.S OK, Managing Director, KJ RADIO Co., Ltd.
- **How to Improve Crew Performance**
D.C. Jeong, Team Leader / General Manager, Haeyoung Maritime Services Co., Ltd.
- **Why Managing Ships without a Fleet management Software in Place has become an Impossible Task**
Giampiero Soncini, CEO, SpecTec Group
- **The Green Ship Concept**
Matti Salo, President, Napa Group
- **Developments at Inmarsat – FleetBroadband, FleetPhone and Ka-band Global Xpress**
Chris Lim, Maritime Market Manager – Asia Pacific, Inmarsat
- **What is a Smart Ship?**
S.H. Choi, Engineer, Electro Electric Systems, Hyundai Heavy Industries Co. Ltd (HHI-EES)
- **Green Technologies for Future Ship Design**
Nuno Kim, Naval Architect/Senior Engineer, Basic Design Group, DSME
- **IMO e-Navigation and Korean Preparation**
Yung Ho Yu, Professor of Korea Maritime University, Head of Advanced IT and Ship Convergence Center, Outside Director of Korea Marine Electronics Industry Promotion Association, Chairman of IEC TC 80K and TTA PG 607
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Innovative training and floating classrooms

Training young officers and cadets onboard is not a new concept in the shipping industry. However, one unusual innovation is the idea to implement a complete simulator training facility on a vessel. Intership Navigation, part of the Hartmann Group, has ventured into these uncharted waters. Angelos Demetriou and Rene Dzicki shared an intriguing experience with *Digital Ship*

Experienced and thoroughly educated crew are an essential ingredient in running successful shipping companies. However, obtaining such crew has become increasingly difficult in recent years.

While a variety of different approaches to remedy the shortage have been tried, with varying levels of success, Cyprus based Intership Navigation (ISN), a member of the German Hartmann Group, has opted for a particularly innovative solution – implementing complete simulator training facilities onboard ship.

The Hartmann Group prides itself on having a long standing tradition with regards to training its seafarers. Having launched its own training school in Manila in 1994, the company says that the idea to relocate part of the conventional land based training onto the vessel was the logical next step in taking training activities to a higher level.

The onboard simulator training employed by ISN, with its numerous different modules, aims to enable students to not only learn to navigate the vessel they are sailing on, but also to be comfortable working on any other type of vessel sailing in the Hartmann Group fleet.

As Rene Dzicki, training manager at ISN, notes, the key goal of the project is to provide cadets with the thorough training and hands on experience required to safely join and handle any other ship type after the completion of their education.

“Within the Hartmann Group we consider training as extremely important to ensure that there will be sufficient qualified seafarers in the future,” he says.

“We live shipping and by doing that, we have been observing the shipping market for many years and are trying to establish early what is best for us to sail safely not only in smooth waters but also to stay afloat in times of depressed (shipping) markets.”

The Hartmann Group has been running a cadet training scheme for 17 years, and the company is proud of the programme’s success, which is completed by approximately 120 cadets every year.

Until now, cadets were trained in the training centre on shore for a period of four months before they were released to join their first ship. This would be followed by additional further training periods on shore supplementing the seafarers’ transition through the ranks.

“We consider well-trained and competent officers as the biggest assets in our company,” says Mr Dzicki.

“Our training efforts are an investment

in the future of the company. The on-board simulator training is the logical extension of our on-shore training activities.”

When asked about what the key element was in dissuading the company from continuing to pursue its programmes at conventional training centres, Mr Dzicki’s answer is straightforward; “Very simple – they don’t float.”

Implementation of a new scheme

Hartmann Group decided to implement this new training scheme, devised by the ISN IT, training, crewing and technical departments and supported by Raytec Marine, as part of the construction plans for two capesize vessel newbuilds ordered by ISN.



The DHL Pacific was constructed with an additional bridge to be used for training

The Chinese shipyard was instructed to build an extra deck to accommodate a classroom with the training facility, containing simulators, real ship’s equipment, screens and workstations, as well as additional accommodations for 10-12 cadets.

Based on its previous positive experiences with Transas simulators in the Manila training centre, ISN decided to use the same simulators and real bridge equipment for the onboard training scheme. The set-up, however, was much more complex, and transforming the concept into a feasible design took ISN several months.

“The concept was simple, but the design and implementation were hard,”

says Angelos Demetriou, IT manager ISN.

“We had simulator designs from our training school simulators in ISNTC (ISN Training Centre) in Manila, but we had to incorporate the onboard real equipment, as well as cater for secondary navigation equipment like extra radar, AIS and GPS installations on the vessels.”

To make the system as flexible as possible, the bridge simulator, deployed on an extra deck, was designed to serve dual purposes. In ‘training mode’ the simulator was set to cater for the various available conventional training modules, but a significantly different ‘real mode’ was also introduced.

During ‘real mode’, instead of running pre-designed generic modules, the monitors are set to display real live data from

previously only study pre-designed modules, cadets onboard would now be able to learn under more flexible real life conditions, whilst still using a simulator.

In this way they would they would be trained in sailing a vessel within its own environment, allowing a maximum amount of hands-on experience before actually taking over responsibility.

Deploying hardware and software

In addition to this complex simulation technology, the implementation of the training scheme required the installation of new software systems as well as the set-up and interconnection of different networks.

In a nutshell, this meant creating a unique simulator training centre solution, specifically adjusted to the conditions at sea.

When Hartmann Group developed its own training centre in Manila in 1994 the company selected Transas simulators. The following years of satisfactory experience with the technology led the company to turn to Transas again in developing this project, as Mr Demetriou recalls.

“The Transas simulators used in our training centre have proven to be very reliable, as well as versatile, being able to simulate several types of ships,” he said.

“So we chose to continue in this line due to the partnership with Transas, as well as the knowledge we had built over the years and their proven efficiency.”

A bridge simulator, identical to the ones used on shore, was subsequently installed on one vessel, while the second vessel was equipped with simulators for the engine room, generator, propulsion and electrical plant, auxiliary systems, hydraulics, pneumatics and electronics (with installations managed by Transas’ partner Raytec Marine).

In addition, the real equipment necessary for the comprehensive training system that the company had envisioned was installed and linked to the bridge simulator. These tools, supplied by Raytheon Anschuetz, who had been ISN’s main bridge equipment supplier for a number of years, included the conning display, a navaid simulation station, Radar ARPA, GMDSS and a briefing/debriefing station.

Training supported by VSAT

With the new training scheme ready to be deployed, ISN also decided that it would need a new satellite communications solution to facilitate data transfers between the

training ships and the shore.

Not essential for the simulation training onboard as such, the implementation of a secure and financially feasible internet connection, enabling round-the-clock connectivity, was nevertheless deemed necessary to support the training concept.

Internet availability would enable cadets to use the company's intranet, avail themselves of specific online training software and contact their instructors in the training centre on shore. Moreover, it was hoped that continuous access to corporate sites would accelerate the training progress and promote ISN's corporate identity amongst the cadets.

A reliable internet connection was further needed to communicate simulation data and results back to the training centre, as well as to provide remote support to the crew and instructors and allow for remote monitoring of equipment performance.

"As much as you would try to simplify things onboard to be able to have full local support, and even though we had an administrator onboard who is also an IT knowledgeable person, some issues may need to be addressed from the office, as we could have some 'teething' problems on the setup," says Mr Demetriou.

"We wanted to be able to access and monitor the servers, services, and usage, which proved to be almost flawless. Other than a couple of times in the first 2-3 months since installation, we did not need to access remotely any servers/PCs."

As it began to explore the communications capabilities required to apply these services the company realised that the existing satellite communication systems on the Hartmann Group vessels were unsuitable with regards to pricing and coverage.

It was decided that the optimal solution would have to provide an always-on, flat-fee internet connection. Due to its pricing structure C-band VSAT was ruled out, and instead, ISN decided to implement a Ku-band VSAT solution and use FleetBroadband (FBB) as a back-up.

Mr Demetriou recalls that the decision making process was a difficult one.

"We already knew the ships' planned routes, so we knew that we would have a lot of time trading and sailing at the edge of the coverage map, as well as trips from south Africa to south America, which is not covered for 80-90 per cent of the trip," he said.

"Still we chose to install it, as the trade and nature of the vessel would leave the crew 'stranded' for days, weeks, even months on anchorage, without any possibility of purchasing GSM or internet from shore. So VSAT would act as their gateway to the internet and connection to the world and their families."

ISN considered various different satellite communication providers and ultimately chose a VSAT solution from MTN.

"The reason for the choice was the good coverage on certain trouble areas, the fact that there were no extra costs in the Far East/ Australia regions and the provision of bigger antennas, which granted better coverage on the edge of the satellite footprint," Mr Demetriou recalls.

"A further advantage of choosing MTN was that over bursting was allowed, up to

more than 100 per cent of our dedicated committed rate. The very clear fair usage policy and limits, unlike the extremely vague guidelines from other suppliers, (were also very convincing)."

Managing a complex set-up

Once the internet connectivity had been established, ISN went on to selecting software that would provide traffic control, network security, caching and compressing of website content, as well as managing the switch-over from VSAT to FBB.

As a long standing partner of ISN Dialog was chosen to provide this solution, which also included e-mail capabilities.

ISN decided to organise its onboard communications technology into three completely independent systems – the ship's business network, the training/school network and the crew network.

"The reason for this was to maintain security and stability of the PCs and servers, as well as being able to treat them individually through segregating," explains Mr Demetriou.

"This allowed us to keep a very simple configuration, instead of having complicated configurations like VLANs, or subnets, or other segregating techniques, which could be difficult to recreate in case of hardware or software failures."

"Finally, the cost impact on this solution was very minimal, which came down to a couple of extra switches and a couple of network cards."

Another motivation for the separation of networks was that ISN does not monitor the private crew network. This is therefore regarded as an 'unsecured' network and consequently kept separate from the remaining systems.

"No one can move around through the networks, since there is no physical link between them," says Mr Demetriou.

"Separate network switches are used to segregate nets. Only Dialog is connected to all three networks, which controls the access to the internet and e-mail systems."

"The Dialog server is the only server where all three nets are connected and it controls the internet traffic to all three. The VSAT and FBB connections also only terminate at the Dialog server for complete traffic control and security."

The DuoCore Pro software provided by Dialog also offered a solution for traffic control, as it was able to monitor the traffic passing through the three separate networks as well as managing the content allowed through the VSAT and FBB.

"DuoCore Pro blocks the restricted traffic before it reaches the satcom units, saving on traffic costs on pay per MB," notes Mr Demetriou.

"(It includes the software) Web4Sea, which proxies all websites through Dialog Proxy. It also performs checks on allowed site lists, content types, user access, puts priorities on traffic, and optimizes packets."

"Dialog Proxy clears, checks, compresses, and delivers websites. Then, it stores them to a local cache, for other users to load, that way data transmitted is optimised to the maximum."

Automatic failover switching is also managed by the software, to ensure that

the cost-efficient VSAT solution would be used whenever possible. The software switches over to the FBB back-up system only in a case of insufficient coverage, or when the VSAT is unavailable for some other reason.

Moreover, the software was able to provide different settings for VSAT and FBB. Under the regular VSAT connection standard content and throughput would be



"The concept was simple, but the design and implementation were hard" – Angelos Demetriou, Intership Navigation

allowed, whilst accessibility would be restricted to a minimum if FBB was on.

With VSAT content such as ChartCo updates, ship's mail and crewmail, remote access, DNS, specific training websites, corporate sites, instant messaging software as well as ordinary content for the crew's leisure are all available. Only animations, streaming, flash and other data similarly high in volume, are blocked.

If VSAT coverage is unavailable and FBB has to be reverted to, only ChartCo updates and e-mail are permitted. All other content, including DNS, is not accessible.

Although ISN decided to continue simulator training sessions through FBB-connected periods, test and simulation results would be collected offline and stored until a VSAT connection could be established, and then sent out to the instructor in the training centre on shore for recording and evaluation.

Benefits of a floating classroom

The Hartmann Group had high expectations for the simulator training project, but, after the successful implementation of the floating classroom, the company's verdict is unambiguous.

"Our expectations have been met to the fullest," says Mr Dzicki.

"Right now we are preparing ratings for their first assignment as junior officers and engineers. Students step on board as ratings but leave the training vessels as competent and assured junior officers or engineers keen to enter their 'new' trade!"

While this project necessitated a significant investment in hardware and software, the financial impact of the onboard simulator training in comparison with the conventional land-based approach has not been an issue for the company.

Mr Demetriou notes that the Hartmann

Group is unfazed by the commercial considerations in this sense, and is focusing on different objectives as part of its educational philosophy.

"Training is always expensive, on shore or on board," he says.

"We do both, hence we don't compare! The goal is set – zero accidents, zero incidents, zero deficiencies, zero delays and maximising performance!"

The new training scheme, aided by the VSAT implementation and the latest hardware and software, has also had a positive impact on crew morale. Crew can use instant messengers, check their webmail, stay up to date with the latest news, and contact their family via e-mail, text message or phone.

"Crew morale, and system usage peaked within the first few days. Everyone's happy and the GBs show it," says Mr Demetriou.

Mr Dzicki adds "Intership gives great emphasis to crew welfare and retention rates. A happy and satisfied seaman will deliver a good job. Commitment to training and commitment to the employee in general has always paid off; and it will do in the future, regardless if you are among the top payers."

Future training in a VSAT era

Despite the relatively recent deployment of its onboard simulator training project, the Hartmann Group is already looking at new means of improving the company's training scheme.

Live monitoring is amongst the possible new options which Hartmann Group says it will consider in the future. This could be introduced as part of another pilot project for the vessels already featuring the simulator training facility.

The company further plans to expand Hartmann Group's e-learning concept to incorporate additional elements to enhance crew education.

"E-Learning is of course part of our philosophy of taking training anywhere the crew goes, for continuous evolving of the crews' knowledge, and with Hartmann e-learning we are providing this to the crew onboard and on shore," says Mr Demetriou.

The Hartmann Group has further ambitious plans for the future use of its VSAT solution, and is already experimenting with different methods to optimise the connection speed. Again, training and crew welfare are the key driving factors in this process.

"We are already supplying the crew with free internet, and free e-mail (e-mail is available even if no VSAT is available), and we are considering extending our VSAT coverage to the rest of the fleet," says Mr Demetriou.

"We are always keen to provide the crew with other solutions that would increase their welfare onboard, even though it may be harder in these turbulent times."

Whether the concept of floating classrooms spreads across the seas remains to be seen. However, Hartmann Group has certainly got an intriguing head start with its innovative training methods in the evolving era of internet connectivity onboard.

Getting to grips with e-navigation

Despite IMO's e-navigation project having now been underway for a number of years, many in the industry are none the wiser as to what e-navigation will actually mean. **Dr Andy Norris** outlines the developments to date

Since 2006 IMO has been working towards defining the future of bridge and associated operations through its e-navigation programme. The complexity and formality of the process makes it hard for many to understand where it is all leading to in a more practical sense.

This article attempts to predict what the future e-navigation world will look like from the perspective of a shipborne user, based on where the formal IMO process is right now and its likely outcome.

In fact IMO will not complete its Strategy Implementation Plan until 2014, when the undoubtedly slow process of actual implementation can commence.

Importantly, e-navigation is being developed to allow its continued evolution. It is an integrated methodology rather than a fixed system and is therefore likely to form the basis of maritime systems for many tens of years.

What is mainly discussed here remains a prediction of its relatively early introduction – perhaps even remaining valid into the late 2020s. However, predictions of likely timescales can be notoriously inaccurate.

A networked world

The simplest way of looking at e-navigation is that it is essentially an example of the networked world, geared to the 'safety, efficiency and the environmental compatibility' of shipping.

The ship's bridge system forms part of that network but the rest comprises the relevant outside world – other ships, aids-to-navigation and shore-based operations.

The e-navigation network is not a single physical entity and necessarily relies on mainstream but ever-evolving technology, much of it the very same facilities that we already use for internet connection but some directly geared to particular maritime requirements.

The network is used to automatically exchange necessary data between its 'nodes' such that appropriate and up-to-date information is always available for the humans and machines involved in the overall e-navigation process.

A typical human-oriented node is a particular workstation – a computer display with a standard or specialised keyboard – either onboard ship or in the offices of a shore organisation. On ship, these would replace single purpose displays, such as those now typically used for radar and ECDIS.

Machine only nodes may, for example, be an onboard navigation sensor, such as a GNSS receiver, a system providing data from a buoy, or a server running specialised software at a shore based supplier of data.

A simplified view of an onboard e-navigation network is shown in the illustration. In principle, all the ship's communications facilities are connected to the network, be they satellite or terrestrial, together with all the navigational sensors and workstations.

Through appropriate software, the

workstations on the bridge are used to specifically access and process the networked data and provide the interface with the human user.

The OOW requires specific situation dependent information to be easily accessible and continues to make all fundamental decisions concerning the navigation and safety of the vessel.

Of course, security and integrity are essential if such systems can be relied upon. Ensuring this is not a trivial matter, and it must be inbuilt into the e-navigation concept.

Communications

The workstations also provide human access to the communications systems.

The infrastructure of e-navigation will undoubtedly embrace great flexibility concerning communications, with potentially only limited need for special e-navigation channels.

It fundamentally requires wireless digital data links, although the essential data can be constrained to be relatively small when there are bandwidth or cost issues.

would be made with a high degree of automation, not least because of the variety of options that could be available, each with different costs and capabilities.

Voice links will become data streams over a digital link although existing services, such as VHF and MF, could co-exist with e-navigation for as long as required but eventually would have relatively little significance to a fully fitted e-navigation vessel.

If needed, access to existing VHF and MF services could, in principle, be made via a workstation.

E-navigation apps

Not surprisingly, the envisaged applications running on e-navigation workstations are already being referred to as 'apps'.

An idea being put forward is to have a two-level approach.

Level 1 apps would be for critical systems, such as radar and ECDIS, and would meet and be type approved to stringent IMO requirements. In particular the required human machine interface could become more tightly defined than on pres-

an easily assimilated manner.

However, it could be envisaged that a Level 2 app is always accompanied by an on-board training package that meets certain minimum requirements, perhaps including assessment tests to show whether an intending user of the app is satisfactorily competent.

It is likely that Level 1 apps would generally evolve slowly, being bound to detailed IMO requirements. This would greatly ease training and the transfer of bridge team members to different ships. Such apps would have a feeling of being steady and safe, even if a little old fashioned.

Level 2 apps would be different. They would evolve as fast as necessary but would obviously need to meet the immediate needs of their purchasers. Poor apps would not be bought. This is the innovative end of the market and where future advances will be concentrated.

Implementation

It is relatively easy to envisage a new build integrated bridge based around e-navigation workstations. What is more difficult to envisage is how at least some of the benefits of e-navigation can be brought to existing ships.

In principle, this could be achieved by the fitting of a single e-navigation workstation, possibly as a 'back-of-bridge' system and used mainly for route planning using digitally supplied information.

The workstation could potentially also be the main display and controller of an IMO-defined integrated navigation system that would provide much needed positional integrity, although the display of such functionality is ideally situated close to the conning position.

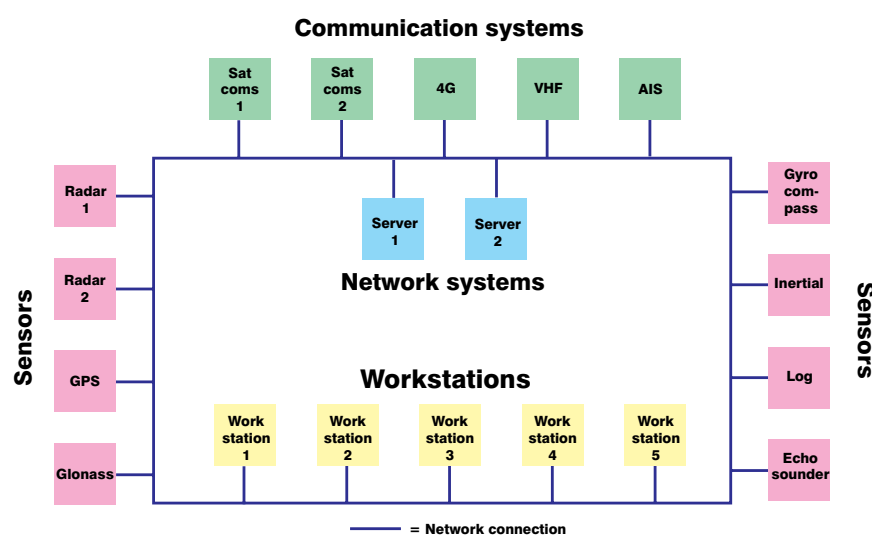
For such retrofits, consideration should perhaps be given to allowing appropriate lightweight designs to be used for workstations rather than conventional floor mounted systems. This could enable several workstations to be fitted in near optimum front-of-bridge positions on existing bridges.

In any case, if any workstation is being used for critical activities a backup is absolutely necessary. A dual workstation system is therefore potentially a minimum fit.

The initial introduction of e-navigation will almost certainly be on a voluntary basis. For this reason it is essential that the financial benefits are clear if it is to succeed.

In principle, with the right retrofit workstation technology running safety enhancing and/or cost saving apps this should be quite feasible to achieve.

E-navigation is therefore poised to lead to both a safer and a lower cost future. **DS**



A simplified view of a future networked e-navigation bridge

Existing and evolving commercial satellite services are generally compatible with an e-navigation future. Undoubtedly, satellite use will continue to increase steadily and for e-navigation it could become the dominant method of interconnection, even for coastal use.

However, the technology and standards for suitable terrestrial coastal links are already effectively embraced in the so-called fourth generation (4G) mobile phone networks, which are poised to replace existing mobile phone services.

The possibilities of using 4G and its future evolution for maritime use was explored in the December 2010 issue of *Digital Ship*.

An enhanced AIS-like service is essential for e-navigation. Unfortunately, the present-day AIS has relatively low levels of security and integrity, limiting its effectiveness, and so needs to be eventually upgraded.

The decisions on using the best-available communications channel for any situation on a future e-navigation based ship

ent day systems, ensuring a greater similarity in use of equipment between ships.

All critical navigation decisions on the ship would need to be made with reference to Level 1 apps and it would make sense that they are necessarily displayed on at least one appropriately positioned workstation at all times.

Level 2 would cover all other applications. They will need to meet certain IMO-defined requirements to ensure compatibility with e-navigation and basic safety but type approval requirements could be minimal.

Such apps would evolve to meet the market requirements and could, for example, help to generate fuel or pollution saving routes, or provide relevant port data in



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

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